

Gordon Lake Group Sites - Long-Term Monitoring Year 5

Crown Indigenous Relations and Northern Affairs Canada

Project number: 60710609

April 22, 2024

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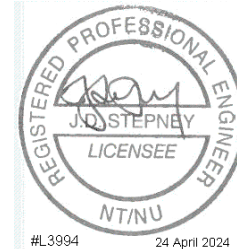
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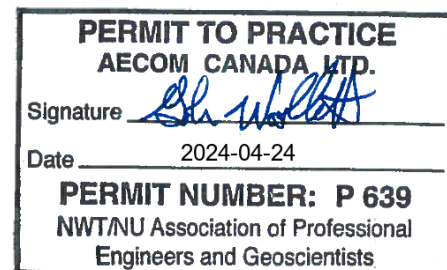


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Executive Summary

AECOM Canada Ltd. (AECOM) was contracted by Crown indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Directorate (CIRNAC-CARD) to conduct the Year 5 Long-Term Monitoring (LTM) program at the Gordon Lake Group (GLG) of sites. The program is comprised of six mine sites and three advanced exploration sites located approximately 80 kilometres northeast of Yellowknife, NT. The sites are as follows:

- Burnt Island (mine sites)
- Camlaren (mine site)
- Goodrock (mine site)
- Kidney Pond (mine site)
- Murray Lake (advanced exploration site)
- Storm property (advanced exploration site)
- Treacy (mine site)
- Try Me (advanced exploration site)
- West Bay (mine site)

The purpose of the Phase I LTM Plan is to verify that the selected remedial/risk management measures implemented during the remediation program remain protective of human health and the environment by monitoring the potential for residual risks remaining at the nine Sites following the completion of the Gordon Lake remediation program.

SNP and Surface Water Monitoring

Under Phase I of LTM, Year 5 consists of monitoring the Surveillance Network Program (SNP), consisting of groundwater (six locations at Camlaren) and surface water sampling in 18 locations; one location at Burnt Island, seven locations at Camlaren (two locations dry and not sampled), one location at Kidney Pond, one location at Treacy, eight locations at West Bay (two of which were dry and removed from the scope, five locations are additional surface water locations at West Bay). Surface water sample analysis consisted of:

- In-Situ parameters: temperature, specific conductivity, total dissolved solids, pH, turbidity, dissolved oxygen, oxidation reduction potential
- General chemistry: total ammonia, total nitrate + nitrite, total phosphorous, orthophosphate, total organic carbon, pH, temperature, conductivity, alkalinity, calcium, chloride, hardness, magnesium, potassium, sodium, sulphate, total suspended solids, total dissolved solids
- Total metals: total elemental analysis by ICP-metal scan of ICP-MS 24 element scan: includes all elements in total metals plus antimony, arsenic, barium, bismuth, cesium, chromium, lithium, thallium, uranium, vanadium.
- Hydrocarbons: extractables hydrocarbons, benzene, toluene, ethylbenzene, xylene, extractable petroleum hydrocarbons

Results of the Year 5 monitoring indicate generally consistent results to previous Years; however, some exceedances were reported in Year 5 which were not reported previously at stations 2016-11a, 2016-11b3, and 2016-11d. It is unknown at this time if there is an increasing trend in metal concentrations, however it should be noted that 2023 experienced persistently dry conditions and decreasing water levels, which may have increased the overall metal concentrations.

TSCA Performance and Geotechnical Assessment

Under Phase I of LTM, Year 5 monitoring consists of Camlaren Tailings and Soil Containment Area (TSCA) performance monitoring including recording measurements from thermistors, standpipe wells, and vibrating wire piezometers at eleven locations. A geotechnical visual dam inspection was also completed, results of which are discussed in a separate letterhead.

Results of the Year 5 monitoring of thermistor VT2 indicate generally consistent results to previous Years; however, it was noted that temperature data collection at the VT1 location has been disrupted and data after September 18, 2022 has not been collected. Unless the VT1 sensor has been deliberately decommissioned, it is recommended that this sensor be inspected and repaired or replaced if further monitoring is required.

Results of the Year 5 monitoring of the vibrating wire piezometer locations VB1, VB2 and VB3 indicate generally consistent results to previous Years; however, it was noted that data collection for VW52117 at the VB2 location has been disrupted and data after September 4, 2020 has not been collected. This data collection disruption for VW52117 has been noted in the previous Year 3 and Year 4 LTM reports. It is recommended that the VW52117 sensor be inspected and repaired, or replaced during Phase II of long-term monitoring.

Groundwater sample analysis consisted of:

- In-Situ parameters: temperature, specific conductivity, total dissolved solids, pH, turbidity, dissolved oxygen, oxidation reduction potential
- General chemistry: total ammonia, total nitrate + nitrite, total phosphorous, orthophosphate, total organic carbon, pH, temperature, conductivity, alkalinity, calcium, chloride, hardness, magnesium, potassium, sodium, sulphate, total suspended solids, total dissolved solids
- Total metals: total elemental analysis by ICP-metal scan of ICP-MS 24 element scan: includes all elements in total metals plus antimony, arsenic, barium, bismuth, cesium, chromium, lithium, thallium, uranium, vanadium.

Results of the Year 5 monitoring of standpipe wells indicate generally consistent results to previous Years; however, some exceedances were reported in Year 5 which were not reported previously at stations MW1, MW3, MW4, MW6. It is unknown at this time if there is an increasing trend in metal concentrations and will be evaluated in the Performance Assessment Review (PAR).

Visual Monitoring

Visual monitoring at all nine sites include inspection and identifying the following; erosion, frost action, sloughing and cracking, animal burrows, vegetation re-establishment and percentage cover, vegetation stress, soil or water staining, odours, seepage points or ponded water, exposed debris, and any other features which may compromise the integrity of the site.

Areas for further observation or repair are:

- Camlaren – Impacted soil areas CAM_SO_04, CAM_SO_06, and CAM_SO_07: stained soil in four separate locations. One location exhibited faint hydrocarbon odour. It is suggested that during the Year 6 monitoring program that the stained soil locations continue to be observed for changes. The areas could be excavated via a shovel with soil being removed from site in 5 gallon pails.
- Camlaren – The aluminum debris pile located north of the TSCA should continue to be observed for any changed in the Year 6 monitoring program.
- Kidney Pond - Impacted soil area KID_SO_07: areas of settling likely caused by ponding water.
- Kidney Pond – Portal: Rills observed on south side of slope. Unknown if worsening from previous Years.

- Kidney Pond – Waste Rock KID_WR_01: cracks and settlement over covered material. Loose material is not stable and settles approximately 0.4 m deep posing a walking hazard to animals and humans.
- Burnt Island – Portal: deep depressions at top of backfilled area. Top of slope should be closely monitored.
- Goodrock – North Mine Shaft: Shaft observed broken from the base.
- West Bay – Open Pit: Barricades are not performing adequately. A gap remains at the south side of the fence and the southeast side has collapsed at the top, allowing access to the pit by animals and humans.

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Acronym List

AECOM	AECOM Canada Ltd.
BV	Bureau Veritas
CCME	Canadian Council of Ministers of the Environment
CIRNAC-CARD	Crown Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Directorate
COA	Certificate of Analysis
COC	Contaminants of Concern
CWQG	Canadian Water Quality Guidelines
DQO	Data Quality Objective
FAL	Freshwater Aquatic Life
FIGQG	Federal Interim Groundwater Quality Guidelines
GLG	Gordon Lake Group
GPS	Global Positioning System
Km	Kilometre
LTM	Long-Term Monitoring
MVLWB	Mackenzie Valley Land and Water Board
QA/QC	Quality Assurance and Quality Control
RDL	Reported Detection Limit
RPD	Relative Percent Difference
SCC	Standards Council of Canada
SNP	Surveillance Network Program
Stantec	Stantec Consulting Inc.
SWP	Safe Work Plan
TDS	Total Dissolved Solids
TSCA	Tailings and Soil Containment Area
VWP	Vibrating Wire Piezometer

1. Introduction

AECOM Canada Ltd. (AECOM) was contracted by Crown Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Directorate (CIRNAC-CARD) to conduct the Year 5 Long Term Monitoring (LTM) program at the Gordon Lake Group (GLG) sites. The GLG sites fall within the Akaitcho Territory and are also located in the Mowhì Gogha De Niitlèè boundary within the Wek'èezhìi management area of the Tlìcho settlement area. All nine Sites fall under the custodial responsibility of CIRNAC-CARD. The area is asserted as a traditional use area for Metis people of the Great Slave Lake area, who are represented by the Northwest Territory Métis Nation and the North Slave Métis Alliance.

The program is comprised of six mine sites and three advanced exploration sites located approximately 80 kilometres (km) northeast of Yellowknife, NT. The sites are as follows:

- Burnt Island (mine sites)
- Camlaren (mine site)
- Goodrock (mine site)
- Kidney Pond (mine site)
- Murray Lake (advanced exploration site)
- Storm property (advanced exploration site)
- Treacy (mine site)
- Try Me (advanced exploration site)
- West Bay (mine site)

The general site locations are presented in **Figure 1** in **Appendix A**, with details of each site presented in **Figure 1** through **Figure 26** in **Appendix A**.

Remediation activities were completed between 2017 and 2019 by Delta Engineering and Nahanni Construction, in Joint Venture (DNV), with Stantec Consulting Inc. (Stantec) engaged to provide construction contract supervision.

1.1 Objectives

The purpose of the Phase I LTM Plan is to verify that the selected remedial/risk management measures implemented during the remediation program remain protective of human health and the environment by monitoring the potential for residual risks remaining at the nine Sites following the completion of the Gordon Lake remediation program. At the completion of this phase, results will be evaluated within a Performance Assessment Report to determine if monitoring is concluded (i.e. site closure), or if additional monitoring is required at a reduced frequency.

Should monitoring results indicate remedial activities have failed to meet LTM objectives or monitoring endpoints, additional remedial effort may be required. The current Phase I LTM contains only those requirements of the initial phase of LTM (Year 1 to 5). The design of the next phase of monitoring, if deemed necessary, will be founded on an adaptive management approach.

1.2 Scope of Work

The scope of work for the Year 5 LTM Program were defined as follows:

- Prepare a Safe Work Plan (SWP)
- Submit a Work Plan including the proposed schedule, sampling plan, measurement methodologies, quality assurance / quality control (QA/QC) procedures and Project personnel
- Review the Phase I LTM Plan, Years 1 through 4 Monitoring Reports as well as the Water Licence and Land Use Permit
- Complete a geotechnical visual dam inspection at the Camlaren Tailings and Soil Containment Area (TSCA)
- TSCA performance monitoring consisting of recording measurements from thermistors, standpipe wells, and vibrating wire piezometers at eleven locations
- Surveillance Network Program (SNP) consisting of ground water sampling at six locations at Camlaren, and surface water sampling in 18 locations: one at Burnt Island, seven at Camlaren, one at Kidney Pond, one at Treacy, eight at West Bay.
- Visual monitoring at all nine sites and TSCA geotechnical inspection identifying the following; erosion, frost action, sloughing and cracking, animal burrows, vegetation re-establishment and percentage cover, vegetation stress, soil or water staining, odours, seepage points or ponded water, exposed debris, and any other features which may compromise the integrity of the site
- Provide training to and include the Job Shadow arranged by CIRNAC as part of the Community Based Monitoring initiative
- Complete a Progress Report after the completion of each field investigation
- Complete a Job Shadow report following the field program
- Produce Year 5 Long-Term Monitoring Report
- Produce Year 5 Long-Term Monitoring Geotechnical TSCA Dam Inspection Report

2. Site Description

2.1 Site Identification

Site specific identification information is outlined in **Table 2-1** below.

Table 2-1. Site Specific Identification Information

Identification Information	Burnt Island	Camlaren	Goodrock	Kidney Pond	Murray Lake	Storm Property	Treacy	Try Me	West Bay
FCSI ¹ NO. of Contaminated Site	23547	162	351	24120	24158	24145	24141	24155	C1037001
Exact Site Name as listed in IDEA ²	Burnt Island Mine Site	Camlaren Mine	Goodrock Mine	Kidney Pond / Knights Bay	Murray Lake Exploration Site	Storm Property	Treacy Mine	Try Me Exploration Site	West Bay / Black Ridge
Reporting Organization	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD	CIRNAC-CARD
Legal description or metes and bounds	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Approximate Site Area (ha) ³	12.9	12	2.67	10	3.2	2.4	0.5	2.5	2.5
Centre of Site Coordinates Lat/Long (degrees, min, sec) ⁴	63°39'48" N 113 °10'6" W	62°59'8" N 113 °12'19" W	63°01'51" N 113 °08'1" W	62°57'20" N 113 °20'9" W	63°00'45" N 113 °24'30" W	63°00'21" N 113 °07'29" W	63°56'28" N 113 °20'14" W	63°04'09" N 113 °28'32" W	62°55'1" N 113 °14'4" W
Centre of Site Coordinates UTM ⁵	6994531 m N 390423 m E	6985896 m N 388258 m E	6990816 m N 392056 m E	6982742 m N 381430 m E	6989573 m N 278251 m E	6988017 m N 392413 m E	6981182 m N 381894 m E	6995654 m N 374744 m E	6978287 m N 386523 m E
NWT Contaminated / Waste Site Database Number	220	205	466	474	490	471	475	488	211 / 302

Source: Stantec 2018

1 FCSI – Federal Contaminated Sites Inventory

2 IDEA – Interdepartmental Data Exchange Application

3 ha – hectares

4 Lat/Long (degrees, min, sec) – Latitude / Longitude (degrees, minutes, seconds)

5 UTM – Universal Transverse Mercator

2.2 Site History

The GLG Sites were active between the late 1930s and 2008 with several companies involved in the mining operations at the Sites. Activities ranged from open-pit mining to exploratory drilling and were generally undertaken independently between the mine sites. With the mine sites abandoned, several environmental concerns arose from materials and debris left on-site including:

- Petroleum hydrocarbon and/or metal impacted soil/tailings, sediment/submerged tailings, and surface water
- Tailings and waste rock piles with the potential to produce acid rock drainage (ARD)
- Hazardous and non-hazardous debris and physical hazards (mine openings and trenches)

These concerns were remediated over several field seasons between 2017 and 2019 by DNV. Upon completion of the remedial activities, Stantec completed the Phase I LTM plan to monitor its effectiveness and completed Years 1 and 2 of the LTM Program in 2019 and 2020 respectively. Englobe completed the Years 3 and 4 of the LTM Program in 2021 and 2022 respectively.

All Sites were un-occupied at the time of both site inspections. However, it is understood that some Sites are used by hunters and trappers, recreational fishing, and the cabin located on the Storm property is known to house community members from Ndilq.

2.3 Climate and Weather

The nearest long-term weather station is in Yellowknife, NWT, located 88 to 200 km away from the four GSL sites. As part of a Continental Sub-Arctic Climatic Zone, the GLG sites experience short cool summers and long cold winters. Frost-free days are approximately 111 days and very cold days (> -30 degrees Celsius; $^{\circ}\text{C}$) are approximately 53 days (Climate Atlas of Canada). The lowest temperatures are typically recorded in January with an average daily temperature of -25.6°C and an extreme minimum of -51.2°C . The highest average temperatures are in July, during which the average is 17.0°C and the extreme maximum is 32.5°C in 1989 (ECCC 2023).

Total annual precipitation in Yellowknife is an average 289 millimetres (mm), with a little over half falling as rain (170 mm) and half as snow (158 mm). The highest rainfall typically occurs in the summer, from June to September (from 29 to 41 monthly), while the highest snowfall typically occurs in November (37 mm) (ECCC 2023).

2.4 Hydrology

The watershed surrounding the GLG sites is difficult to define as the area is encompassed by a vast number of smaller water bodies. The Cameron River system, which is located near the West Bay site, has been defined as the location to which the Lake's water outlets. Seven months of the year, typically subzero temperatures cause the surface water to freeze. This may cause a flux in precipitation infiltration, which results in either surface water runoff or a greater accumulation on the surface (Humphries, 2005).

2.5 Geology

The following information is drawn from the Stantec Gordon Lake Gap Assessment Report (Stantec, 2016a) based on the review of the Stantec Phase I LTM Plan – Gordon Lake Group of Sites (Stantec, 2018) and Stantec LTM (Year 1) – Gordon Lake Group of Sites (Stantec, 2020e).

The GLG Sites lie within the Slave Province, an Archean granite-greenstone terrane located in the northwestern Canadian Shield. The supracrustal rocks of this terrane comprise sedimentary and volcanic rocks intruded by granitic bodies that have undergone multiple phased deformation events and date between 2.71 and 2.65 Ga (1×10^9 years ago) (Mortensen et al., 1988). The Sites occur within the Burwash Formation, part of the Duncan Lake Group, assigned to the Yellowknife Supergroup (Bleeker and Villeneuve, 1995). The metasedimentary rocks of the Burwash Formation are dominantly low to high grade metamorphosed turbidite (metaturbite) sequences of well-preserved mudstone grading to

greywacke. The GLG Sites are situated on two members of the Burwash Formation, Atl and Atm, low-grade and medium-grade metaturbites, respectively.

The Slave Province is recognized for its province-wide zoning of three major gold deposit types; gold hosted in 1) quartz veins, 2) shear zones, and 3) iron formations. Most gold deposits formed before the intrusion of the major granitic bodies (Ferguson et al., 2005). The GLG Sites feature mainly gold-sulphide bearing white-smoky quartz veins hosted in metaturbites of the Burwash Formation. Sulphide minerals associated with these deposit types include pyrite, pyrrhotite, marcasite, chalcopyrite, arsenopyrite, galena, and sphalerite.

This region was last covered by the Late Wisconsin glaciation event until about 11,000 years before present (BP) and was completely ice-free by 10,000 BP (Dyke and Prest, 1987). Paleo ice flow was generally to the southwest (Kerr, 1990) as apparent by orientation of drumlins and eskers (Othof et al., 2014).

Retreating ice sheets deposited fine-grained glaciolacustrine sediments below 320 to 350 metre (m) elevation in the Great Bear and Great Slave basins. In the Gordon Lake area, re-worked glacial and glaciofluvial sediments are the dominant surficial material with till thickness and distribution increasing westerly and northwesterly. Till thickness varies but is generally greater than 2 m occurring as silt to gravel blankets, following bedrock topography, and may include patches of till veneer or drumlinoids.

With respect to permafrost, the Gordon Lake area is located within the extensive discontinuous permafrost zone, where permafrost can be found on 50% to 90% of the land (Heginbottom et al., 1995). Within the extensive discontinuous permafrost zone, ground ice content in the upper 10 m of ground is believed to range from low to medium (<10% to approximately 20% by volume) and consist mainly of frozen pore water (i.e., interstitial ice), ice lenses and ice veins (i.e., segregated ice and reticulated ice). Ice wedges, which are a type of patterned ground resulting from thermal contraction and cracking of the ground surface (ACGR, 1988), might occur locally.

The distribution of the permafrost in the area is related to several interconnected factors such as the local climate, ground surface topography, material types and textures, vegetation coverage and drainage conditions. Similarly, the variation in the amount of ground ice present within the permafrost is found to be directly related to factors such as the nature of the surficial deposits and characteristics of the local terrain.

No data is available on the local distribution of the permafrost in the Gordon Lake area; however, it was suggested that peat bogs and fine-grained deposits (e.g., silty to clayey lacustrine and/or glaciolacustrine sediments) are likely the only terrain units containing permafrost in the GLG Sites area. Bedrock outcrops and well to rapidly drained, coarse-grained deposits such as till and glaciofluvial deposits are likely free of permafrost. Where permafrost is present, the active layer (i.e., the portion of soil that thaws each summer and refreezes in the winter) would typically range between 0.5 m to 1.5 m deep and would vary greatly depending on local ground conditions.

2.6 Biological Environment

The GLG Sites are located in the Taiga Shield – Great Slave Upland Low Subarctic Ecoregion of the Northwest Territories. The Total area of this ecoregion in the Northwest Territories is approximately 15,431 square kilometres (km²) or 13.5% of the Taiga Shield LS Ecoregion. This Ecoregion is known for having a bedrock-dominated landscape that is sloped towards the southwest, which supports scattered black spruce woodland growth on the bedrock outcrops. In areas of till veneers and blankets, it is common to have dense black spruce forests occur. In areas of outwash, white spruce woodlands are common and Jack pine can be found in areas of lower elevation.

3. Year 5 Long-Term Monitoring Program

The LTM programs are conducted to meet regulatory requirements by various regulatory bodies that include Mackenzie Valley Land and Water Board (MVLWB), the Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines, and Federal Interim Groundwater Quality Guidelines (FIGQG).

AECOM developed a work plan designed to meet the requirements of Year 5 of the Phase I LTM Plan. AECOM reviewed historical reports, provided by CIRNAC-CARD, completed during past investigation of the Site, providing information regarding the previous methodologies employed, past and present site conditions, previous difficulties encountered, future recommendations and potential considerations that may need to be addressed when completing the work plan.

Key documents related to site monitoring are provided in **Table 3-1** below.

Table 3-1. Relevant Documents

Document No.	Report Title	Date	Authors
1	Water License MV2016L8-0006	February – 2017	Mackenzie Valley Land and Water Board
2	Land Use Permit	December – 2016	Mackenzie Valley Land and Water Board
3	Phase I – Long-Term Monitoring Plan – Gordon Lake Group of Sites	December – 2018	Stantec Consulting Ltd. (Stantec, 2018)
4	Long-Term Monitoring (Year 1) – Gordon Lake Group of Sites	March – 2020	Stantec Consulting Ltd. (Stantec, 2020)
5	Long-Term Monitoring (Year 2) – Gordon Lakes Group of Sites	March – 2021	Stantec Consulting Ltd. (Stantec, 2021)
6	Long-Term Monitoring (Year 3) – Gordon Lakes Group of Sites, NWT	February – 2022	Englobe Corp. (Englobe, 2022)
7	Comprehensive Monitoring (Year 4) Report – Long-Term Monitoring of Gordon Lake Group, NWT	November – 2022	Englobe Corp. (Englobe, 2022a)

The monitoring requirements and methodologies outlined in the work plan are detailed in the following sections.

3.1 Monitoring Requirements and Methodologies

3.1.1 Visual Monitoring Requirements

Non-intrusive visual monitoring activities will include taking photos of established locations noting the following: noting features of erosion, frost action, sloughing and cracking, animal burrows, vegetation re-establishment and percentage cover, vegetation stress, soil or water staining, odours, seepage points or ponded water, exposed debris, condition of monitoring instruments, and any other features which may compromise the integrity of the site. Photographic records that note scale, GPS reference (datum WGS84) and directional viewpoint will be provided to document the general conditions and to substantiate all recorded observations.

The visual monitoring locations are presented in Figures 2 through 26 in Appendix A and outlined below in **Table 3-2**.

Table 3-2. Visual Monitoring Locations

LTM Station	Hazard Category	Monitoring Requirements	Phase I LTM Frequency
Burnt Island			
Portal	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement	Quinquennially. Years 1 and 5
Tailings	Tailings	Verify cover material is stable with no significant resulting erosion or washout.	Biennially. Years 1, 3, and 5
Mine Shaft	Mine Opening	Verify the backfill material is stable with no significant resulting erosion or settlement. Verify the structural stability of the mine opening cap.	Quinquennially. Years 1 and 5
BUR_WR_01	Waste Rock	Verify no visual signs (low vegetation, stressed vegetation, discolouration, etc.) of acid rock drainage (ARD) down gradient of remaining impacts.	Quinquennially. Years 1 and 5
Camlaren			
CAM_SO_04	Metal Impacted Soil	Verify excavation backfill material is stable with no significant resulting erosion or washout into downgradient water.	Biennially. Years 1, 3, and 5
CAM_SO_06	Metal Impacted Soil		
CAM_SO_07	Metal Impacted Soil		
CAM_SO_08	Metal Impacted Soil		
CAM_SO_12	Metal Impacted Soil		
CAM_SO_20	Metal Impacted Soil		
CAM_SO_23	Metal Impacted Soil	Verify excavation backfill material is stable with no significant resulting erosion or washout into downgradient water. Visually monitor vegetative health to confirm stable or increasing growth.	Biennially. Years 1, 3, and 5
CAM_SO_01	PHC Impacted Soil		
CAM_SO_03	PHC Impacted Soil		
CAM_SO_05	PHC Impacted Soil		
CAM_SO_14	PHC Impacted Soil		
Shaft	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement. Verify the structural stability of the mine opening cap.	Quinquennially. Years 1 and 5

LTM Station	Hazard Category	Monitoring Requirements	Phase I LTM Frequency
Goodrock			
GOO_HS_01	Metal Impacted Soil	Verify cover material is stable with no significant resulting erosion or washout.	Biennially. Years 1, 3, and 5
South Pit	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement.	Quinquennially. Years 1 and 5
North Mine Shaft	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement. Verify the structural stability of the mine opening cap.	Quinquennially. Years 1 and 5
GOO_WR_01	Waste Rock	Verify no visual signs of ARD down-gradient of remaining impacts.	Quinquennially. Years 1 and 5
GOO_WR_02	Waste Rock		Quinquennially. Years 1 and 5
Kidney Pond			
KID_SO_07	Co-mingled Impacted Soil	Verify excavation backfill material is stable with no significant resulting erosion or washout into down gradient water. Visually monitor vegetative health to confirm stable or increasing growth.	Biennially. Years 1, 3, and 5
KID_SO_11	Co-mingled Impacted Soil		Biennially. Years 1, 3, and 5
KID_SO_10	PHC Impacted Soil		
KID_WR_01	Waste Rock	Verify excavation backfill and large area of regraded material is stable with no significant resulting erosion or washout, especially into down gradient water. Visually monitor vegetative health to confirm stable or increasing growth.	Biennially. Years 1, 3, and 5
Portal	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement.	Quinquennially. Years 1 and 5
KID_WR_03	Waste Rock	Verify no visual signs of ARD down-gradient of remaining impacts.	Quinquennially. Years 1 and 5
KID_WR_04	Waste Rock		Quinquennially. Years 1 and 5
Murray Lake			
Main Shaft	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement.	Quinquennially. Years 1 and 5
Deep Trench/Shaft	Mine Opening		Quinquennially. Years 1 and 5
MUR_WR_01	Waste Rock	Verify no signs of ARD down-gradient of remaining impacts.	Quinquennially. Years 1 and 5
MUR_WR_02	Waste Rock		Quinquennially. Years 1 and 5

LTM Station	Hazard Category	Monitoring Requirements	Phase I LTM Frequency
Storm Property			
South Mine Shaft	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement.	Quinquennially. Years 1 and 5
North Mine Shaft	Mine Opening		Quinquennially. Years 1 and 5
STO_WR_01	Waste Rock	Verify no visual signs of ARD down-gradient of remaining impacts.	Quinquennially. Years 1 and 5
STO_WR_02	Waste Rock		Quinquennially. Years 1 and 5
Treacy			
TRE_SO_01	Metal Impacted Soil	Verify excavation backfill material is stable with no significant resulting erosion or washout into down-gradient water. Visually monitor vegetative health to confirm stable or increasing growth.	Biennially. Years 1, 3, and 5
TRE_SO_02	PHC Impacted Soil		Biennially. Years 1, 3, and 5
East Trench	Trench	Verify backfill material is stable with no significant resulting erosion or settlement.	Quinquennially. Years 1 and 5
West Trench	Trench		Quinquennially. Years 1 and 5
Shaft	Mine Opening	Verify backfill material is stable with no significant resulting erosion or settlement. Verify the structural stability of the mine opening cap.	Quinquennially. Years 1 and 5
West Bay			
Open Pit	Mine Opening	Verify barrier is structurally sound and remains effective.	Quinquennially. Years 1 and 5
WES_WR_01	Waste Rock	Verify no visual signs of ARD down-gradient of remaining impacts	Quinquennially. Years 1 and 5
WES_WR_02	Waste Rock		Quinquennially. Years 1 and 5

3.1.2 TSCA Performance Review

The TSCA is an engineered mine waste containment facility that encompasses the Camlaren mine tailings that is formerly part of the Tailings Containment Area, as well as impacted material and non-hazardous debris from the other GLG Sites. Impacted material and non-hazardous waste from the GLG Sites were transported to Camlaren in the winter of 2018, and some of the waste was transported via helicopter in the summer of 2018.

3.1.2.1 TSCA Instrumentation

The bi-annual inspection of the TSCA instrumentation includes two thermistors, three vibrating wire piezometers with double nested vibrating wire sensors, two monitoring wells in the TSCA footprint and four monitoring wells outside of the TSCA perimeter installed as part of the performance monitoring. Locations of the instrumentation are presented in **Figure 8** in **Appendix A** and summarized below in **Table 3-3**.

Table 3-3. TSCA Instrumentation Details

Instrumentation Identification	Type of Installation	Northing	Easting	Ground Surface Elevation (masl) ²
VT1	Thermistor String	6986005	388351	298.89
VT2	Thermistor String	6956055	388352	298.84
VB1	Vibrating Wire Piezometer	6985957	388335	298.11
VB2	Vibrating Wire Piezometer	6986026	388381	297.99
VB3	Vibrating Wire Piezometer	6986079	388353	298.48
MW1	Monitoring Well	6986005	388356	298.73
MW2	Monitoring Well	6986051	388352	298.96
MW3 ¹	Monitoring Well	6986073	388393	292.41
MW4 ¹	Monitoring Well	6985962	388376	294.52
MW5 ¹	Monitoring Well	6985922	388236	296.58
MW6 ¹	Monitoring Well	6986066	388238	295.45

Source: Stantec 2020

¹Monitoring well outside TSCA footprint

²masl – Metres above sea level

3.1.2.1.1 Thermistors

Thermistor sensors are installed at 0.5 m intervals to monitor thermal conditions with depth throughout the TSCA mine waste. The temperature readings facilitate the establishment of long-term trends and whether permafrost will establish in the deposited waste. The temperature in the waste is also used for calibration of the vibrating wire piezometers. **Table 3-4** provides installation details for thermistors.

Table 3-4. Thermistor Installation Details

ID	Serial Number	Borehole Depth (m)	Depth of Lowest Thermistor (m)	Elevation of Lowest Thermistor (m)
VT1	4773	5.9	5.8	293.09
VT2	4774	7.0	7	291.84

Source: Stantec 2019

3.1.2.1.2 Vibrating Wire Piezometers

Vibrating wire piezometers are installed to measure pore pressures. The top piezometer measures pore pressures in tailings, the bottom piezometer measures pore pressures at the bottom of the borehole near bedrock or native soil. **Table 3-5** provides installation details for vibrating wire piezometers.

Table 3-5. Vibrating Wire Piezometer Installation Details

ID	Serial Number	Borehole Depth (m)	Depth of Piezometer (m)	Elevation of Piezometer (m)
VB1	52115	6.4	4.95	293.16
	52116		5.95	292.16
VB2	52117	6.1	4.8	293.19
	52118		5.8	292.19
VB3	52119	7.0	5.7	292.78
	52120		6.7	291.78

Source: Stantec 2019

3.1.2.1.3 TSCA Instrumentation – Groundwater Monitoring Wells

Table 3-6 below provides installation details for groundwater monitoring wells within and surrounding the TSCA.

Table 3-6. Groundwater Monitoring Wells Installation Details

Borehole ID	Northing	Easting	Borehole Depth	Top of Screen		Bottom of Screen	
				Depth (m)	Elevation (m)	Depth (m)	Elevation (m)
MW1	6986005	388356	5.3	2.1	291.33	5.2	286.13
MW2	6986051	388352	7.1	4	287.86	7	280.86
MW3	6986073	388393	7.2	5.7	279.51	7.2	272.31
MW4	6985962	388376	3.8	2.3	288.42	3.8	284.62
MW5	6985922	388236	4.8	3.2	288.58	4.75	283.83
MW6	6986066	388238	5.4	3.9	286.15	5.4	280.75

Source: Stantec 2019

3.1.3 TSCA Performance Monitoring Requirements

A TSCA performance inspection will be completed biannually at Camlaren and include:

- Visual inspection of the TSCA for erosion, frost action, sloughing and cracking, animal burrows, vegetation re-establishment and percentage cover, vegetation stress, soil or water staining, odours, seepage points or ponded water, exposed debris, conditions of monitoring instruments, and any other features which may compromise the integrity of the site.
- Collection/download of thermal data from the two thermistors within the TSCA.
- Record the groundwater elevation within the TSCA from three vibrating wire piezometers and two groundwater monitoring wells within the TSCA footprint.

A TSCA geotechnical inspection will be completed by a Professional Geotechnical Engineer with expertise in dam inspections. The geotechnical inspection will include a visual inspection for any major failures and features that may compromise the integrity of the engineered structure. Photographic records that note the scale, GPS reference (datum WGS84), and directional viewpoint will be provided to document the condition and substantiate all recorded observations.

The TSCA performance inspection and geotechnical inspection requirements are provided below in **Table 3-7**.

Table 3-7. Camlaren TSCA Performance and Geotechnical Inspection Monitoring Requirements

Engineered / Administrative Control	LTM Station	Monitoring Requirements	Phase I LTM Frequency
Thermistors	VT1	Download thermal conditions within the TSCA from thermistors.	Biannually. Years 1 to 5
	VT2		Biannually. Years 1 to 5
Standpipe Wells	MW1	Measure the groundwater elevations (metres above sea level) within/around the TSCA.	Biannually. Years 1 to 5
	MW2		Biannually. Years 1 to 5
Vibrating Wire Piezometers	VB1	Download piezometer data to measure the groundwater elevations (masl) within the TSCA.	Biannually. Years 1 to 5
	VB2		Biannually. Years 1 to 5
	VB3		Biannually. Years 1 to 5
Visual Inspection (with Vegetation Monitoring)	-	Visually inspect top cover, slopes, toes, ditches, and instrumentation for signs of erosion, settlement, seepage, structural failure, and/or compromised liner and/or cap integrity. Visually monitor vegetative health to confirm stable or increasing growth.	Biannually. Years 1 to 5
TSCA	-	Visual inspection for any major failures and other features that may compromise the integrity of the engineered structure.	Annually. Year 1 to 5

3.1.4 Surface Water and Groundwater Monitoring Requirements

3.1.4.1 Groundwater Monitoring

Groundwater monitoring wells (within and surrounding the TSCA) will be sampled and analyzed for contaminants of concern (COCs) to verify that contaminants contained within the engineered structure remain isolated from the surrounding environment. Samples will be collected using low-flow methodology i.e., peristaltic pump or bailer method when applicable and in-situ parameters recorded. Detailed field notes will be collected including but not limited to water column depth, collection depth, and any other relevant visual observations. In-situ parameters will be collected using a YSI ProDSS water quality meter. Nitrile gloves will be worn during all collection activities and equipment will be rinsed with deionized water between sample locations. Samples will be labelled on the laboratory provided bottle sets with sample number and date collected.

Groundwater monitoring down-gradient of the TSCA is anticipated to demonstrate a transient increase in contaminant concentrations resulting from the construction disturbance, and then to fall back to a steady-state. Action levels will be considered met if groundwater COC concentrations within the TSCA remain stable or below those observed after construction is completed and/or remain below applicable guidelines. The contaminant concentrations in monitoring wells within the TSCA will be monitored for reference purposes. Groundwater COC concentrations will be used as indicators for potential COCs in the down-gradient surface water. Action levels will be considered to not be met if groundwater elevations within the TSCA increase above those observed after construction is completed.

Table 3-8 below presents the monitoring requirements for the groundwater monitoring program.

Table 3-8. Groundwater Monitoring Program Requirements

LTM Station	Sample Control ID (July)	Sample Control ID (September)	Description	Sample Type	Analytical Parameters	Phase I LTM Frequency
MW1	GLG-2023-00001-020	GLG-2023-00002-020	Groundwater well within TSCA footprint	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
MW2	GLG-2023-00001-021	GLG-2023-00002-021	Groundwater well within TSCA footprint	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
2016-7a (MW3)	GLG-2023-00001-001	GLG-2023-00002-001	Groundwater well around perimeter of TSCA	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
2016-7b (MW4)	GLG-2023-00001-002	GLG-2023-00002-002	Groundwater well around perimeter of TSCA	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
2016-7c (MW5)	GLG-2023-00001-003	GLG-2023-00002-003	Groundwater well around perimeter of TSCA	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
2016-7d (MW6)	GLG-2023-00001-004	GLG-2023-00002-004	Groundwater well around perimeter of TSCA	Groundwater	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
2016-7d (MW6) DUP	GLG-2023-00001-005	GLG-2023-00002-005	Duplicate of 2016-7d (MW6)	-	Note 1, 2, 3, 4, 5, 6	-

Notes:

1. *In-Situ: temperature, specific conductivity, total dissolved solids, pH, turbidity, dissolved oxygen, oxidation reduction potential*
2. *Nutrients: total ammonia, total nitrate + nitrite, total phosphorous, orthophosphate, total organic carbon*
3. *Standard: pH, Temperature, conductivity*
4. *Major Ions: alkalinity, calcium, chloride, hardness, magnesium, potassium, sodium, sulphate*
5. *Solids: total suspended solids, total dissolved solids*
6. *Total Metals: total elemental analysis by ICP-metal scan of ICP-MS 24 element scan: includes all elements in total metals plus antimony, arsenic, barium, bismuth, cesium, chromium, lithium, thallium, uranium, vanadium.*

3.1.4.2 Surface Water Monitoring

SNP monitoring includes the TSCA as well as areas down-gradient of significant remedial excavations as established by MVLWB presented in Annex A, Part B of the Water License issued for the Project. SNP Stations 2016-7, 2016-8 and 2016-11 are applicable to the Phase I LTM. SNP Stations 2016-7 and 2016-8 are associated with the TSCA (groundwater and discharge monitoring) and are part of monitoring requirements to assess TSCA performance and identify associated potential environmental impacts. SNP Stations 2016-11 are associated with surface water sampling down-gradient of significant remedial excavations across the nine sites.

Surface water and in-situ sampling will be conducted at 18 locations across six of the sites. While sampling, detailed field notes will be collected, including notes on approximate water column depth, collection depth, and any other relevant visual observations. In-situ parameters will be collected using a YSI ProDSS water quality meter. Nitrile gloves will be worn during all collection activities and equipment will be rinsed with deionized water between sample locations. Samples will be labelled on the laboratory provided bottle sets with sample number and date collected. **Table 3-9** below outlines the monitoring requirements. **Figure 2** through **Figure 26** in **Appendix A** present the sample locations at the sites.

Table 3-9. Surface Water Monitoring Program Requirements

LTM Station	Sample Control ID (July)	Sample Control ID (September)	Description	Sample Type	Analytical Parameters	Phase I LTM Frequency
Burnt Island						
2016-11a	GLG-2023-00001-006	GLG-2023-00002-006	Downgradient of significant excavation area	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
Camlaren						
2016-11b1	GLG-2023-00001-007	GLG-2023-00002-007	Downgradient of TSCA (northwest)	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-11b2	GLG-2023-00001-008	GLG-2023-00002-008	Downgradient of TSCA (southeast)	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-11b3	GLG-2023-00001-009	GLG-2023-00002-009	Downgradient of TSCA (northeast)	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-11b4	GLG-2023-00001-011	GLG-2023-00002-011	Downgradient of TSCA (southwest)	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-11c	GLG-2023-00001-012	GLG-2023-00002-012	Zenith Island. Downgradient of significant excavation area.	Surface Water	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-8a	GLG-2023-00001-016	GLG-2023-00002-016	Discharge from TCSA	Discharge	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
2016-8b	GLG-2023-00001-017	GLG-2023-00002-017	Discharge from TCSA	Discharge	Note 1, 3, 4 5, 6, 8, 9	Biannually. Years 1 to 5
Kidney Pond						
2016-11d	GLG-2023-00001-013	GLG-2023-00002-013	Downgradient of significant excavation area	Surface Water	Note 1, 3, 4, 5, 6, 8, 9	Biannually. Years 1 to 5
Treacy						
2016-11e	GLG-2023-00001-014	GLG-2023-00002-014	Downgradient of significant excavation area	Surface Water	Note 1, 3, 4, 5, 6, 8, 9	Biannually. Years 1 to 5
West Bay						
2016-11f	GLG-2023-00001-015	GLG-2023-00002-015	Downgradient of significant excavation area	Surface Water	Note 1, 3, 4, 5, 6, 8, 9	Biannually. Years 1 to 5
PIT1	GLG-2023-00001-020	GLG-2023-00002-020	South end of Open Pit; Downgradient of waste rock area	Surface Water	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
PIT2	GLG-2023-00001-023	GLG-2023-00002-023	North end of Open Pit; Downgradient of waste rock area	Surface Water	Note 1, 2, 3, 4, 5, 6	Biannually. Years 1 to 5
WET1	GLG-2023-00001-024	GLG-2023-00002-024	South pond inland of West Bay; Downgradient of waste rock area	Surface Water	Note 3, 4, 5, 7, 8	Biannually. Years 1 to 5
WET2	GLG-2023-00001-025	GLG-2023-00002-025	North pond inland of West Bay; Downgradient of waste rock area	Surface Water	Note 3, 4, 5, 7, 8	Biannually. Years 1 to 5
GL1	GLG-2023-00001-026	GLG-2023-00002-026	Centre of West Bay; Downgradient of waste rock area	Surface Water	Note 3, 4, 5, 7, 8	Biannually. Years 1 to 5
GL2	GLG-2023-00001-027	GLG-2023-00002-027	North end of West Bay; Downgradient of waste rock area	Surface Water	Note 3, 4, 5, 7, 8	Biannually. Years 1 to 5
GL3	GLG-2023-00001-028	GLG-2023-00002-028	South end of West Bay; Downgradient of waste rock area	Surface Water	Note 3, 4, 5, 7, 8	Biannually. Years 1 to 5

Notes:

1. *In-Situ: temperature, specific conductivity, total dissolved solids, pH, turbidity, dissolved oxygen, oxidation reduction potential*
2. *Nutrients: total ammonia, total nitrate + nitrite, total phosphorous, orthophosphate, total organic carbon*
3. *Standard: pH, Temperature, conductivity*
4. *Major Ions: alkalinity, calcium, chloride, hardness, magnesium, potassium, sodium, sulphate*
5. *Solids: total suspended solids, total dissolved solids*
6. *Total Metals: total elemental analysis by ICP-metal scan of ICP-MS 24 element scan: includes all elements in total metals plus antimony, arsenic, barium, bismuth, cesium, chromium, lithium, thallium, uranium, vanadium.*

7. *Hydrocarbons: extractables hydrocarbons, benzene, toluene, ethylbenzene, xylene*
8. *Ammonia as N, Nitrate as N, Nitrite as N,*
9. *Extractable petroleum hydrocarbons*

3.1.4.3 QA/QC

A total of two duplicate samples (over 10%) will be collected for QA/QC purposes and analyzed for the suite of parameters as detailed above in **Table 3-8** and **Table 3-9**. QA samples will be collected by splitting the original sample into two laboratory sampling containers. AECOM will review all laboratory results and laboratory supplied QA/QC reports upon receipt to verify data. This will include confirming the blind duplicate results with the parent sample and reviewing any other flags within the laboratory data that could impact the reliability of the data.

3.2 Regulatory Framework and Site Criteria

Based on the review of the Stantec Phase I LTM Plan, the CCME Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life – Freshwater Aquatic Life (FAL) and FIGQG for Federal Contaminated Sites (Government of Canada, June 2016 (version 4) revised November 2016) have been used as regulatory guidelines for the GLG Sites. The analytical results of the LTM will be compared to the CCME CWQG FAL long-term guideline values and the Tier 1 FIGQG for agriculture land use for coarse grained soil types.

3.3 Quality Assurance / Quality Control

Surface water chemistry results from Year 5 were reviewed for quality, with respect to accuracy, precision, bias, sample hold times, and reported detection limits (RDLs). Laboratory results were verified in relation to replicate and blank results, hold times, and established data quality objectives (DQOs). Laboratory quality control results were examined to identify problematic data. Only QA/QC data for AECOM's Year 5 monitoring program are discussed in this report.

The QA/QC plan included the use of field duplicates, a field blank, a trip blank, proper sampling containment, preservation, handling, and transportation. Bureau Veritas (BV) is accredited by the Standards Council of Canada (SCC) and was used to analyze the surface water samples. QA/QC procedures included the calibration of measuring devices for direct measurements of parameters during execution of the Field Program. This serves to support the data, and decisions based on these data, as technically sound and statistically valid. A field blank was not collected during the July program; however the duplicate sample collection provides the minimum QA/QC requirement for the program.

The purpose of the field blank sample is to determine contaminants or analytical errors, or bias, stemming from sampling collection and analysis. Such contamination may result from bottles and other glassware, sampling equipment and conditions, preservatives, transportation and storage, or the laboratory analysis.

Bureau veritas completes their own QA/QC program and provides results within the Certificate of Analysis Reports. AECOM considers the analytical sample results reliable with the exclusion of the field blank sample.

The analytical results for the duplicates are included in Table B-5 in Appendix 5. The results of the laboratory QA/QC analyses are provided in the laboratory Certificate of Analysis (COA), found in Appendix E. The COA analyses included method blanks, matrix spikes, laboratory control samples, and matrix duplicates. The laboratory QA/QC report was reviewed, and the laboratory data has been assessed to be reliable.

In summary, the results of the QA/QC analysis indicated no significant QA/QC issues affecting the overall results of this report. The data collected during the investigation is considered reliable.

3.3.1 Sample Management and Quality Control

Samples were collected into clean sample bottles and vials provided by the laboratory. Each sample was clearly labeled with a unique identification number. Once collected, samples were stored in coolers with

ice until shipped to the laboratory. Chain-of-custody documentation was completed and attached to sample shipment.

All coolers were returned to Yellowknife each evening on the helicopter, with samples stored in the coolers on ice at BV depot for shipment to its southern laboratories. All samples were shipped the same day.

3.3.2 Sampling Quality Control

Field duplicate samples are used to provide information on precision of the data. Field duplicates are replicate samples collected and handled in the same manner at the same time for a given station. Field duplicates were collected at station 2016-11b3 for surface water and station 2016-7d for groundwater.

Results for field duplicates were examined to determine if precision DQOs were met. The DQO for field duplicate results in the current assessment was relative percent difference (RPD) less than 40% for groundwater and 60% for groundwater given the high variability of the matrix (CCME, 2016). Relative Percent Difference is calculated as:

$$\text{RPD} = (\text{Difference} / \text{Average}) \times 100$$

RPD greater than the acceptance criteria may be considered an indication of sample contamination or lack of sample representativeness. It should be noted that high variability may occur in field duplicates with high amount of sediment in the surface water sample.

4. Visual Monitoring Results

The visual monitoring component of the LTM program was partially completed on July 18, 19, and 21, 2023, with a full day at Camlaren on the 18, and partial days at the remaining sites. Field conditions in 2023 were dry, > 27° C, and smoky due to extreme wildfire activity. Due to poor field conditions, sites Murray Lake and Try Me were not inspected in July. The remaining sites were completed during the September program on September 29 and October 1, 2023. Visual monitoring results are presented in the **Visual Inspection Forms** in **Appendix D** with supporting **Photographic Log** in **Appendix C-1**.

Observations of significance are outlined in the following sections.

4.1.1 Backfilled / Covered Area Monitoring

Backfilled and covered areas identified for the Year 5 LTM were visually inspected for settlement, erosion and structural stability (e.g., deformation and cracking) where applicable.

Monitoring results identifying areas of concern are presented in **Table 4-1** below.

Table 4-1. Observations of Significance Noted During Visual Inspection of Backfilled/Covered Areas

Site Name	LTM Station	Hazard Category	Description	Photo No.	GPS Coordinates (UTM)	Change from Year 1
Kidney Pond	KID_SO_07	Impacted soil	Rills observed on slope approximately 0.5m wide x 0.15 m deep. Likely caused by overland flow. Evidence of former ponded water observed at base.	24	12V 381497E 6982775N	Yes

4.1.2 Mine Opening Monitoring

Closures of mine openings identified for the Year 5 LTM were visually assessed for settlement, erosion, and structural stability (e.g., deformation and cracking), where applicable.

Monitoring results identifying areas of concern are presented in **Table 4-2** below.

Table 4-2. Observations of Significance Noted During Visual Inspection of Mine Openings

Site Name	LTM Station	Hazard Category	Description	Photo No.	GPS Coordinates (UTM)	Change from Year 1
Burnt Island	Portal	Mine Opening	Deep depressions noted at top of backfilled area. Estimated > 0.3m deep x 1.5 m wide. Stability of backfilled area is adequate. Top of slope of the backfilled area should be closely monitored.	46	12V 390770E 6994470N	Yes
Goodrock	North Mine Shaft	Mine Opening	Shaft observed broken from the base.	3	12V 392125E 6990827N	Yes
Kidney Pond	Portal	Mine Opening	Rills approximately 0.5m wide x 0.15 m deep were noted on south side of the slope. Coarse grained material deposited in rills.	22	12V 381495E 6982792N	Unknown
West Bay	Open Pit	Mine opening	Fencing at the south end is slanted inward towards the pond at an approximate 45-degree angle. It can be walked on to enter the open pit. At the southwest edge of the fence is a 0.3 m gap at the bottom of the fence where it does not touch the ground. Animals and humans have access.	33, 39 – 43	12V 386674E 6978352N	Yes

4.1.3 Moderate Risk Waste Rock Left in Place Monitoring

Moderate risk waste rock left in place was visually assessed. No signs of acid rock drainage (ARD) related impacts were observed therefore no soil or surface water samples were collected.

Other significant observations of note are outlined in **Table 4-3** below.

Table 4-3. Observations of Significance Noted During Visual Inspection of Moderate Risk Waste Rock

Site Name	LTM Station	Hazard Category	Description	Photo No.	GPS Coordinates (UTM)	Change from Year 1
Kidney Pond	KID_WR_01	Waste Rock	Cracks and settlement over covered material observed in areas to the west and south. Loose cover material to the south poses a hazard for walking on site. Loose material is not stable and settles approximately 0.4m when walked on.	23	12V 381564E 6982752N	Yes

5. TSCA Performance Results

5.1 Visual Inspection – 2023 July

The visual inspection of the TSCA was completed on July 18, 2023 by Janine Morris, B.Sc. of AECOM. Inspection of the TSCA noted areas of settlement, and erosion of varying degrees. The Geotechnical Inspection of the Camlaren Mine TSCA was completed in September and was submitted under separate letterhead. **Table 5-1** below summarizes the observations and supporting **Photographic Log** is presented in **Appendix C-2**.

Table 5-1. Geotechnical Visual Inspection - July

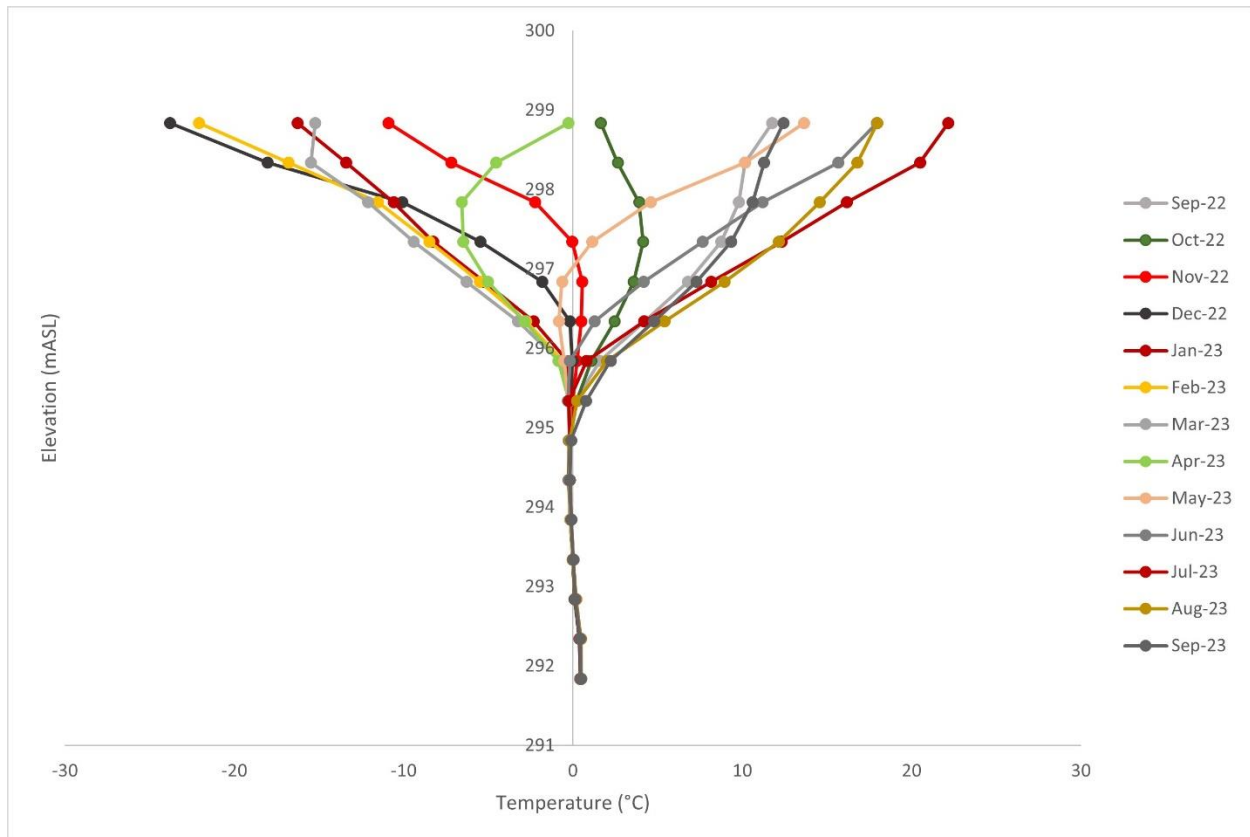
Hazard Type	Location (Approximate)	Description	Photo No.
Cracking	12V 388375E 6985973N	Cracking size approximately 0.08 m – 0.15 m in length	10
Erosion	12V 388383E 6986070N	Rills observed near base of slope with collection of fine grains.	14
Erosion	12V 388355E 6986112N	Minor rills observed on slope with transportation of fine-grained material.	16
Erosion	12V 388339E 6986122N	Minor – moderate erosion on slope with rills observed on slope.	17
Settlement	12V 388289E 6986121N – 12V 388264E 6986055N	Significant cracking due to settlement observed. Size range is approximately 1.5 m - 10 m in length.	21 - 25
Staining	12V 388262E 6986085N	Stained area of potential hydrocarbons by noted odour. Staining > 0.1 m deep.	26
Exposed geotextile	12V 388287E 6986080N	Exposed liner does not appear to have worsened from previous year.	27
Staining	12V 388268E 6986042N	Two small stains observed. Each approximately 0.3 m in length. Likely hydrocarbons from remedial activities.	29
Staining	12V 388246E 6986014N	Larger stain observed approximately 1 m x 0.5 m.	30
Staining	12V 388249E 6986004N	Significant stain observed approximately 1.5 m x 1 m.	31
Cracking	12V 388314E 6985954N	Cracking observed on top of TSCA at the south end.	33

***Note:** Staining observed in the Year 5 program was not noted in previous reports.

5.2 Thermistors

Data from the thermistors VT1 and VT2 was downloaded by AECOM on July 18, 2023 and October 1, 2023. Upon analysing the temperature data for the thermistors it was noted that measurements for thermistor VT1 only spanned from October 18, 2019 to September 18, 2022 after which no temperature measurements were collected. This could potentially indicate this sensor has malfunctioned, its physical connection to the datalogger has been disrupted, or the datalogger was not properly reset after the Year 4 data download. Unless this thermistor has been deliberately decommissioned, it is recommended that the sensor be inspected and repaired (if possible) or reset if further monitoring is required. No disruptions were observed at the VT2 location. The data downloaded for thermistor VT2 spanned from September 13, 2018 to October 1, 2023. The monthly average temperature profiles for VT2 during the period of September 1, 2022 to September 30, 2023 are shown below in **Figure 5-1**. Refer to Englobe's Year 4 Long-Term Monitoring Report for profiles of Year 1 – Year 4.

Figure 5-1. VT2 Year 4 – Year 5 Monthly Average Temperature Profiles



Temperature data downloaded from VT2 indicated a range of temperatures from approximately -22°C during the winter season to 22°C during the summer season near the ground surface. The sub-surface temperatures indicated an active zone to 4 m below the ground surface (mbgs) or to elevation of 295 masl. Within the active zone the temperature profiles fluctuate seasonally but are gradual between the surface temperature and the constant temperature zone below 4 mbgs, where the temperature is at and/or near the freezing point. The 2023 profiles for VT2 match the historical LTM data for VT2.

5.3 Vibrating Wire Piezometers

Data from the six (6) VWP installed at the three (3) locations, VB1, VB2, and VB3, were downloaded by AECOM on July 18, 2023 and October 1, 2023.

The data downloaded spanned from September 14, 2018 to October 1, 2023 for all the VWPs except VW52117. The data for VW52117 spanned from September 14, 2018 to September 4, 2023, after which null values are recorded. This could potentially indicate that this sensor has malfunctioned or its physical connection to the datalogger has been disrupted. Unless it has been deliberately decommissioned, this sensor should be inspected and repaired (if possible) or replaced if further monitoring is required.

AECOM converted the raw piezometer readings, measured in B units, into pressure values (measured in kPa) using the following linear equation (Equation 1) below:

$$P = CF * (L_0 - L) - TK * (T_0 - T) + (S_0 - S)$$

Where:

P = pressure measured in kPa;

L₀ and L = the initial (installation) and current B readings, measured in B units;

T₀ and T = the initial (installation) and current temperature readings, measured in degrees Celsius; and,

S₀ and S = the initial (installation) and current barometric pressure readings, measured in kPa.

It should be noted that the barometric pressure data was not provided to AECOM, nor were the initial (installation) readings for L₀, T₀ and S₀. In the absence of barometric pressure data, the barometric pressure term in Equation 1 was omitted from the calculation. In the absence of the initial (installation) readings for L₀, T₀ and S₀, the shipped zero readings reported on the VWP calibration records were used in the calculation. The shipped zero readings were provided by Englobe by email correspondence on December 8, 2023 and are provided below in **Table 5-2**.

Table 5-2: Shipped Zero Readings for Vibrating Wire Piezometers

Location	VWP	Linear Calibration Factor - CF (kPa/B units)	Temperature Correction Factor - Tk (kPa/deg C)	Initial B Readings - L ₀ (B units)	Initial Temperature Readings - T ₀ (deg C)
VB1	VW52115	0.0943	0.0361	8749	23.3
	VW52116	0.0953	-0.0470	8911	23.3
VB2	VW52117	0.0956	-0.0535	8168	23.2
	VW52118	0.0973	0.0516	8734	23.3
VB3	VW52119	0.0948	-0.0147	8824	23.3
	VW52120	0.0931	-0.1040	8694	23.5

Once the raw piezometer readings were converted to pressure values, the equivalent height of a water column was calculated for each pressure value and added to the reported elevation of each VWP sensor. The result was a total head value for each data point. The total head values were plotted over time for each VWP pair, as presented in **Figures 5-2** through **Figure 5-4** below.

AECOM understands that two VWPs are installed in a nested configuration at each of the three VWP monitoring locations (VB1, VB2 and VB3). The purpose of the top piezometer is to measure the pore pressures in the tailings while the purpose of the bottom piezometer is to measure the pore pressures at the bottom of the borehole near the bedrock or native soil.

Figure 5-2: Piezometric Data (Total Head Elevation) for the VB1 Location

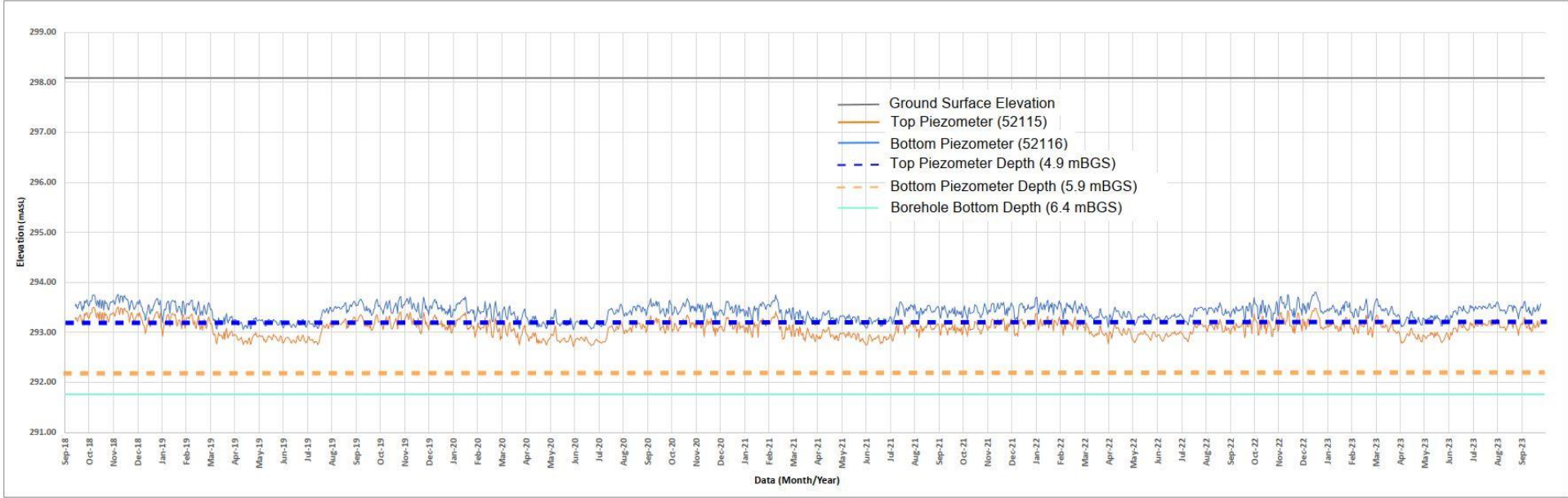


Figure 5-3: Piezometric Data (Total Head Elevation) for the VB2 Location

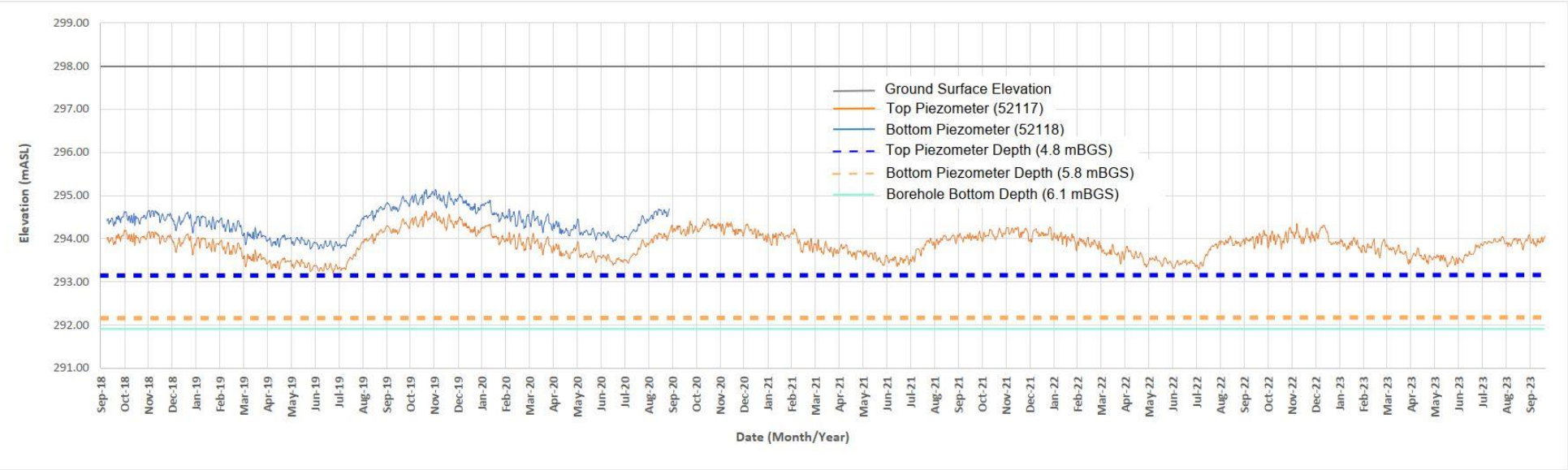
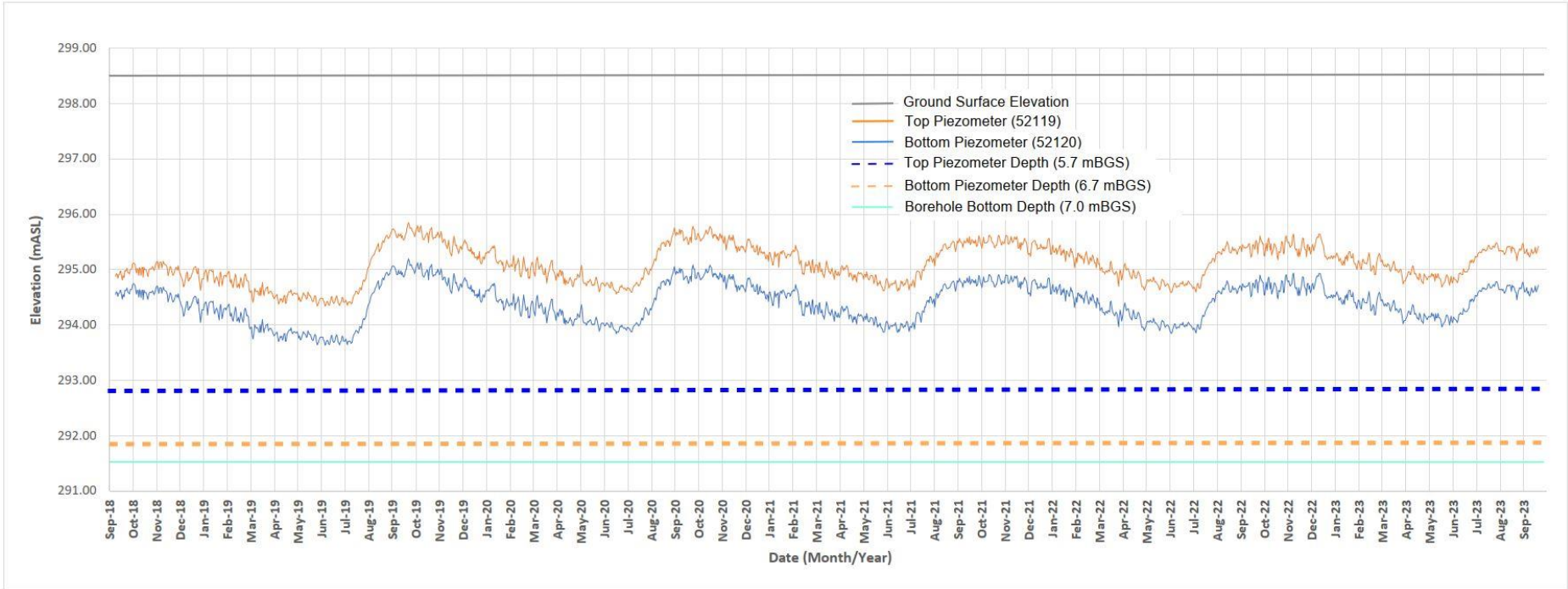


Figure 5-4: Piezometric Data (Total Head Elevation) for the VB3 Location



In general, the total head values computed by AECOM match those presented in the previous Year 3 and Year 4 LTM reports. Slight differences were observed between the total head values computed by Englobe in the Year 3 and Year 4 LTM reports for the VB3 location. The temporal trends of the data profiles appear to match reasonably well but there is an overlap of the VW52119 and VW52120 profiles between November 2018 and January 2019 seen in the Englobe Year 4 LTM report that is not observed in the profiles computed by AECOM. To maintain consistency between LTM reports, AECOM opted to use the linear equation to compute total head values. AECOM also conducted a sensitivity analysis on the shipped zero readings (L_0 , T_0 and S_0) for the two VB3 thermistor sensors used in the linear equation to determine a possible cause for the discrepancy. Through this sensitivity analysis it was concluded that the total head profiles are quite sensitive to changes in the initial readings for L_0 , T_0 and S_0 and that there may have been some human error which occurred during the preparation of the VB3 total head profiles in the Year 4 LTM report which resulted in the differences we see relative to the current total head profiles.

The piezometers at the three monitoring locations showed similar temporal trends to those reported in the previous Year 4 LTM report and the observed trends appear to continue unchanged throughout the latest monitoring period (September 6, 2022 to October 1, 2023). In general, the piezometric data for five seasons shows that the total head was lowest in the spring and summer (March to July) and highest in the late summer and winter (August to February).

At the VB1 and VB3 locations, a small upward gradient can be interpreted based on the total head difference between the top and bottom piezometers. At the VB2 location, a small downward gradient can be interpreted.

6. Surveillance Network Program (SNP) Results

6.1 Groundwater Monitoring

During the July program at Camlaren, groundwater monitoring and sampling was completed over two days, July 18 and 20, 2023. All six groundwater wells were monitored on July 18. MW2 was observed dry at the time of monitoring. MW1, MW3, and MW4 were sampled using a battery-operated peristaltic pump. The recharge rate was insufficient for sampling wells MW5 and MW6 and they were purged dry. MW6 was sampled on July 20 using a dedicated bailer and MW5 recharge was insufficient for a representative sample. Sampling locations are shown in **Figures 8** in **Appendix A** and in-situ measurements are summarized in **Table B-2** in **Appendix B**.

During the September program, groundwater monitoring and sampling was completed over two days, September 29 and October 1, 2023. All six groundwater wells were monitored on September 29. All groundwater wells sampled were collected using a battery-operated peristaltic pump. MW1, MW3, and MW4 were sampled on September 29, 2023. MW2 contained insufficient water for a representative sample and MW5 was not sampled due to insufficient water and lost sampling devices down the well. MW6 was purged dry on September 29, and sampled on October 1, 2023. The well contained insufficient water for a complete sample with its duplicate and a partial sample was collected, prioritizing metal analysis bottles.

A blockage was noted MW1 in monitoring Years 2 and 3, which has not been observed since. In monitoring Year 4, MW2 was determined to be blocked, which had been previously noted as dry in monitoring Years 2 and 3. Based on the borehole depth and recently recorded depth to bottom, AECOM determined MW2 blocked in Year 5. Though water levels may still be recorded, sampling of MW2 should not occur until the blockage has been inspected and it has been determined that the groundwater water is from within the TSCA and not surface water infiltration.

Table 6-1. Year 5 LTM - 2023 Monitoring Well Measurements

Monitoring Well ID	Surface Elevation (masl) ¹	Monitoring Well Pipe Stickup (m)	Depth of Well (mbp) ²	Groundwater Depth		Groundwater Elevation (masl)	
				July	September	July	September
MW1	298.73	0.94	6.12	5.45	5.05	294.22	294.62
MW2	298.96	0.93	8.0 ³	Dry	5.02	-	294.87
MW3	292.41	0.77	7.89	3.12	2.66	290.07	290.52
MW4	294.52	0.58	4.68	3.52	3.66	291.58	291.44
MW5	296.58	0.65	5.52	5.48	Dry	291.75	-
MW6	295.45	0.67	6.15	4.25	4.03	291.87	292.09

Notes:

1. metres above sea level
2. metres below top of pipe
3. depth taken from borehole logs. Added well stickup height for total depth.

Table 6-2 presents the groundwater elevations from Year 1 to Year 5 (present).

Table 6-2. Groundwater Elevations 2018 - 2023

Monitoring Date	Groundwater Elevations (masl)					
	MW1	MW2	MW3	MW4	MW5	MW6
Sept. 16, 2018	295.90	Dry	290.35	292.56	292.34	290.90
July 8 – 10, 2019	Blockage	293.37	291.07	292.85	292.82	294.15
Sept. 10 – 11, 2019	296.35	293.87	291.06	292.86	293.12	294.07
July 17, 2020	Blockage	293.61	291.25	293.35	293.05	294.16
Sept. 3, 2020	Blockage	293.94	291.17	292.95	292.60	294.12
June 18, 2021	Blockage	Blockage	291.10	292.23	292.54	293.71
Sept. 15, 2021	Blockage	Blockage	291.11	292.27	292.54	293.83
June 29, 2022	293.72	Blockage	291.12	292.14	292.76	293.90
Sept. 7, 2022	294.65	Blockage	291.01	292.03	293.08	293.54
July 18 – 20, 2023	294.22	Blockage	290.07	291.58	291.75	291.88
Sept 29, 2023	294.62	294.87 ¹	290.52	291.44	Dry	292.09

Note:

1. Groundwater recorded above suspected blockage.

6.1.1 Analytical

Detailed analytical results are summarized in **Table B-3** in **Appendix B**. The groundwater analytical results were compared to the Tier 1 FIGQG for agriculture land use for coarse-grained soil types. Based on the laboratory groundwater analytical results, concentrations of the analysed chemical parameters were below the applicable guidelines and standards for all the submitted groundwater samples, with exceptions summarized below in **Table 6-3**.

Table 6-3. Groundwater Analytical Result Exceedances

Sampling Station	Date	Exceedances
MW1	July 18, 2023	Aluminum, Sulphate, Arsenic, Iron, Manganese, Zinc
	September 29, 2023	Aluminum, Sulphate, Arsenic, Iron, Manganese, Zinc
2016-7a (MW3)	July 18, 2023	Sulphate, Arsenic, Iron, Manganese
	September 29, 2023	Sulphate, Arsenic, Iron, Manganese, Uranium
2016-7b (MW4)	July 18, 2023	Sulphate, Arsenic, Iron, Manganese, Zinc
	September 29, 2023	Sulphate, Arsenic, Cadmium, Iron, Manganese, Zinc
2016-7d (MW6)	July 20, 2023	Aluminum, Sulphate, Arsenic, Cadmium, Iron, Manganese, Selenium, Silver, Zinc
	October 1, 2023	Sulphate, Nitrite, Selenium

Notes:

Red indicates exceedances in previous LTM report.

Results of the Year 5 analysis are generally consistent with previous monitoring years and exceedances in Year 5 were similar in Previous LTM reports. However, between 1 and 4 exceedances were observed in Year 5 which were not previously observed. Station 2016-7d reported the greatest increase of exceedances of cadmium, selenium, and silver. Silver may be anomalous as it did not exceed FIGQG guidelines in the duplicate sample. It is unknown at this time if there is an increasing trend for metal concentrations though it should be noted that 2023 experienced persistently dry conditions, decreasing water levels, which may have increased the overall metal concentrations.

6.2 Surface Water Monitoring

During the July program, the 18 surface water locations were monitored on July 18, 20, and 21, 2023. SNP Stations 2016-8 (discharge from TSCA) were observed dry and PIT1 and PIT 2 sampling locations were determined to be inaccessible.

During the September program, the 18 surface water locations were monitored on September 29, and October 1, 2023. SNP stations 2016-8 (discharge from TSCA) were observed dry. PIT1 and PIT 2 were removed from the scope of work by CIRNAC based on the observations in July. Sampling locations are shown in **Figure 2** through **Figure 26** in **Appendix A** and in-situ parameters are summarized in **Table B-1** of **Appendix B**.

6.3 Analytical

Detailed analytical results are summarized in **Table B-3** in **Appendix B**. The surface water analytical results were compared to the CCME CEQG FAL long-term guideline values. Based on the laboratory analytical results, concentrations of all the analysed chemical parameters were below the applicable guideline values and standards for all the submitted surface water samples, with exceptions summarized below in **Table 6-4**.

Table 6-4. SNP - Surface Water Analytical Result Exceedances

Sampling Station	Date	Exceedance
2016-11a	July 21, 2023	Ammonia, Copper
	September 29, 2023	Ammonia
2016-11b3	July 18, 2023	Aluminum
2016-11d	July 20, 2023	Ammonia, Aluminum, Arsenic, Iron, Copper

Notes:

- Red indicates exceedances in previous LTM reports.

Most SNP stations reported concentrations below the regulatory guidelines which is generally consistent with previous reporting years. Three stations, 2016-11a, 2016-11b3 and 2016-11d reported exceedances ranging between 1 – 5 parameters per station. The majority of exceedances were reported in previous Years with the exception of ammonia and copper at 2016-11a and copper at 2016-11d. Field observations note high suspended plant life in various states of decomposition within the bay sampled, which may explain the increased ammonia concentration.

Total suspended solids (TSS) was analyzed to assess potential erosion risk of the backfilled remedial excavation areas. A summary of TSS results from Years 1 through 5 are presented below in Table 6-5.

Table 6-5. Summary of Year 1 through Year 5 LTM TSS Results

Sampling Point	Total Suspended Solids Concentrations (mg/L)									
	Year 1 July	Year 2 July	Year 3 June	Year 4 June	Year 5 July	Year 1 Sept.	Year 2 Sept.	Year 3 Sept.	Year 4 Sept.	Year 5 Sept.
SNP2016-11a_SW	10	1.7	12.0	6.0	1	1.3	7.3	10.0	8.0	<0.96
SNP2016-11b1_SW	160	<1.0	6.0	<3.0	<0.99	7.3	<1.0	6.0	<3.0	<1.0
SNP2016-11b2_SW	5.3	<1.0	12.0	<3.0	<1.0	1.3	<1.0	10.0	<3.0	<0.99
SNP2016-11b3_SW	4.7	<1.0	26.0	<3.0	3.1	2.0	<1.0	10.0	<3.0	5.9
SNP2016-11b4_SW	2.0	<1.0	8.0	<3.0	<1.0	1.3	<1.0	6.0	<3.0	<0.96
SNP2016-11c_SW	11.0	<1.0	<3	<3.0	<1.0	2.0	<1.0	14.0	<3.0	<1.0
SNP2016-11d_SW	5.3	8.9	12.0	38	210	10	2.3	150.0	6.0	1.3
SNP2016-11e_SW	<1.0	<1.0	6.0	<3.0	1.4	1.3	1.4	18.0	<3.0	1.8
SNP2016-11f_SW	1.3	<1.0	10.0	<3.0	<1.0	2.7	1.4	12.0	6.0	<1.0
SNP2016-8a_SW	Not collected during Years 1 through 5 (Dry)									
SNP2016-8b_SW	Not collected during Years 1 through 5 (Dry)									

Overall, TSS concentrations are generally decreasing when compared to LTM Years 1 through 4 in the majority of sampling stations. Some stations record an increase in TSS concentration, however when compared to the next sampling event, either September of that year, or June/July of the following year, the increase of concentration does not persist. Erosion from backfilled remedial excavations is not observed at this time.

6.4 Surface Water Sampling – West Bay

Complete analytical results of surface water samples in West Bay are presented in Table B-6 in Appendix B. The surface water analytical results were compared to the CCME CEQG FAL long-term guideline values. Based on the laboratory analytical results, concentrations of all the analysed chemical parameters were below the applicable guideline values and standards for all the submitted surface water samples, with exceptions summarized below in **Table 6-6**.

Table 6-6. Surface Water Analytical Result Exceedances – West Bay

Sampling Station	Date	Parameter Exceedance
WET 1	July 21, 2023	Ammonia
	October 1, 2023	Copper
WET2	July 21, 2023	Ammonia, Iron
GL1	October 1, 2023	Lab pH
GL2	October 1, 2023	Lab pH
GL3	October 1, 2023	Lab pH

Notes:

- **Red** indicates exceedances in previous LTM reports.

Apart from the parameter exceedances listed in Table 7-1, samples collected at West Bay surface water stations reported concentrations below the regulatory guidelines, which is generally consistent with the previous report in Year 1 (Stantec 2020). Ammonia was reported as an exceedance at WET1 and WET2, which was not previously reported, though it should be noted the high TDS values during months that exceedances occur. Field observations note plant life in various decomposing stages which may result in increased ammonia concentrations. An exceedance of copper was reported at WET1, which has not been

previously reported. An exceedance in iron was reported at WET2, which was previously reported in Year 1. GL1, GL2, and GL3 were outside the pH criteria in October for the laboratory reported results, which was not previously reported. It should be noted the laboratory hold time for pH is 15 minutes and was exceeded, and the respective in field observations were within acceptable ranges, with values of 7.31 to 8.03.

6.5 QA/QC

Two duplicate samples were collected for QA/QC purposes in both July and September programs and analyzed for the relevant parameters. Stations 2016-11b3 was sampled with a duplicate for surface water and 2016-7d was sampled with a duplicate for groundwater. RPD was calculated for all duplicate samples and results were considered acceptable if the RPD was less than 40% for groundwater and 60% for surface water. Calculated RPD are presented in Table B-5 in Appendix B.

The calculated RPD generally remain below the alert criteria. Surface water exceeded the alert criteria for nitrate, nitrite, TSS, phosphorous, copper, and zinc in one or both sampling events. Groundwater exceeded the alert criteria for several metals, nitrite and TSS in one or both sampling events. Overall, these results do not affect the interpretation of the data for the site.

7. Summative Results and Conclusions

The Year 5 LTM program was completed on July 18, 20, and 21 and September 29 and October 1 2023.

TSCA Performance

Results of the Year 5 monitoring of thermistor VT2 indicate generally consistent results to previous Years; however, it was noted that temperature data collection at the VT1 location has been disrupted and data after September 18, 2022 has not been collected. Unless the VT1 sensor has been deliberately decommissioned, it is recommended that this sensor be inspected and repaired or replaced if further monitoring is required.

Results of the Year 5 monitoring of the vibrating wire piezometer locations VB1, VB2 and VB3 indicate generally consistent results to previous Years; however, it was noted that data collection for VW52117 at the VB2 location has been disrupted and data after September 4, 2020 has not been collected. This data collection disruption for VW52117 has been noted in the previous Year 3 and Year 4 LTM reports. Unless the VW52117 sensor has been deliberately decommissioned, it is recommended that this sensor be inspected and repaired or replaced if further monitoring is required.

It was also noted that there is a discrepancy between the Year 4 and Year 5 total head profiles at the VB3 location. Through sensitivity analysis of the initial readings for L_0 , T_0 and S_0 it was concluded that possible human error during the preparation of the Year 4 profiles was responsible for the discrepancy.

SNP Monitoring and West Bay Sampling

The results of the SNP groundwater and surface water monitoring indicate generally consistent results to previous Years. However, between 1 - 4 exceedances in total metals were reported in Year 5 which were not reported previously for groundwater stations. Surface water results at SNP stations were generally consistent with previous monitoring Years with the exception of ammonia at station 2016-11a, which exceeded in both sampling events and copper at 2016-11a and 2016-11d in July and September respectively. Results from West Bay remain consistent to previous Years with the exception of ammonia during the July program and copper exceeding at WET1 during the September program.

It is unknown at this time if there is an increasing trend in metal concentrations, however it should be noted that 2023 experienced persistently dry conditions and decreasing water levels, which may have increased the overall metal concentrations. Increased ammonia is not a concern at this time as field observation note various states of plant decomposition in several sampling locations.

Visual Inspections of Geotechnically Engineered Areas

Visually inspected areas were generally in good condition. The following areas require further observation or repair:

- Camlaren – Impacted soil areas CAM_SO_04, CAM_SO_06, and CAM_SO_07: stained soil in four separate locations. One location exhibited faint hydrocarbon odour.
- Camlaren – The aluminum debris pile located north of the TSCA should continue to be monitored for any changes in Year 6.
- Kidney Pond - Impacted soil area KID_SO_07: areas of settling likely caused by ponding water.
- Kidney Pond – Portal: Rills observed on south side of slope. Unknown if worsening from previous Years.
- Kidney Pond – Waste Rock KID_WR_01: cracks and settlement over covered material. Loose material is not stable and settles approximately 0.4 m deep posing a walking hazard to animals and humans.
- Burnt Island – Portal: deep depressions at top of backfilled area. Top of slope should be closely monitored.

- Goodrock – North Mine Shaft: Shaft observed broken from the base.
- West Bay – Open Pit: Barricades are not performing adequately. A gap remains at the south side of the fence and the southeast side has collapsed at the top, allowing access to the pit by animals and humans.

8. Recommendations

AECOM recommends the following from the Year 5 LTM Program:

- AECOM recommends allocating one contingency day into the program for delays out of the field team's control e.g., weather, visibility etc.
- In Year 6, a portable borehole camera should be brought to MW 2 to inspect the assumed blockage.
- VT2 needs to be inspected for the cause of data recording cancellation. Replacement batteries should be brought to site as well as a laptop with the appropriate program to further troubleshoot if necessary. The individual performing this inspection should be familiar with the DT Logger Host software.
- All dataloggers should be cleared of old data, replace batteries as needed, and re-launched to read/record data at the appropriate intervals so the loggers are not full before the next monitoring event.
- For detailed inspection of geotechnically engineered structures at the various sites, trees should be cleared for helicopter landing pads at Kidney Pond (KID_WR_04), Murray Lake, and Try Me.
- Continuing from Year 4 recommendations, data for VWP 52117 – top piezometers at VB2 location spanned from September 14, 2018 to September 4, 2020, after which null values are recorded. This potentially indicate this sensor has malfunctioned or its physical connection to the datalogger has been disrupted. Unless it has been deliberately decommissioned, this sensor should be inspected and repaired or replaced if further monitoring is required.
- Upon analysing the temperature data for thermistors VT1 and VT2 it was noted that measurements for thermistor VT1 only spanned from October 18, 2019 to September 18, 2022 after which no temperature measurements were collected. This could potentially indicate this sensor has malfunctioned, its physical connection to the datalogger has been disrupted, or the datalogger was not properly reset after the Year 4 data download. Unless this thermistor has been deliberately decommissioned, it is recommended that the sensor be inspected and repaired or reset if further monitoring is required.
- Camlaren – Impacted soil areas CAM_SO_04, CAM_SO_06, and CAM_SO_07: stained soil in four separate locations. One location exhibited faint hydrocarbon odour. It is suggested that during the Year 6 monitoring program that stained soiled is excavated with a shovel, and the excavated soil removed from site in 5 gallon pails. A confirmatory sample should be taken at each location following removal of the soil and analyzed for PHCs and BTEX. Areas should continue to be observed in Year 6 onward.
- Camlaren – The aluminum debris pile observed on the north side of the TSCA should continue to be observed for any change in the Year 6 monitoring.
- The Year 5 Long Term Monitoring Performance Assessment Report should be completed to evaluate any other recommendations or changes to the program for Phase II.

9. References

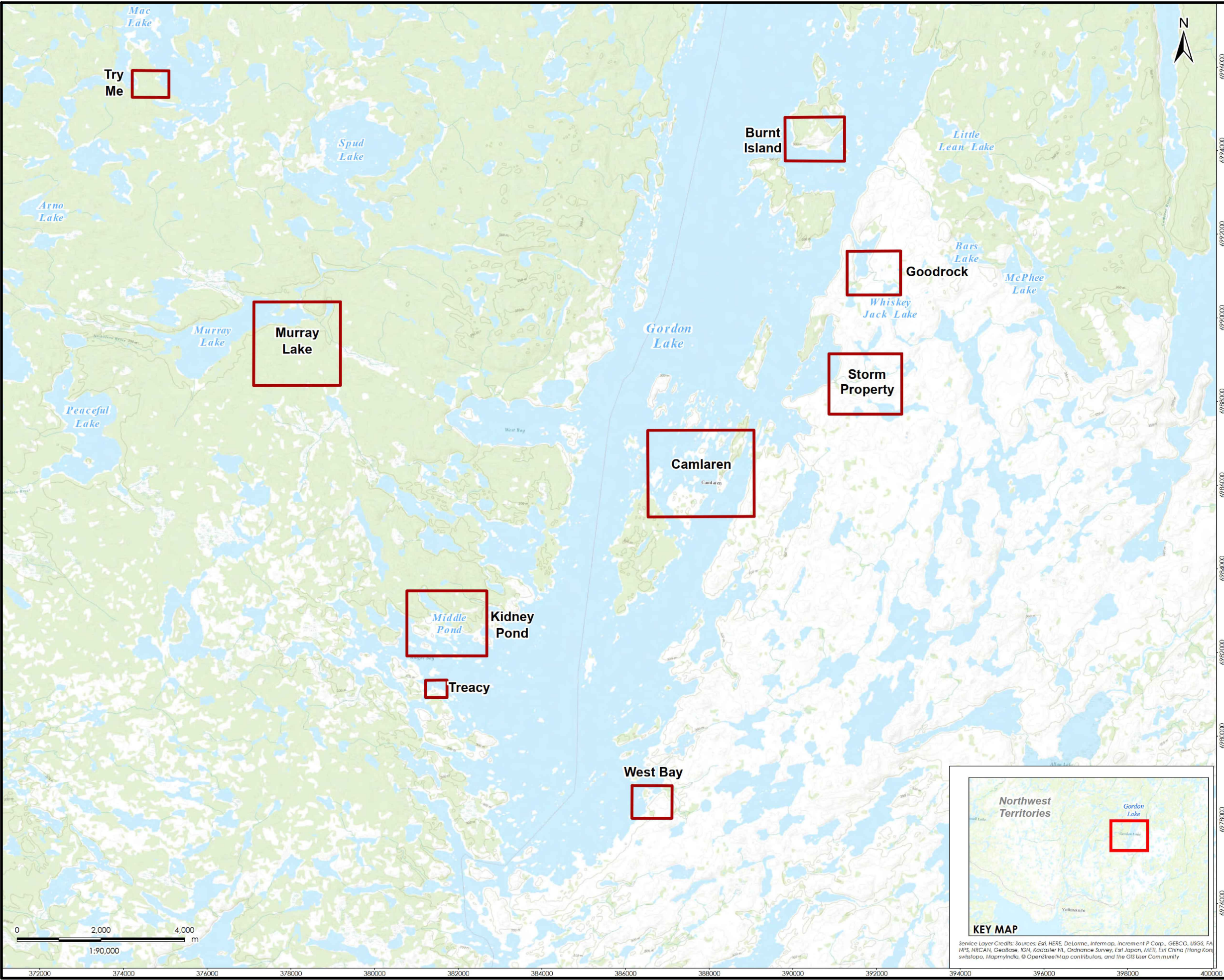
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Appendix **A**

Figures





Legend

Site Location

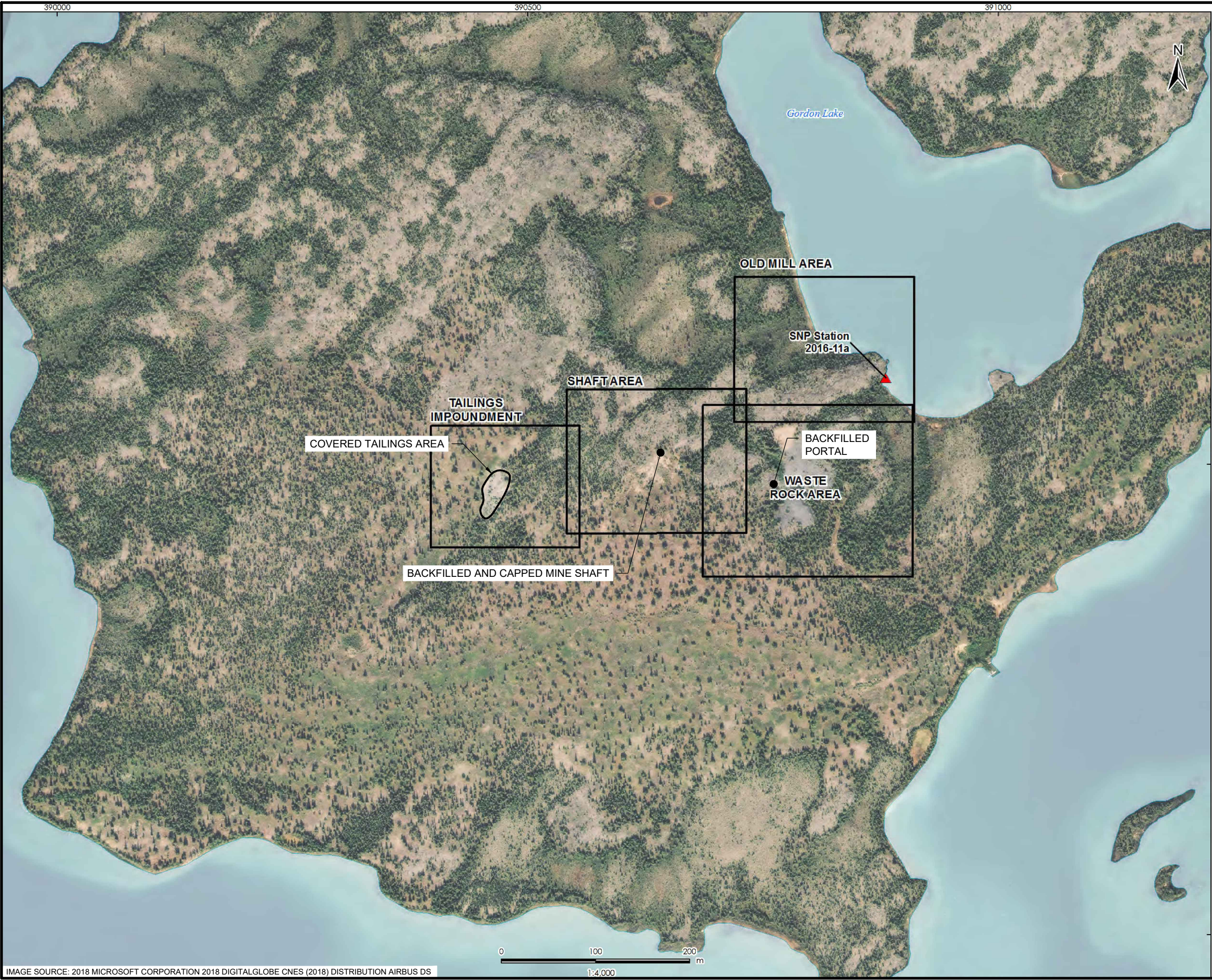
NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:

FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I LONG-TERM MONITORING PLAN - GORDAN LAKE GROUP OF SITES", PREPARED BY STANTEC CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL



▲

Surface Water Sample Location

Watercourse

Waterbody

Map Extent

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:

FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL



IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY

- Legend**
- Trail
 - Tailings

- NOTES:**
- COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL

BURNT ISLAND
TAILINGS IMPOUNDMENT AREA



Backfilled and Capped
Mine Shaft

Legend
 Mine Opening

NOTES:
1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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Issue Status: FINAL



Issue Status: FINAL

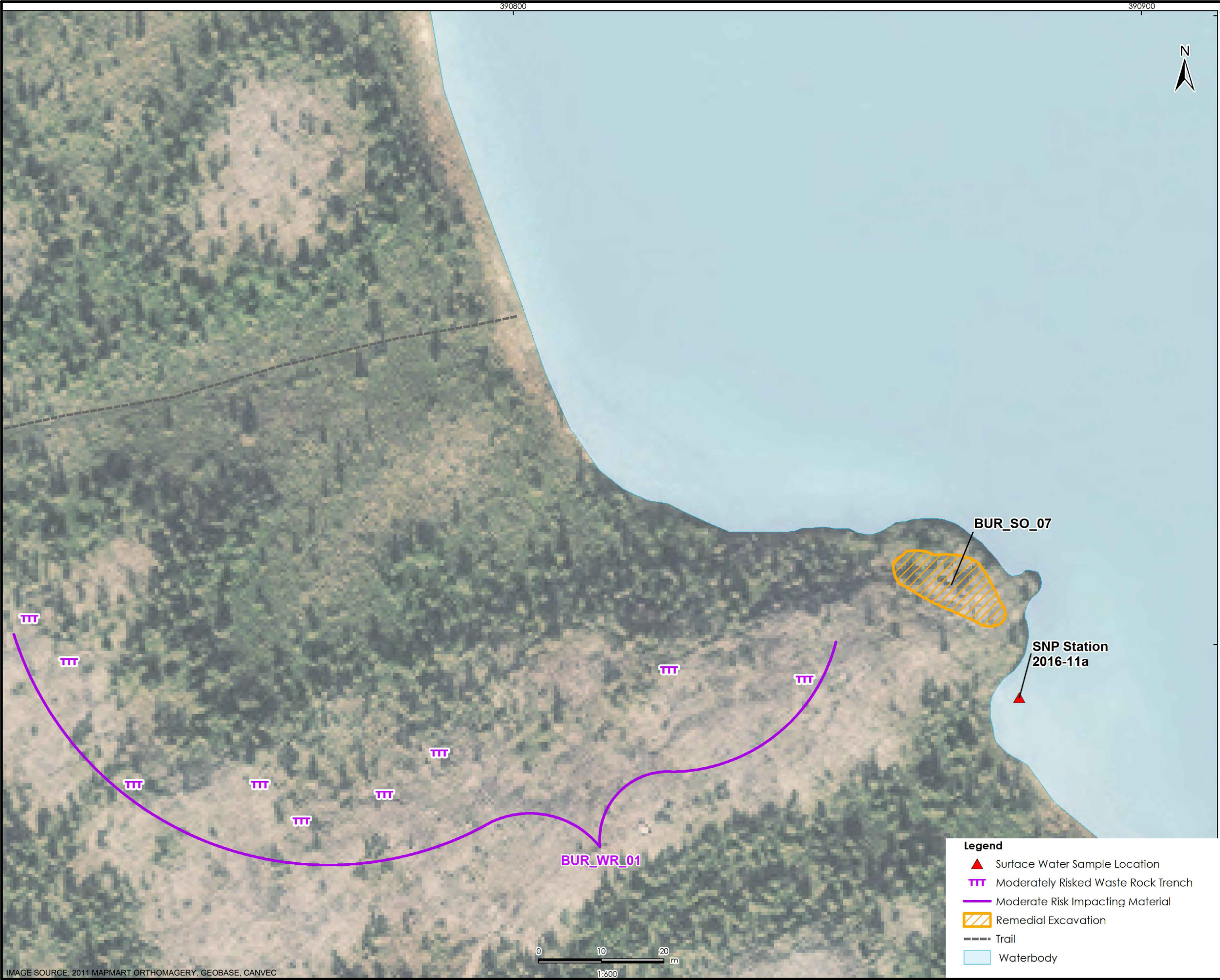


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

Surface Water Sample Location

Moderately Risked Waste Rock Trench

Moderate Risk Impacting Material

Remedial Excavation

Trail

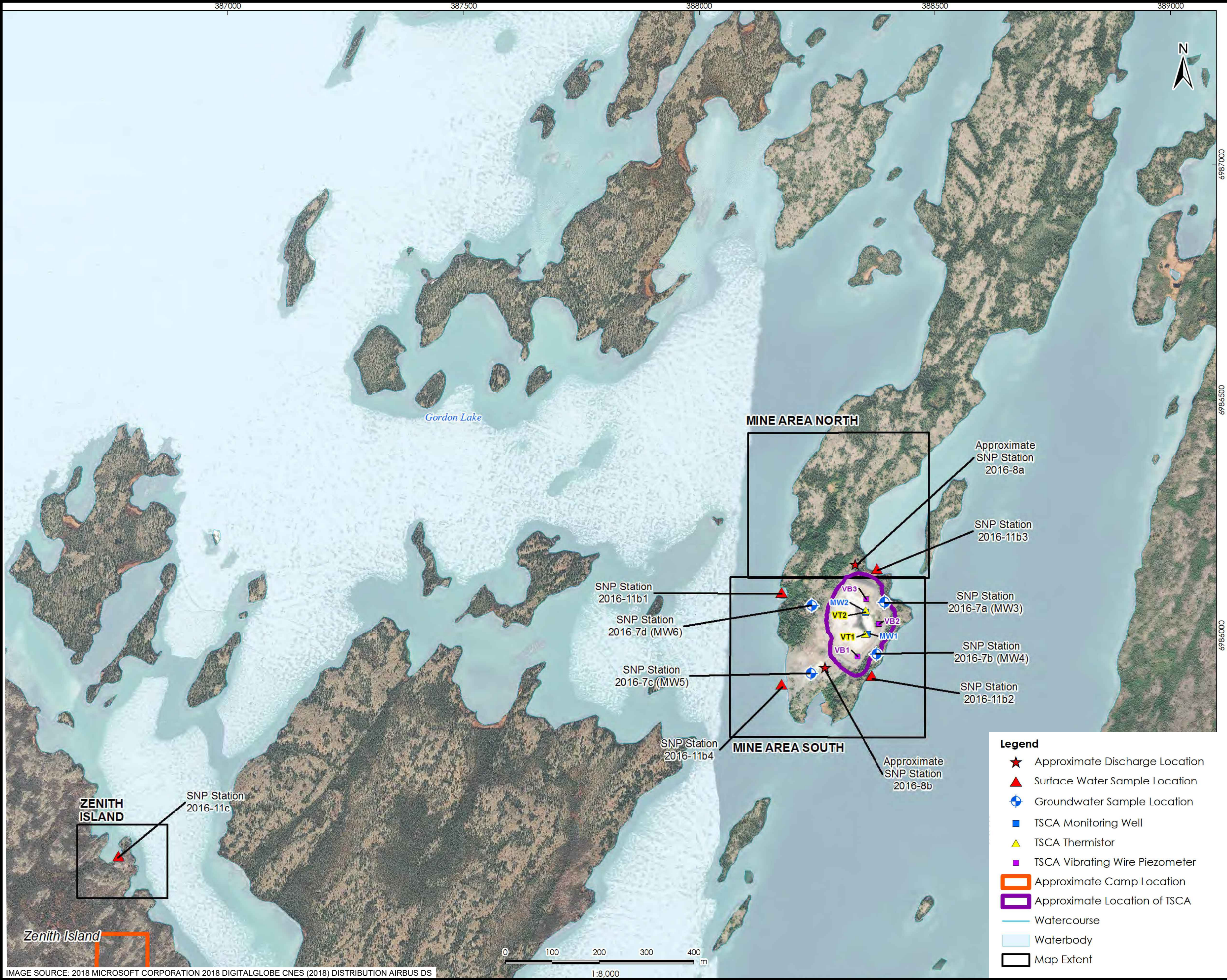
Waterbody

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
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Issue Status: FINAL



NOTES:

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SOURCE:
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Issue Status: FINAL

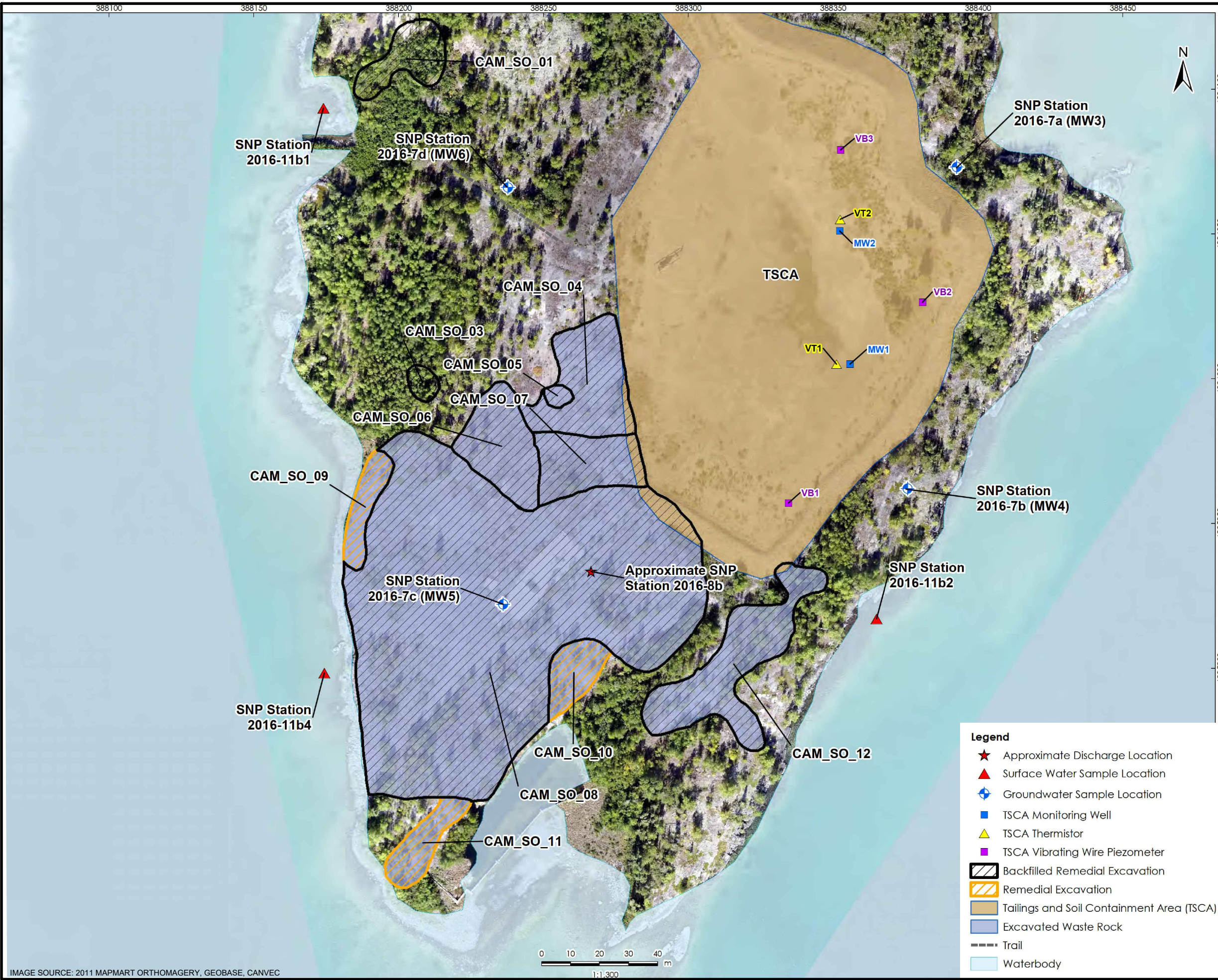


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

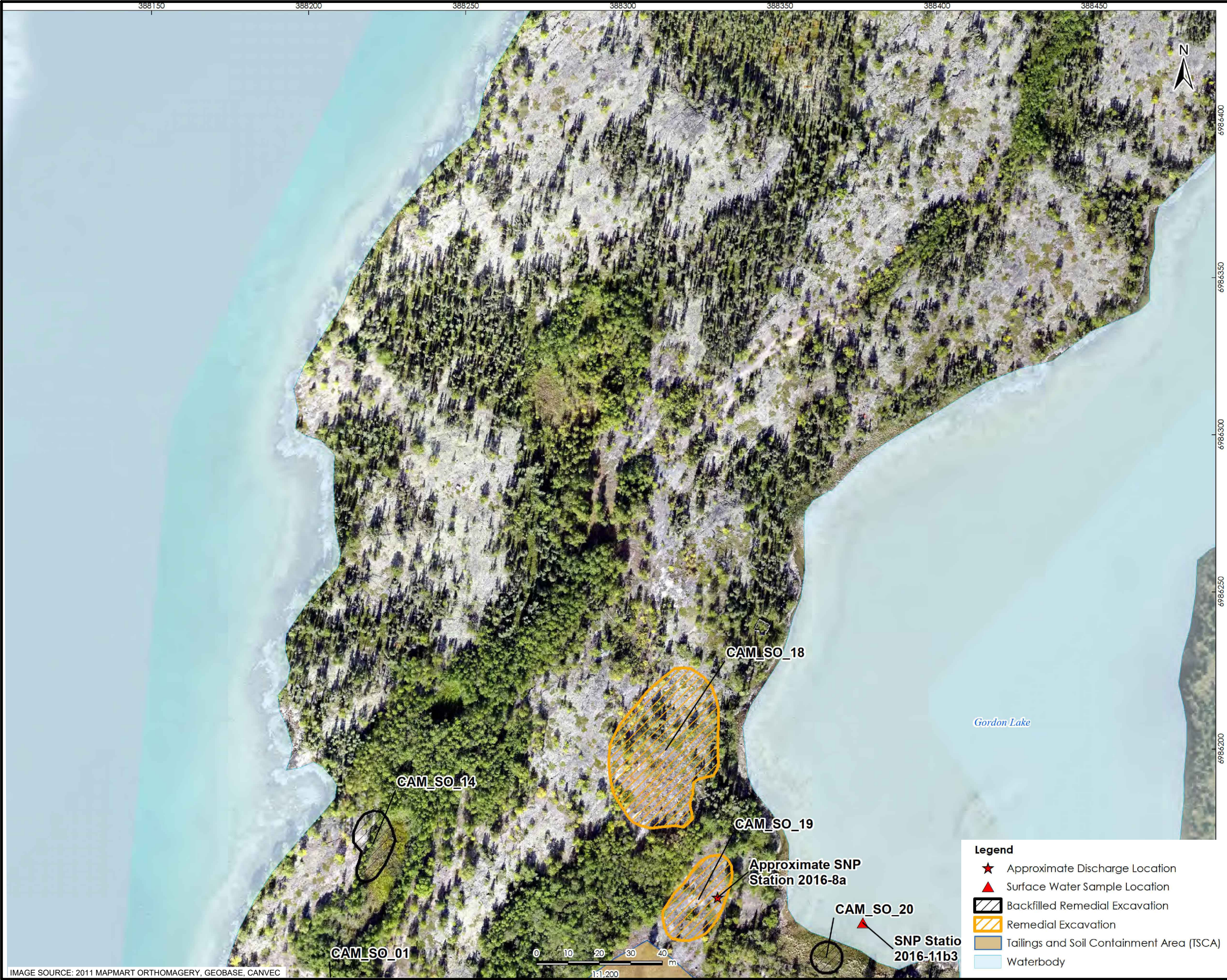
- ★ Approximate Discharge Location
- ▲ Surface Water Sample Location
- ⊕ Groundwater Sample Location
- TSCA Monitoring Well
- ▲ TSCA Thermistor
- TSCA Vibrating Wire Piezometer
- ▨ Backfilled Remedial Excavation
- ▨ Remedial Excavation
- Tailings and Soil Containment Area (TSCA)
- Excavated Waste Rock
- Trail
- Waterbody

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL



Issue Status: FINAL

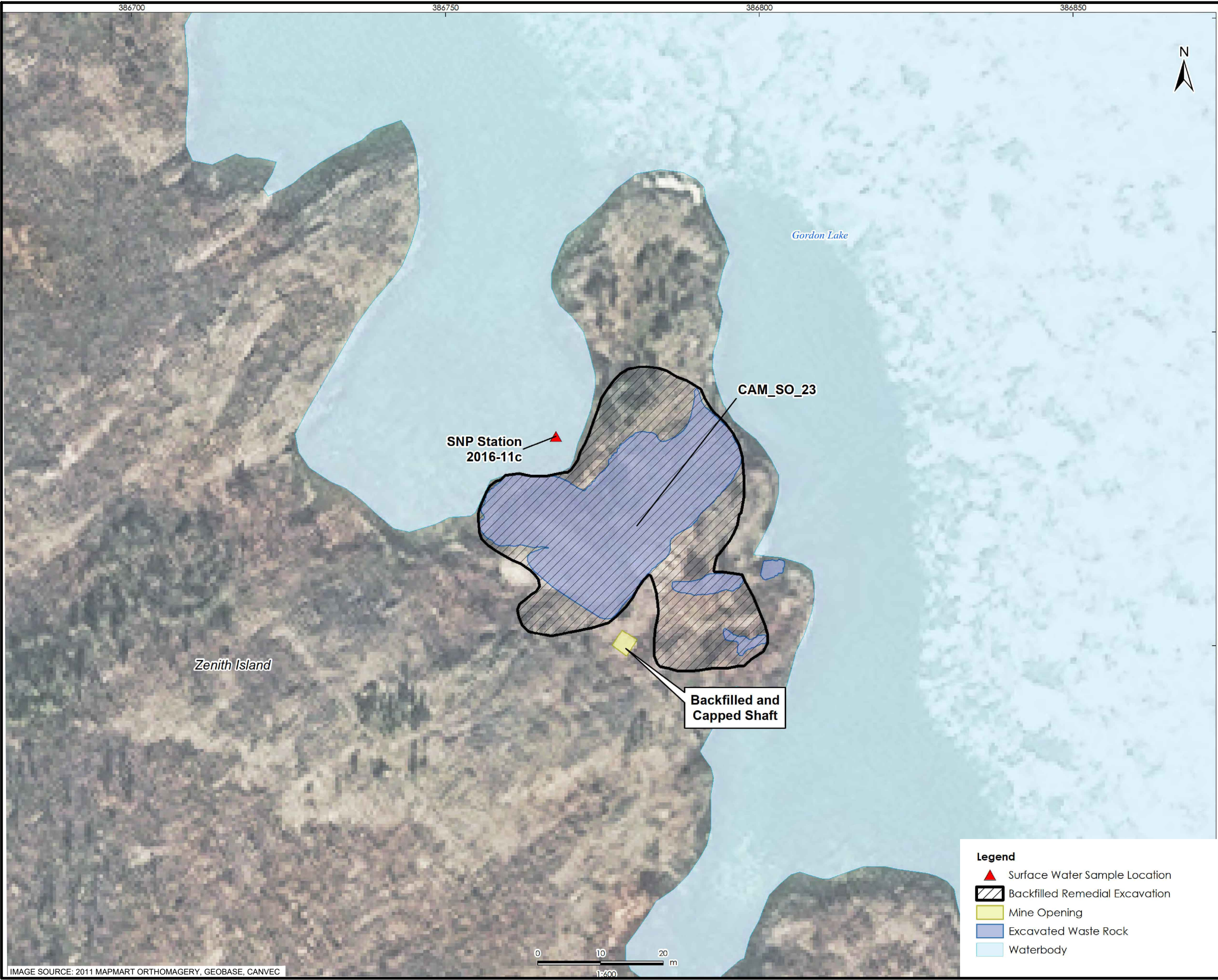


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

▲

Surface Water Sample Location

Backfilled Remedial Excavation

Mine Opening

Excavated Waste Rock

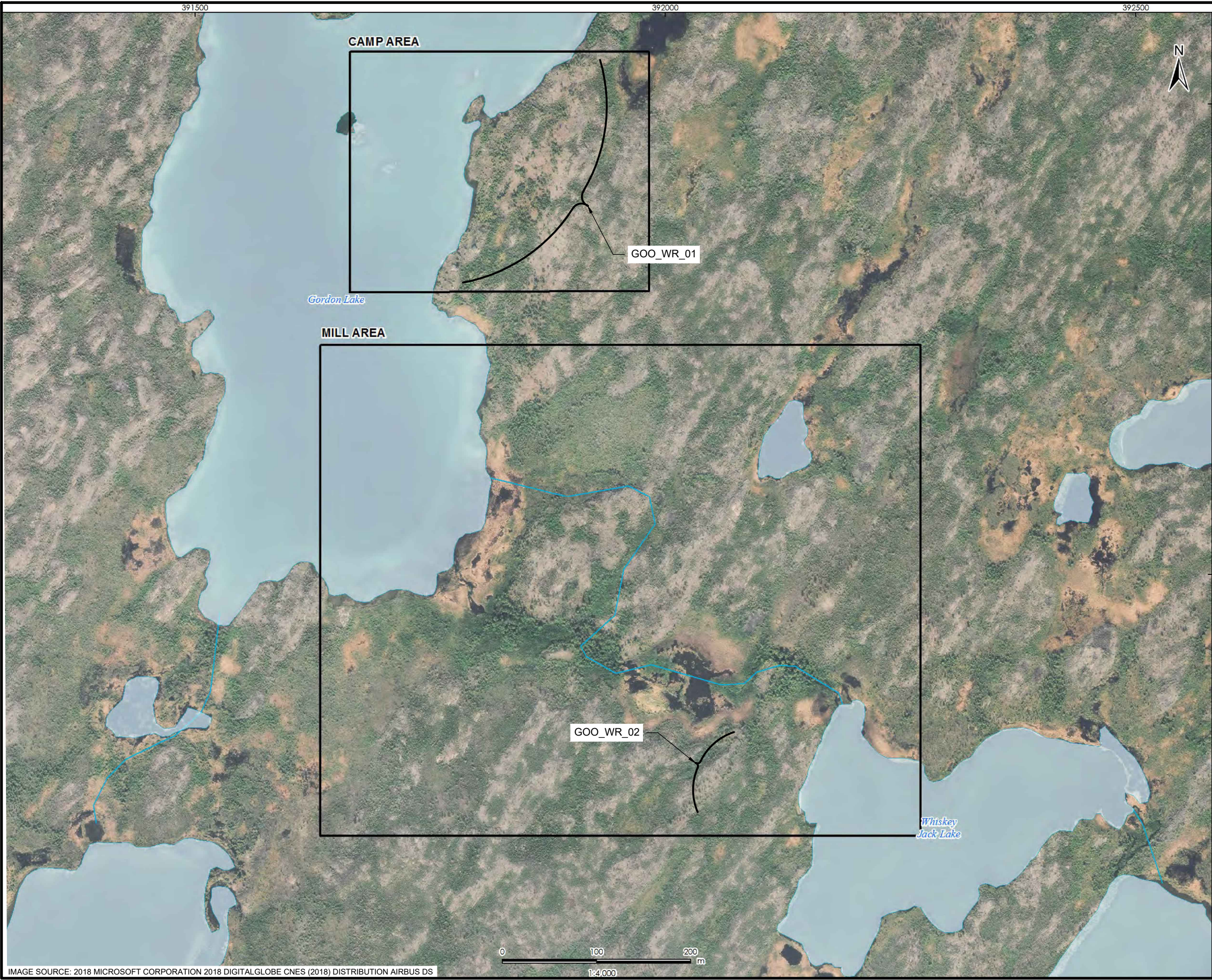
Waterbody

NOTES:

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SOURCE:
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LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL



Legend

- Watercourse
- Waterbody
- Map Extent

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
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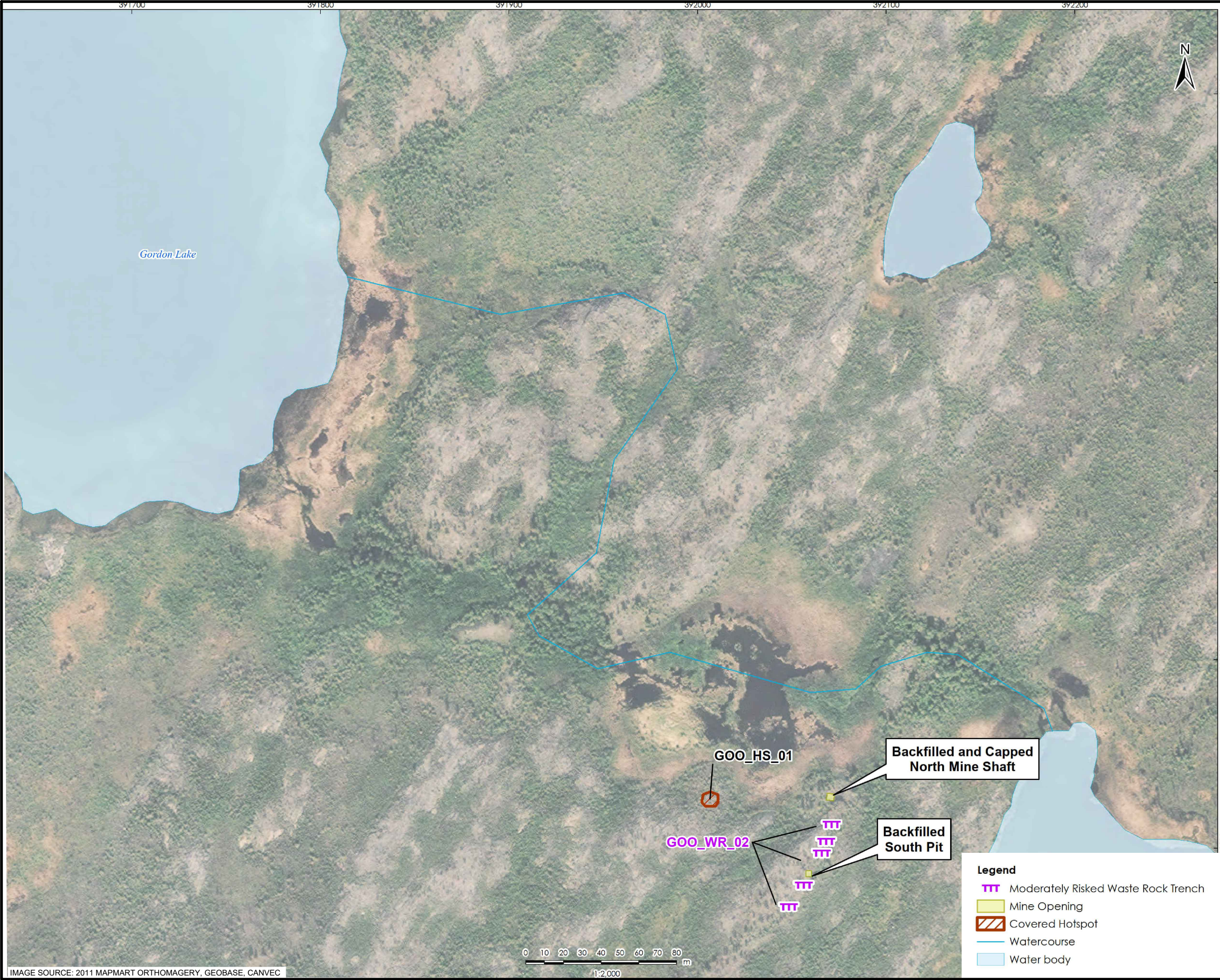


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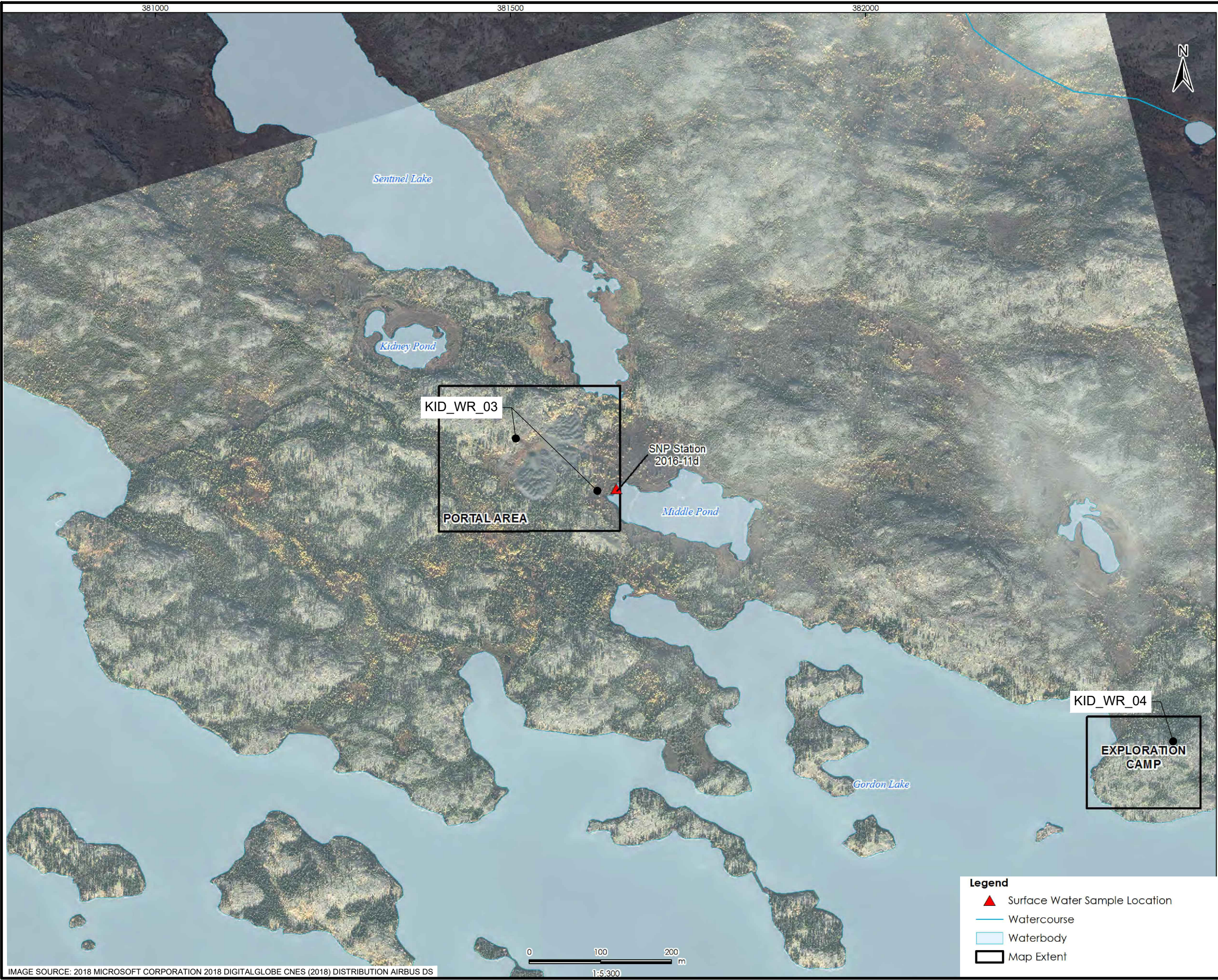


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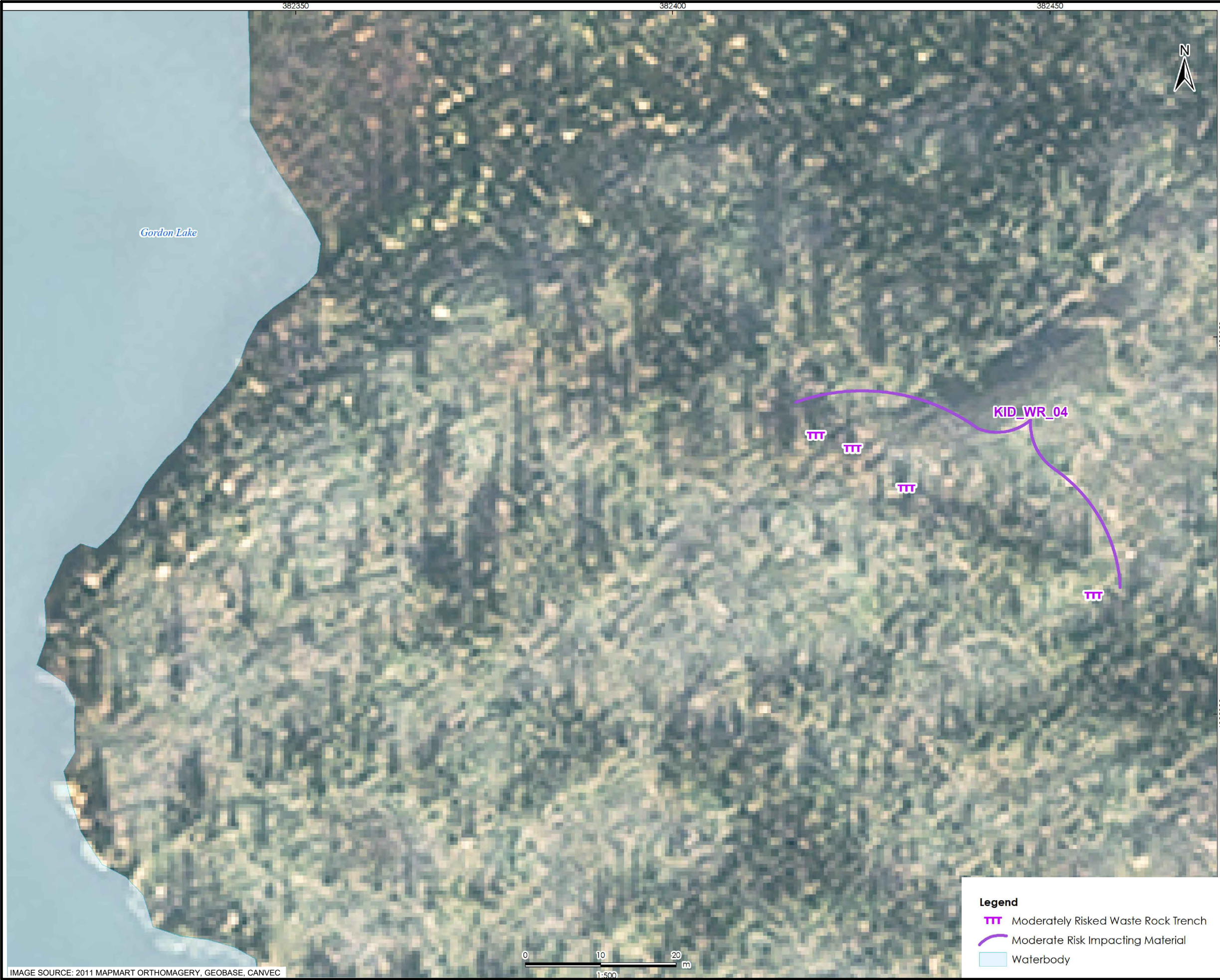


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Issue Status: FINAL

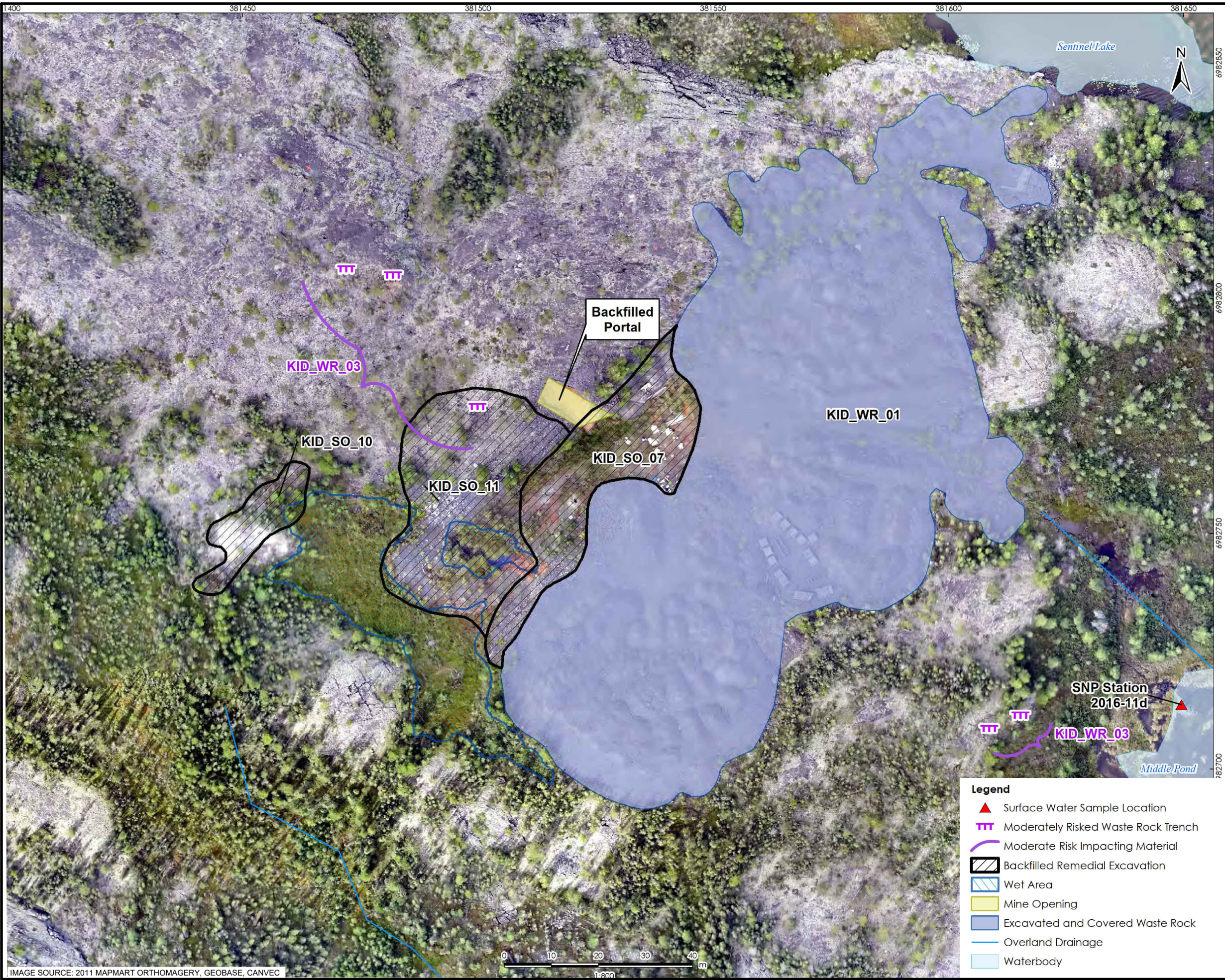


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Issue Status: FINAL

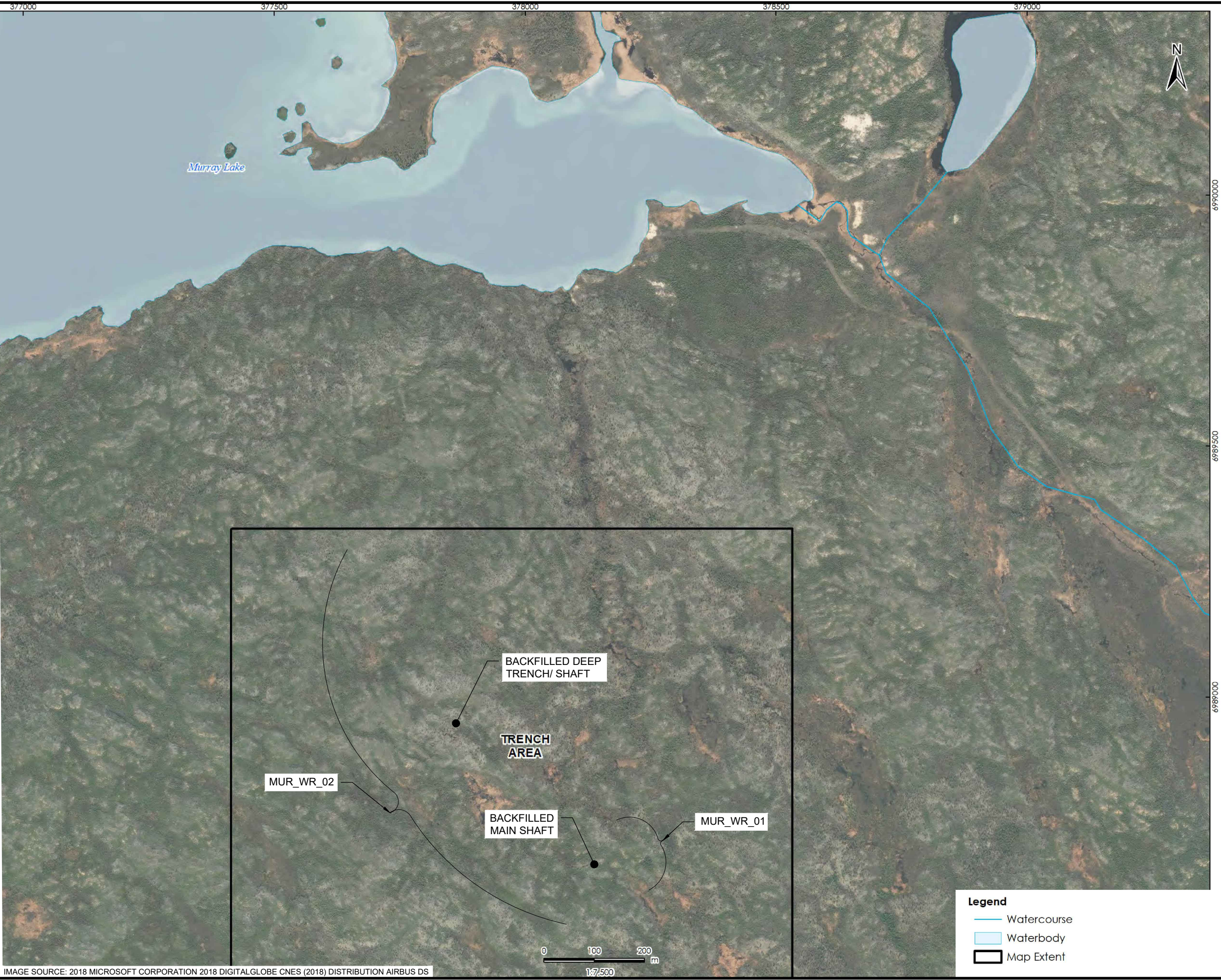


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Issue Status: FINAL



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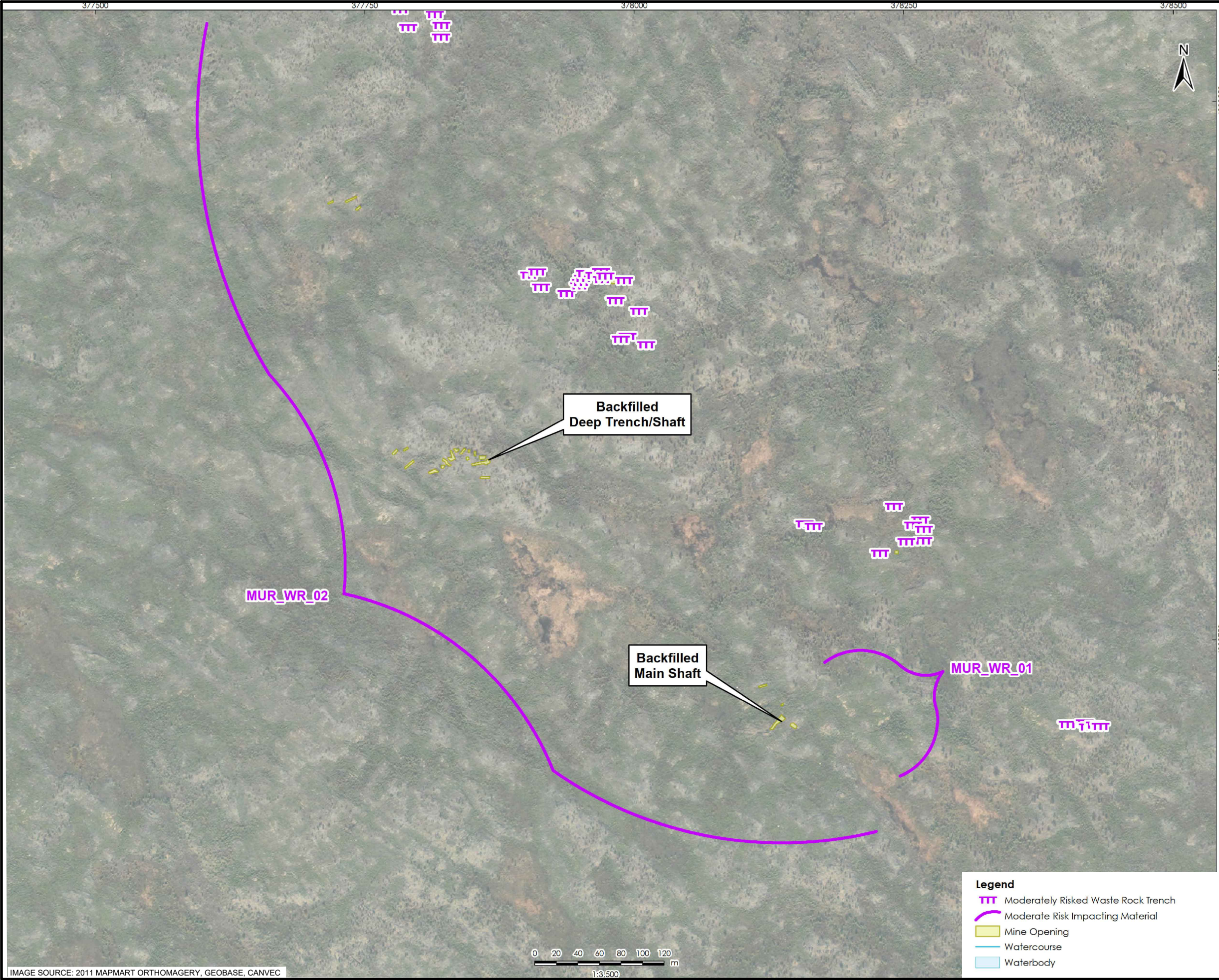


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

Moderately Risked Waste Rock Trench

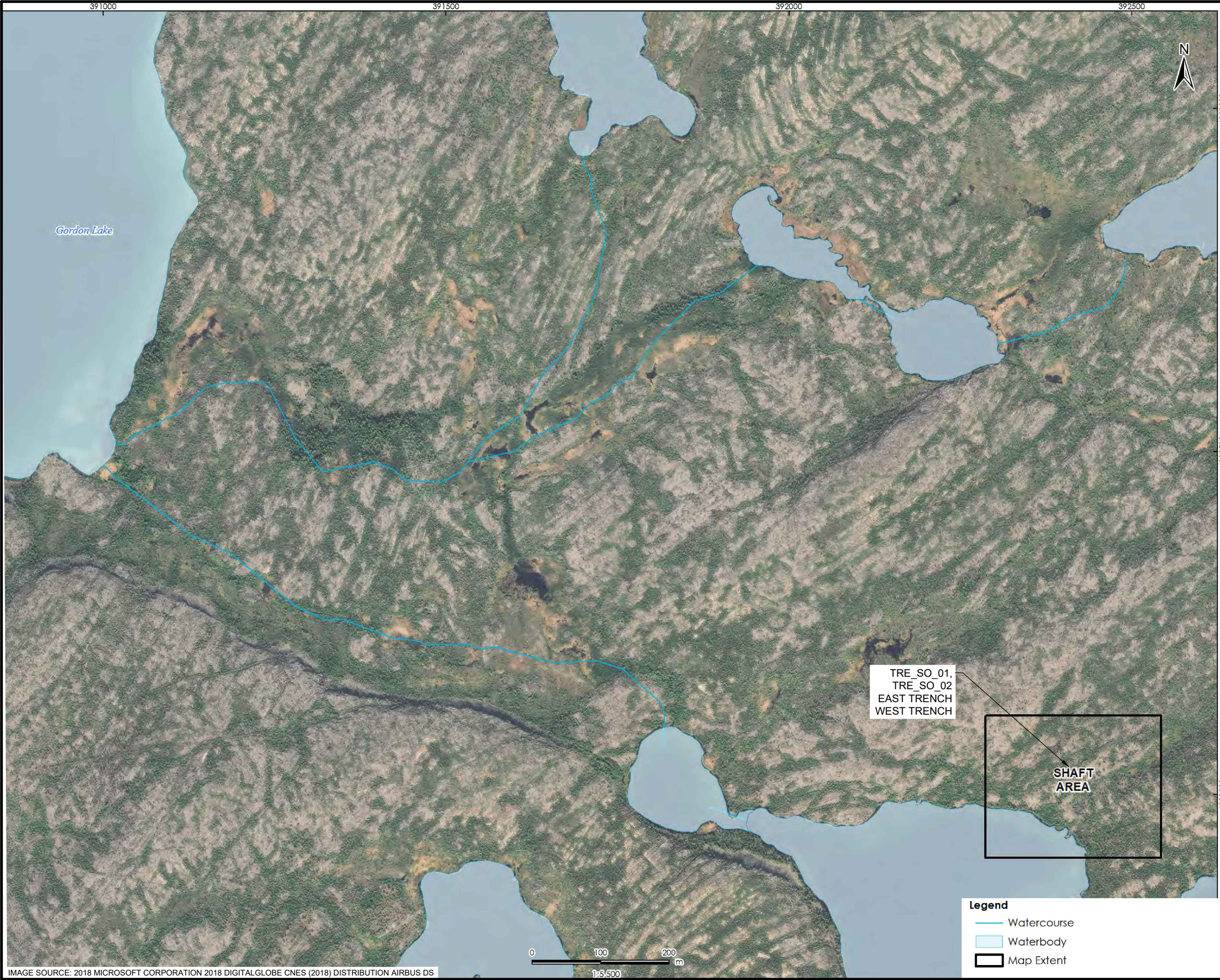
Moderate Risk Impacting Material

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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GROUP OF SITES", PREPARED BY STANTEC
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Issue Status: FINAL



NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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Issue Status: FINAL



SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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Gordon Lake Group
Year 5 Long Term Monitoring Work Plan
 Crown-Indigenous Relations and Northern Affairs Canada
 Project No.: 60710609 Date: 2023-07-06

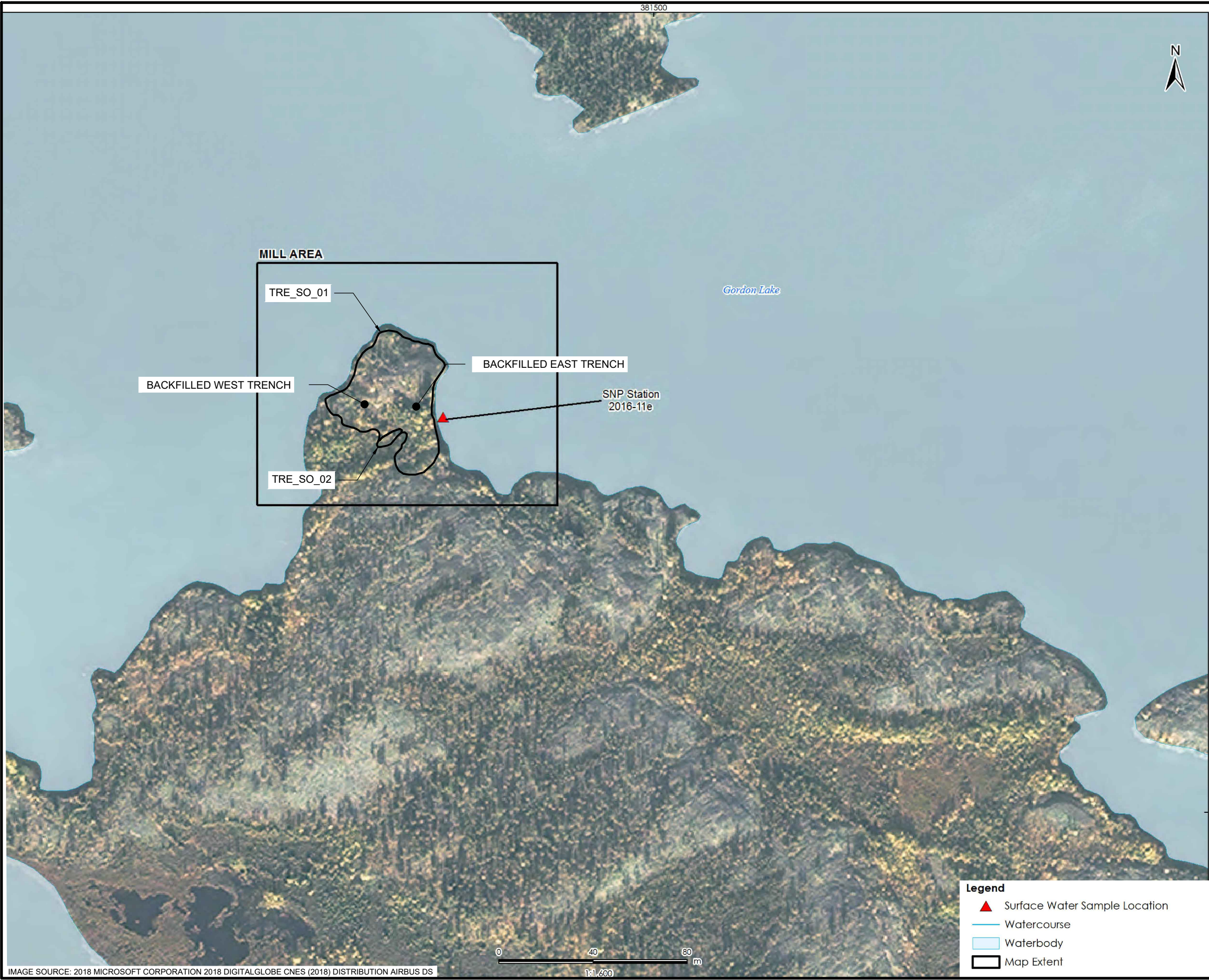


IMAGE SOURCE: 2018 MICROSOFT CORPORATION 2018 DIGITALGLOBE CNES (2018) DISTRIBUTION AIRBUS DS

- Legend**
- ▲ Surface Water Sample Location
 - Watercourse
 - Waterbody
 - Map Extent

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
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Issue Status: FINAL



IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

▲

Surface Water Sample Location

▨

Backfilled Remedial Excavation

■

Mine Opening

■

Excavated Waste Rock

■

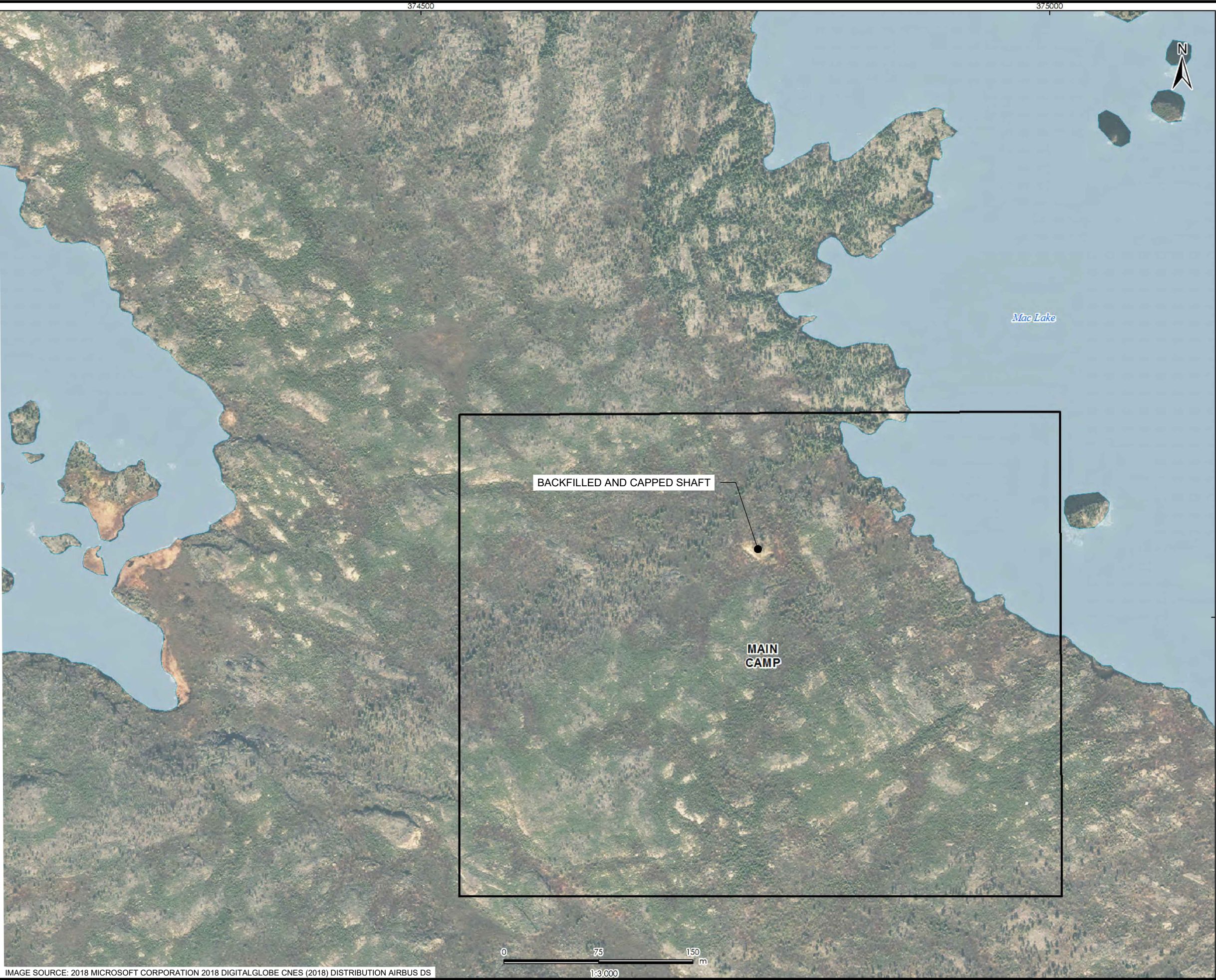
Waterbody

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
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GROUP OF SITES", PREPARED BY STANTEC
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Issue Status: FINAL



- Legend**
- Watercourse
 - Waterbody
 - Map Extent

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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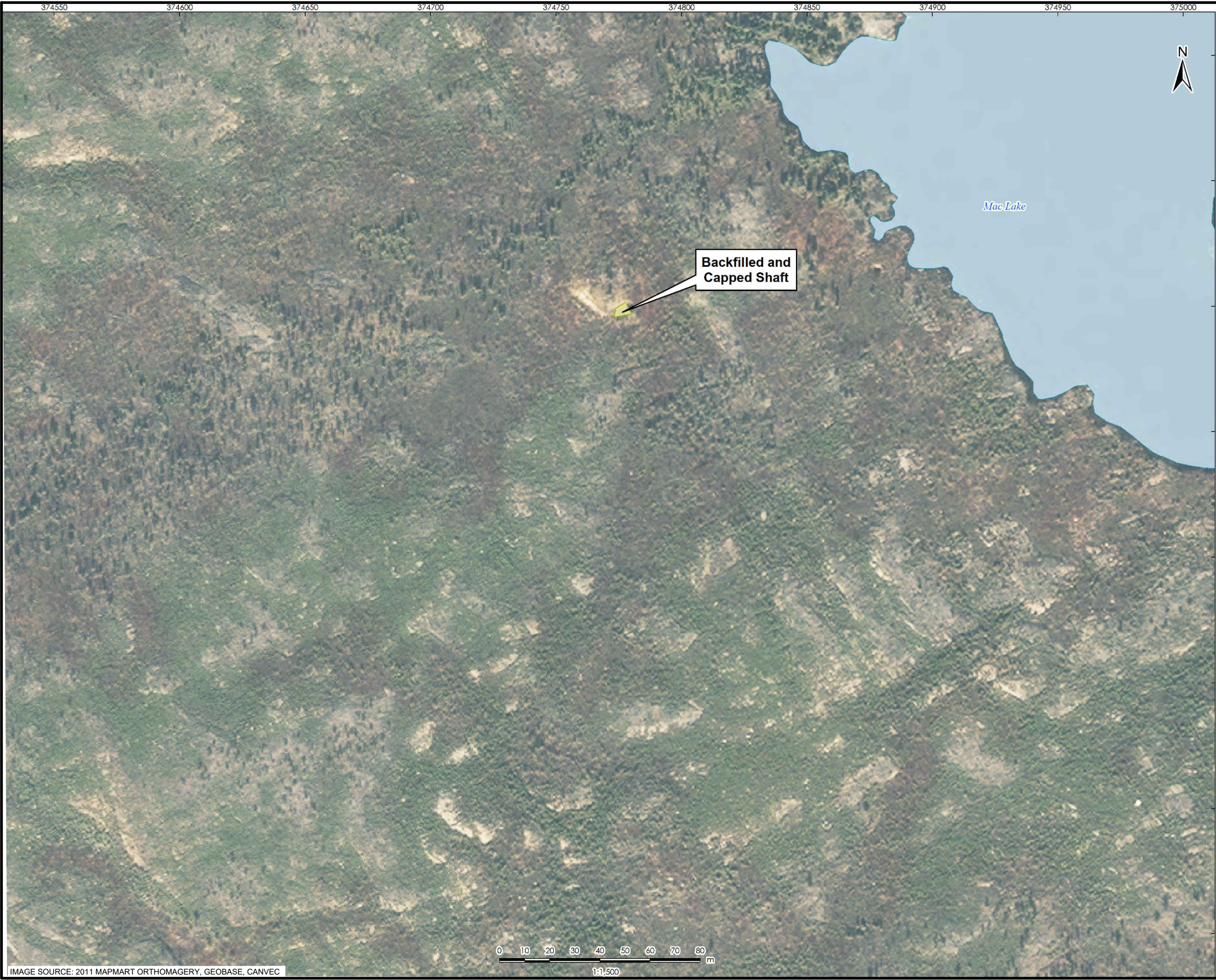


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC



NOTES:

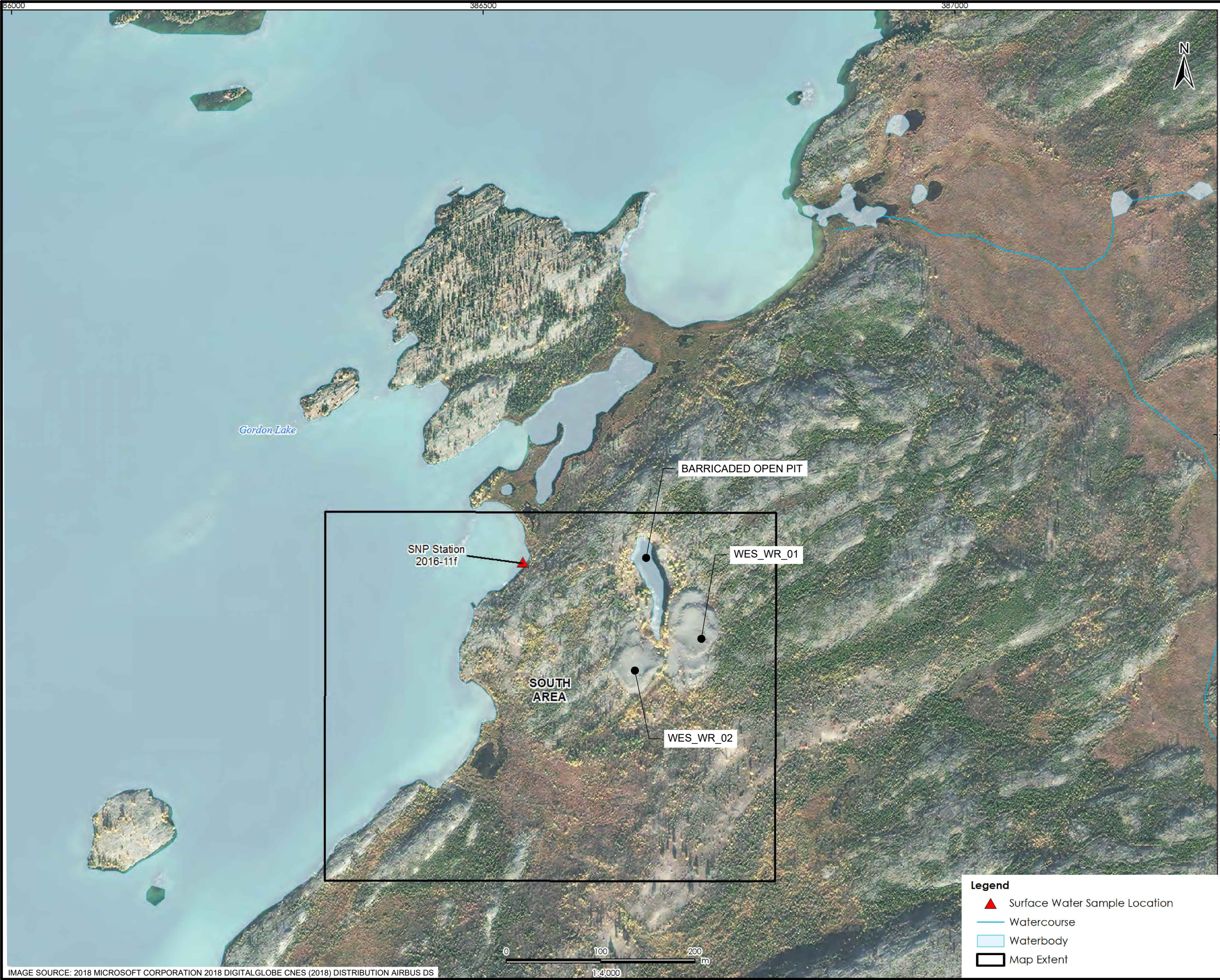
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CONSULTING LTD., DATED DECEMBER 19, 2018.

- Legend**
- Mine Opening
 - Watercourse
 - Water body



Issue Status: FINAL



NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
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Issue Status: FINAL

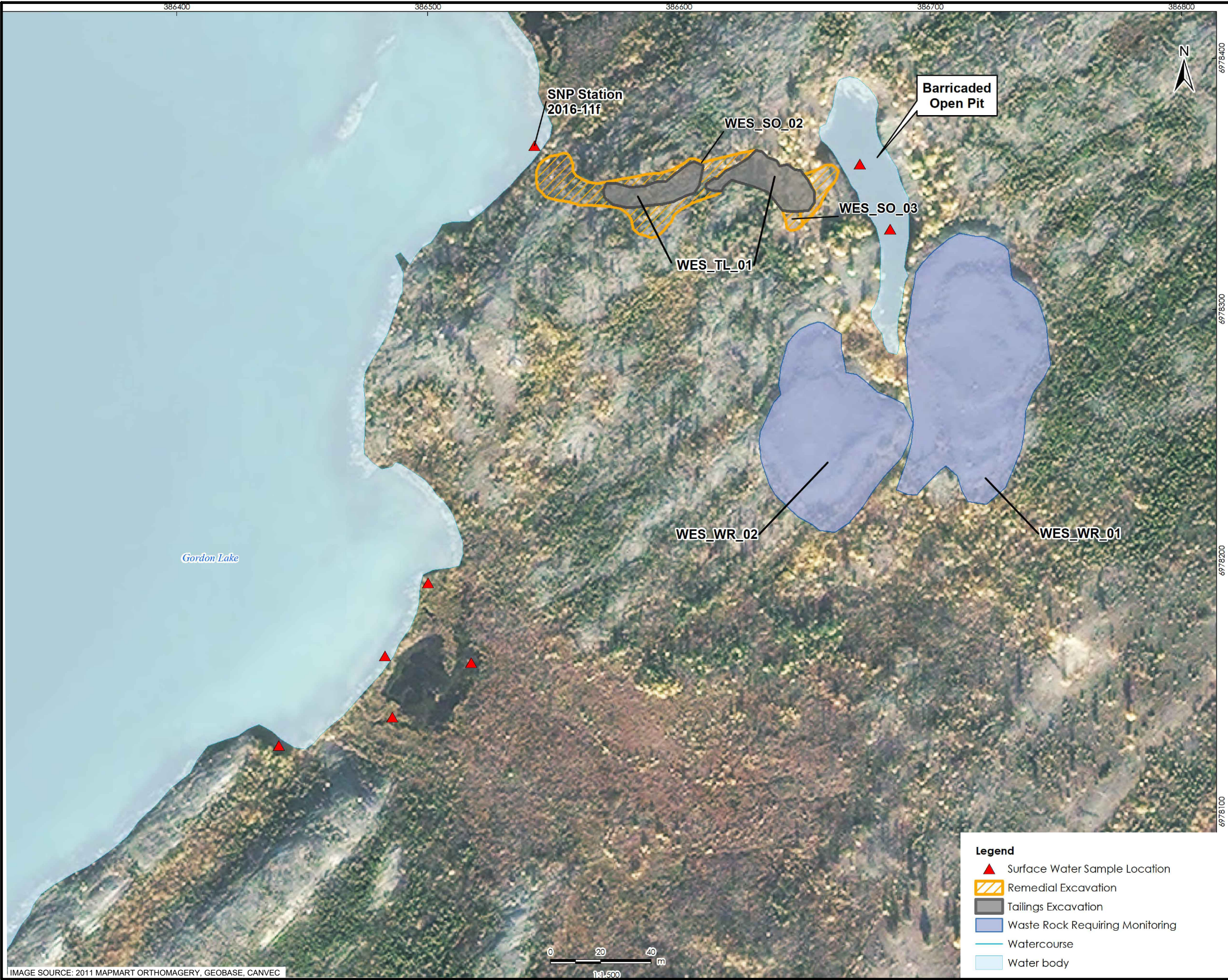


IMAGE SOURCE: 2011 MAPMART ORTHOMAGERY, GEOBASE, CANVEC

Legend

- ▲ Surface Water Sample Location
- ▨ Remedial Excavation
- Tailings Excavation
- Waste Rock Requiring Monitoring
- Watercourse
- Water body

NOTES:

1. COORDINATES BASED ON NAD83 UTM ZONE 12.

SOURCE:
FIGURE GRAPHIC FROM "FINAL REPORT: PHASE I
LONG-TERM MONITORING PLAN - GORDAN LAKE
GROUP OF SITES", PREPARED BY STANTEC
CONSULTING LTD., DATED DECEMBER 19, 2018.

Issue Status: FINAL

Appendix **B**

Data Tables

Table B-1: In-situ Field Parameters - Surface Water
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

LTM Station	Sample ID	Date	Time	pH	EC (µS/cm)	Temp (°C)	TDS (mg/L)	Turbidity (NTU)	DO (mg/L)	DO (%)	Ox-Red Potential (mV)	Note
Burnt Island												
2016-11a	GLG-2023-00001-006	21-Jul-2023	15:15	8.32	104.7	22.8	68.25	-	10.93	129.9	56	
	GLG-2023-00002-006	29-Sep-2023	17:35	7.58	106	7.7	69	0.28	11.77	98.8	122	Shallow water with sediment and organic matter in water
Camlaren												
2016-11b1	GLG-2023-00001-007	July 18, 2023	14:40	8.15	100.9	20.1	66	-0.19	10.07	111.3	63.6	
	GLG-2023-00002-007	29-Sep-23	14:20	7.94	103	10.8	67	0.2	11.61	105	132.6	
2016-11b2	GLG-2023-00001-008	July 18, 2023	13:20	8.19	104.2	19.6	67	-0.87	9.69	105.2	-16.8	
	GLG-2023-00002-008	29-Sep-23	15:05	7.78	76	11.4	66	0.12	11.29	103.3	134.6	
2016-11b3	GLG-2023-00001-009	July 18, 2023	13:40	8.34	110	22.3	72	3.33	10.79	124.2	27.2	
	GLG-2023-00002-009	29-Sep-23	13:45	7.84	45	10.1	41	1.6	13.98	124.1	129	Various stages of plant decomposition in water
2016-11b4	GLG-2023-00001-011	July 18, 2023	12:40	8.25	101	19.9	66	-0.14	10.19	111.7	114.3	
	GLG-2023-00002-011	29-Sep-23	14:40	7.82	75	10.8	67	0.18	11.2	101.2	138.1	
2016-11c	GLG-2023-00001-012	July 18, 2023	15:50	8.4	100.6	20.5	10.51	-0.2	10.51	116.8	98.9	
	GLG-2023-00002-012	29-Sep-23	17:55	7.71	102	9.8	66	0.09	11.7	103.2	120.7	
2016-8a	GLG-2023-00001-016	July 18, 2023	-	-	-	-	-	-	-	-	-	Dry
	GLG-2023-00002-016	29-Sep-23	-	-	-	-	-	-	-	-	-	Dry
2016-8b	GLG-2023-00001-017	July 18, 2023	-	-	-	-	-	-	-	-	-	Dry
	GLG-2023-00002-017	September 29, 2023	-	-	-	-	-	-	-	-	-	Dry
Kidney Pond												
2016-11d	GLG-2023-00001-013	July 20, 2023		8.17	222.8	24.9	144.95	-	9.09	112.3	47.7	
	GLG-2023-00002-013	October 1, 2023	13:20	7.21	190	6.5	124	1.11	-	97.3	120	Various stages of plant decomposition in water
Treacy												
2016-11e	GLG-2023-00001-014	July 20, 2023	16:30	9.04	100.3	19.3	25	-	9.13	101.2	78.1	
	GLG-2023-00002-014	October 1, 2023	14:20	7.49	102	9.2	67	0.2	-	101.2	112.3	
West Bay												
2016-11f	GLG-2023-00001-015	July 21, 2023	13:40	8.5	101.5	22.9	66	-0.28	10.41	120.9	85.5	
	GLG-2023-00002-015	October 1, 2023	11:05	7.4	102	8.3	66	0.13	-	99.9	78.8	
PIT1	GLG-2023-00001-020	July 21, 2023	-	-	-	-	-	-	-	-	-	Dry
	GLG-2023-00002-020	October 1, 2023	-	-	-	-	-	-	-	-	-	Removed from scope
PIT2	GLG-2023-00001-023	July 21, 2023	-	-	-	-	-	-	-	-	-	Dry
	GLG-2023-00002-023	October 1, 2023	-	-	-	-	-	-	-	-	-	Removed from scope
WET1	GLG-2023-00001-024	July 21, 2023	13:55	8.58	150.3	24.5	92.5	-	8.12	101.3	19.3	
	GLG-2023-00002-024	October 1, 2023	10:30	6.97	144	4.5	93	0.92	11.64	90.1	20.7	Various stages of plant decomposition in water
WET2	GLG-2023-00001-025	July 21, 2023	13:30	7.82	156	23.9	101.4	-	12.67	150.3	34.3	
	GLG-2023-00002-025	October 1, 2023	10:40	6.97	145	4.8	94	0.45	-	91.7	51	Various stages of plant decomposition in water
GL1	GLG-2023-00001-026	July 21, 2023	13:15	8.13	102.4	23.8	67	1.61	9.69	114.5	88.1	
	GLG-2023-00002-026	October 1, 2023	10:10	7.5	122	6.4	79	0.69	11.65	94.6	67.3	
GL2	GLG-2023-00001-027	July 21, 2023	13:00	8.16	112.1	24	72.8	-	8.23	100.2	26.6	
	GLG-2023-00002-027	October 1, 2023	10:00	7.31	106	7.2	69	2.55	11.91	98.6	72.4	
GL3	GLG-2023-00001-028	July 21, 2023	13:00	8.29	101.3	22.2	66	0.12	9.8	112.5	87.4	
	GLG-2023-00002-028	October 1, 2023	10:00	8.03	98.7	8.7	64	1.29	-	101	44.9	

Table B-2: In-situ Field Parameters - Groundwater
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

LTM Station	Sample ID	Date	Time	Depth to Bottom (mBTOC)	Water Level (mBTOC)	Volume Removed (L)	pH	EC (µS/cm)	Temp (°C)	Turbidity (NTU)	DO (%)	DO (mg/L)	Ox-Red Potential (mV)	Notes
Camlaren														
SNP2016-7A_GW	GLG-2023-00001-001	July 18, 2023	14:00	7.87	3.115	3	6.89	2310	7.5	110.4	-	0.02	-123.6	Sampled
SNP2016-7A_GW	GLG-2023-00002-001	September 29, 2023	14:30	7.89	2.657	-	6.91	2382	8.4	8.25	8.6	-	-95	Sampled
SNP2016-7B_GW	GLG-2023-00001-002	July 18, 2023	12:55	4.68	3.519	2	6.46	956	10.5	55.71	-	0.41	35.8	Sampled
SNP2016-7B_GW	GLG-2023-00002-002	September 29, 2023	13:40	4.61	3.663	-	6.84	790	10.3	7.9	12.2	-	-	Sampled
SNP2016-7C_GW	GLG-2023-00001-003	July 18, 2023	10:45	5.506	5.479	3	6.85	1447	9.7	253.8	-	0.46	88.1	Turbid (brown Colour). Purged well
SNP2016-7C_GW	GLG-2023-00002-003	September 29, 2023	-	5.52	-	-	-	-	-	-	-	-	-	Insufficient water (<0.4m). 1/4" tubing and bailer lost down well.
SNP2016-7D_GW	GLG-2023-00001-004	July 18, 2023	15:02	6.14	4.248	2.5	7.08	668	9.9	217.57	-	2.36	8.7	Purged and sampled next day. Not enough water for in-situ parameters.
SNP2016-7D_GW	GLG-2023-00002-004	October 1, 2023	15:40	6.15	4.032	-	7.23	618	9.9	13.05	46.6	-	40.2	Sampled October 1, 2 days after purge of well on September 29th. Light rain night of September 30. Not enough water for complete bottle sets or field parameters
MW1	GLG-2023-00001-020	July 18, 2023	11:39	6.116	5.45	2.5	6.54	2676	5.5	247.43	-	0.1	58.7	Sampled
MW1	GLG-2023-00002-020	September 29, 2023	12:23	6.132	5.048	-	6.83	2983	6.2	19.95	9.1	-	-	Sampled
MW2	GLG-2023-00001-021	July 18, 2023	-	5.28	-	-	-	-	-	-	-	-	-	Observed dry
MW2	GLG-2023-00002-021	September 29, 2023	14:55	5.29	5.021	-	-	-	-	-	-	-	-	Insufficient Water. < 0.3m
Notes:														
mBTOC: metres below top of casing														
" - " denotes no value														

Table B-3: Analytical Parameters - SNP Groundwater
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

Parameter	Units	RDL	FIGQG	CCME	GLG-2023-00001-020	GLG-2023-00002-020	GLG-2023-00001-001	GLG-2023-00002-001	GLG-2023-00001-002	GLG-2023-00002-002	GLG-2023-00001-004	GLG-2023-00002-004	GLG-2023-00001-005	GLG-2023-00002-005
					MW1	MW1	2016-7a (MW3)	2016-7a (MW3)	2016-7b (MW4)	2016-7b (MW4)	2016-7d (MW6)	2016-7d (MW6)	2016-7d (MW6) DUP	2016-7d (MW6) DUP
					18-Jul-2023	29-Sep-2023	18-Jul-2023	29-Sep-2023	18-Jul-2023	29-Sep-2023	20-Jul-2023	1-Oct-2023	20-Jul-2023	1-Oct-2023
Calculated Parameters														
Anion Sum	meq/L	N/A	NV	NV	40	39	32	31	13	9.3	7.4	7.5	7.4	7
Cation Sum	meq/L	N/A	NV	NV	40	43	31	35	13	9.5	7.4	7.5	7.5	7.9
Hardness (CaCO3)	mg/L	0.5	NV	NV	1700	1800	1200	1400	590	410	360	360	360	380
Ion Balance (% Difference)	%	N/A	NV	NV	0.36	5.9	1.7	5.5	0.001	1	0.035	0.059	0.7	5.5
Nitrate (N)	mg/L	0.02	NV	13	<0.020	<0.050	<0.020	<0.050	<0.020	0.013	6.9	4.2	6.9	4.4
Nitrate (NO3)	mg/L	0.089	NV	NV	<0.089	<0.22	<0.089	<0.22	<0.089	0.059	31	19	30	19
Nitrite (NO2)	mg/L	0.066	NV	NV	<0.066	<0.16	<0.066	<0.033	<0.066	<0.033	0.074	0.56	0.045	0.45
Calculated Total Dissolved Solids	mg/L	10	NV	NV	2500	2600	1800	1900	780	530	430	430	430	420
Misc. Inorganics														
Conductivity	uS/cm	2	NV	NV	2800	2900	2400	2400	1100	810	660	630	660	630
pH	pH	N/A	6.5 - 9.0	6.5 - 9.0	7.15	7.68	7.57	8.02	7.33	8.14	7.77	7.91	7.91	7.95
Total Organic Carbon (C)	mg/L	0.5	NV	NV	3	6.1	12	18	9.5	13	3.5	2.4	2.8	2.4
Total Dissolved Solids	mg/L	10	3000	NV	2500	2700	1800	1900	770	530	440	420	420	420
Total Suspended Solids	mg/L	0.96	NV	NV	110	65	45	60	23	19	140	<1.0	86	6.1
Anions														
Alkalinity (PP as CaCO3)	mg/L	1	NV	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (Total as CaCO3)	mg/L	1	NV	NV	340	310	820	760	320	310	200	200	210	190
Bicarbonate (HCO3)	mg/L	1	NV	NV	410	380	990	930	400	370	250	250	250	240
Carbonate (CO3)	mg/L	1	NV	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	mg/L	1	NV	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (Cl)	mg/L	1	100	120	9	17	35	38	5.7	4.1	1.9	<1.0	2.1	<1.0
Sulphate (SO4)	mg/L	5	100	NV	1600	1500	720	710	320	150	130	150	130	140
Nutrients														
Total Ammonia (N)	mg/L	0.015	NV	19	0.9	0.98	1.3	1.5	0.43	0.42	0.2	0.038	0.2	0.037
Orthophosphate (P)	mg/L	0.003	NV	NV	0.0031	<0.0030	<0.0030	<0.0030	0.0033	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Total Phosphorus (P)	mg/L	0.003	NV	NV	0.044	0.0071	0.086	0.013	0.0041	0.0052	0.15	0.0054	0.15	0.004
Nitrite (N)	mg/L	0.02	0.06	0.06	<0.020	<0.050	<0.020	<0.010	<0.020	<0.010	0.022	0.17	0.014	0.14
Nitrate plus Nitrite (N)	mg/L	0.02	100	NV	<0.020	<0.050	<0.020	<0.050	<0.020	0.013	6.9	4.4	6.9	4.5
Elements														
Total Aluminum (Al)	mg/L	0.003	NV	0.1	1.5	0.16	0.02	0.026	0.047	0.055	5.8	0.02	4.6	0.018
Total Antimony (Sb)	mg/L	0.0006	2	NV	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00086	0.0056	0.0037	0.005	0.0036
Total Arsenic (As)	mg/L	0.0002	0.005	0.005	0.042	0.024	0.014	0.018	0.017	0.017	0.057	0.0027	0.036	0.0022
Total Barium (Ba)	mg/L	0.01	0.5	NV	0.021	0.022	0.31	0.32	0.054	0.067	0.13	0.045	0.083	0.044
Total Beryllium (Be)	mg/L	0.001	0.0053	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Bismuth (Bi)	mg/L	0.001	NV	NV	<0.0050	<0.0010	<0.0050	<0.0010	<0.0050	<0.0010	<0.001	<0.0010	<0.0010	<0.0010
Total Boron (B)	mg/L	0.02	NV	NV	0.16	0.14	0.11	0.11	0.032	0.049	0.028	<0.020	<0.020	<0.020
Total Cadmium (Cd)	ug/L	0.02	0.09	0.55	6.1	0.86	<0.020	<0.020	0.059	0.091	0.32	0.03	0.14	0.025
Dissolved Calcium (Ca)	mg/L	0.3	NV	NV	480	500	350	380	190	140	120	120	120	130
Total Calcium (Ca)	mg/L	0.3	NV	NV	470	500	320	370	190	150	140	120	110	120
Total Cesium (Cs)	mg/L	0.0002	NV	NV	<0.0010	<0.00020	<0.0010	<0.00020	<0.0010	<0.00020	0.0002	<0.00020	<0.00020	<0.00020
Total Chromium (Cr)	mg/L	0.001	NV	0.0089	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.02	<0.0010	0.015	<0.0010
Total Cobalt (Co)	mg/L	0.0003	0.05	NV	0.016	0.033	0.018	0.021	0.012	0.0051	0.018	0.00073	0.012	0.0006
Total Copper (Cu)	mg/L	0.001	NV	0.00853	0.006	0.0031	<0.0010	<0.0010	0.0017	0.0041	0.066	0.0095	0.042	0.005
Dissolved Iron (Fe)	mg/L	0.06	NV	NV	45	44	19	30	10	10	<0.060	<0.060	<0.060	<0.060
Total Iron (Fe)	mg/L	0.06	0.3	0.3	65	55	25	31	12	11	17	0.14	12	0.12
Total Lead (Pb)	mg/L	0.0002	NV	0.02153	0.005	0.00073	<0.00020	<0.00020	0.00051	0.0011	0.019	<0.00020	0.013	<0.00020
Total Lithium (Li)	mg/L	0.02	NV	NV	0.027	0.048	<0.020	0.036	<0.020	<0.020	0.022	<0.020	<0.020	<0.020
Dissolved Magnesium (Mg)	mg/L	0.2	NV	NV	130	140	91	110	24	15	12	12	12	13
Total Magnesium (Mg)	mg/L	0.2	NV	NV	140	150	95	110	27	17	17	11	13	11
Dissolved Manganese (Mn)	mg/L	0.004	NV	NV	1.6	4.4	4	4.8	6.5	4.3	0.35	0.61	0.27	0.83
Total Manganese (Mn)	mg/L	0.004	0.2	24.883	1.5	4.8	4.3	4.9	6.1	4.8	1.6	0.18	0.74	0.15
Total Mercury (Hg)	ug/L	0.0019	0.026	NV	0.0029	0.0029	<0.0019	<0.0019	<0.0019	<0.0019	0.0165	<0.0019	0.0153	<0.0019
Total Molybdenum (Mo)	mg/L	0.0002	0.073	0.073	0.0019	0.002	0.00072	0.00085	0.0018	0.002	0.0057	0.0061	0.0048	0.0053
Total Nickel (Ni)	mg/L	0.0005	NV	0.299	0.026	0.042	0.0011	0.0017	0.023	0.012	0.047	0.0052	0.033	0.0038
Total Phosphorus (P)	mg/L	0.1	NV	NV	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	0.24	<0.10	0.17	<0.10
Total Potassium (K)	mg/L	0.3	NV	NV	46	50	23	26	4.9	4.7	4.1	2.3	2.9	2.3
Total Selenium (Se)	mg/L	0.0002	0.001	0.001	0.00037	0.0003	<0.00020	<0.00020	<0.00020	<0.00020	0.0015	0.002	0.0015	0.0018
Total Silicon (Si)	mg/L	0.5	NV	NV	11	11	9.4	11	7.4	8.1	14	5.3	12	5.2
Total Silver (Ag)	mg/L	0.0001	0.00025	0.00025	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00032	<0.00010	0.00024	<0.00010
Dissolved Sodium (Na)	mg/L	0.5	NV	NV	46	87	110	120	19	14	4	4	4.1	4.3
Total Sodium (Na)	mg/L	0.5	NV	NV	47	84	93	110	19	14	4.8	3.7	3.8	3.7
Total Strontium (Sr)	mg/L	0.02	NV	NV	3.8	4.1	1.8	2.1	0.54	0.4	0.43	0.36	0.35	0.36
Total Sulphur (S)	mg/L	0.2	NV	NV	500	570	220	260	110	51	42	46	39	46
Total Thallium (Tl)	mg/L	0.0002	0.0008	0.0008	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Tin (Sn)	mg/L	0.001	NV	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0039	<0.0010	0.0021	<0.0010
Total Titanium (Ti)	mg/L	0.001	0.1	NV	0.0048	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.083	<0.0010	0.061	<0.0010
Total Uranium (U)	mg/L	0.0001	0.01	0.015	0.0019	0.0017	0.0095	0.012	0.0021	0.0015	0.0044	0.0033	0.0034	0.0029
Total Vanadium (V)	mg/L	0.001	0.1	NV	<0.0010	<0.0010	0.0012	0.0013	<0.0010	<0.0010	0.011	<0.0010	0.0083	<0.0010
Total Zinc (Zn)	mg/L	0.003	0.01	NV	0.63	0.13	<0.0030	<0.0030	0.011	0.0042	0.071	0.0069	0.055	0.0034
Notes: RDL: Reported Detection Limits NV: No Value Where detection limit differs, the limit was changed due to sample matrix " - " Denoted no value														

Legend
Exceeds FIGQG
Exceeds CCME

Table B-4: Analytical Parameters - SNP Surface Water
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

Parameter	Units	RDL	CCME	GLG-2023-00001-013	GLG-2023-00002-013	GLG-2023-00001-014	GLG-2023-00002-014	GLG-2023-00001-015	GLG-2023-00002-015	GLG-2023-00002-018	GLG-2023-00001-019	GLG-2023-00002-019	
				2016-11d	2016-11d	2016-11e	2016-11e	2016-11f	2016-11f	2016-11f	Field Blank	Trip Blank	Trip Blank
				20-Jul-2023	1-Oct-2023	20-Jul-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023	1-Oct-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023
Calculated Parameters													
Anion Sum	meq/L	N/A	NV	2	2.4	1.1	1.1	1.1	1	0.026	0.024	0	
Cation Sum	meq/L	N/A	NV	1.9	2.2	1	1.1	1	1.1	0.081	0.009	0.011	
Hardness (CaCO3)	mg/L	0.5	NV	83	96	43	49	43	47	1.1	<0.50	<0.50	
Ion Balance (% Difference)	%	N/A	NV	NC	NC	NC	NC	NC	NC	NC	NC	NC	
Nitrate (N)	mg/L	0.02	13	<0.010	0.042	0.01	<0.010	<0.010	<0.020	<0.020	<0.010	<0.020	
Nitrate (NO3)	mg/L	0.089	NV	<0.044	0.18	0.046	<0.044	<0.044	<0.089	<0.089	<0.044	<0.089	
Nitrite (NO2)	mg/L	0.066	NV	<0.033	<0.066	<0.033	<0.033	<0.033	<0.066	<0.066	<0.033	<0.066	
Misc. Inorganics													
Conductivity	uS/cm	2	NV	180	190	95	100	100	100	<2.0	<2.0	<2.0	
pH	pH	N/A	6.5 - 9.0	7.24	6.92	6.71	6.43	7.01	6.45	4.93	5.05	4.95	
Total Organic Carbon (C)	mg/L	0.5	NV	23	21	2.4	2.9	2.7	2.8	<0.50	<0.50	<0.50	
Total Dissolved Solids	mg/L	10	NV	150	130	80	<10	92	<10	<10	12	<10	
Total Suspended Solids	mg/L	0.96	NV	210	1.3	1.4	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	
Anions													
Alkalinity (PP as CaCO3)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity (Total as CaCO3)	mg/L	1	NV	89	110	45	45	47	45	<1.0	1.2	<1.0	
Bicarbonate (HCO3)	mg/L	1	NV	110	130	55	55	57	55	<1.0	1.5	<1.0	
Carbonate (CO3)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Hydroxide (OH)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloride (Cl)	mg/L	1	120	1.2	<1.0	1.6	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	
Sulphate (SO4)	mg/L	5	NV	9.4	11	7.4	8.7	7.9	7.1	1.2	<1.0	<1.0	
Nutrients													
Total Ammonia (N)	mg/L	0.015	0.019	0.032	0.11	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	
Orthophosphate (P)	mg/L	0.003	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Total Phosphorus (P)	mg/L	0.003	NV	0.24	0.019	<0.0030	0.0034	0.0034	<0.0030	<0.0030	<0.0030	<0.0030	
Nitrite (N)	mg/L	0.02	0.06	<0.010	<0.020	<0.010	<0.010	<0.010	<0.020	<0.020	<0.010	<0.020	
Nitrate plus Nitrite (N)	mg/L	0.02	NV	<0.010	0.042	0.01	<0.010	<0.010	<0.020	<0.020	<0.010	<0.020	
Elements													
Total Aluminum (Al)	mg/L	0.003	0.1	0.15	0.018	0.015	0.034	0.014	0.011	<0.0030	<0.0030	<0.0030	
Total Antimony (Sb)	mg/L	0.0006	NV	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	
Total Arsenic (As)	mg/L	0.0002	0.005	0.0079	0.0036	0.00035	0.00081	0.00029	0.00037	<0.00020	<0.00020	<0.00020	
Total Barium (Ba)	mg/L	0.01	NV	0.036	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Total Beryllium (Be)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Bismuth (Bi)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Boron (B)	mg/L	0.02	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Total Cadmium (Cd)	ug/L	0.02	0.09 ^a	0.021	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Dissolved Calcium (Ca)	mg/L	0.3	NV	22	25	12	14	12	14	0.43	<0.30	<0.30	
Total Calcium (Ca)	mg/L	0.3	NV	23	24	12	13	13	13	<0.30	<0.30	<0.30	
Total Cesium (Cs)	mg/L	0.0002	NV	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Total Chromium (Cr)	mg/L	0.001	0.0089	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Cobalt (Co)	mg/L	0.0003	NV	0.0091	0.00061	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Total Copper (Cu)	mg/L	0.001	0.002 ^a	0.013	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	
Dissolved Iron (Fe)	mg/L	0.06	NV	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	
Total Iron (Fe)	mg/L	0.06	0.3	0.75	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	
Total Lead (Pb)	mg/L	0.0002	NV	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Total Lithium (Li)	mg/L	0.02	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Dissolved Magnesium (Mg)	mg/L	0.2	NV	7	7.9	3.1	3.4	3	3.2	<0.20	<0.20	<0.20	
Total Magnesium (Mg)	mg/L	0.2	NV	7.1	7.4	3	3.2	3.1	3.2	<0.20	<0.20	<0.20	
Dissolved Manganese (Mn)	mg/L	0.004	NV	0.018	0.027	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
Total Manganese (Mn)	mg/L	0.004	3.76 ^b	0.98	0.045	<0.0040	0.0064	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
Total Mercury (Hg)	ug/L	0.0019	NV	<0.0019	<0.0019	<0.0019	0.0034	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	
Total Molybdenum (Mo)	mg/L	0.0002	0.073	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Total Nickel (Ni)	mg/L	0.0005	0.025 ^a	0.024	0.01	0.00055	0.00065	0.00064	0.00053	<0.00050	<0.00050	<0.00050	
Total Phosphorus (P)	mg/L	0.1	NV	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Dissolved Potassium (K)	mg/L	0.3	NV	2.5	2.7	1.5	1.6	1.5	1.5	<0.30	<0.30	<0.30	
Total Potassium (K)	mg/L	0.3	NV	2.8	2.6	1.4	1.5	1.5	1.5	<0.30	<0.30	<0.30	
Total Selenium (Se)	mg/L	0.0002	0.001	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Total Silicon (Si)	mg/L	0.5	NV	0.67	0.53	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Total Silver (Ag)	mg/L	0.0001	0.00025	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Dissolved Sodium (Na)	mg/L	0.5	NV	4.8	5.9	2.3	2.6	2.5	2.6	1.1	<0.50	<0.50	
Total Sodium (Na)	mg/L	0.5	NV	5.1	5.5	2.4	2.5	2.5	2.5	<0.50	<0.50	<0.50	
Total Strontium (Sr)	mg/L	0.02	NV	0.11	0.094	0.044	0.045	0.042	0.046	<0.020	<0.020	<0.020	
Total Sulphur (S)	mg/L	0.2	NV	4.4	3.3	2.5	2.7	2.7	2.7	<0.20	<0.20	<0.20	
Total Thallium (Tl)	mg/L	0.0002	0.0008	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Total Tin (Sn)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Titanium (Ti)	mg/L	0.001	NV	0.0017	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Uranium (U)	mg/L	0.0001	0.015	<0.00010	<0.00010	0.00011	0.00015	0.00011	0.00011	<0.00010	<0.00010	<0.00010	
Total Vanadium (V)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Total Zinc (Zn)	mg/L	0.003	NV	0.038	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Ext. Pet. Hydrocarbon													
F2 (C10-C16 Hydrocarbons)	mg/L	0.1	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
F3 (C16-C34 Hydrocarbons)	mg/L	0.1	NV	<0.10	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
F4 (C34-C50 Hydrocarbons)	mg/L	0.1	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Volatiles													
Benzene	ug/L	0.4	370	-	-	-	-	-	-	-	-	-	
Toluene	ug/L	0.4	2	-	-	-	-	-	-	-	-	-	
Ethylbenzene	ug/L	0.4	90	-	-	-	-	-	-	-	-	-	
Xylenes (Total)	ug/L	0.89	NV	-	-	-	-	-	-	-	-	-	
F1 (C6-C10) - BTEX	ug/L	100	NV	-	-	-	-	-	-	-	-	-	
F1 (C6-C10)	ug/L	100	NV	-	-	-	-	-	-	-	-	-	

Notes:
a - Variable, Water quality guidelines vary, depending on Hardness (as CaCO3).
b - Variable, Water quality guidelines for vary, depending on pH and hardness (a
RDL: Reported Detection Limits
NV: No Value
Where detection limit differs, the limit was changed due to sample matrix
* - " Denoted no value

Legend
Exceeds FIGQG
Exceeds CCME

Table B-5: QA / QC
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

Parameter	Units	RDL	GLG-2023-00001-009	GLG-2023-00001-010	RPD	GLG-2023-00002-009	GLG-2023-00002-010	RPD	GLG-2023-00001-004	GLG-2023-00001-005	RPD	GLG-2023-00002-004	GLG-2023-00002-005	RPD
			2016-11b3	2016-11b3 DUP		2016-11b3	2016-11b3 DUP		2016-7d (MW6)	2016-7d (MW6) DUP		2016-7d (MW6)	2016-7d (MW6) DUP	
			18-Jul-2023	18-Jul-2023		29-Sep-2023	29-Sep-2023		20-Jul-2023	20-Jul-2023		1-Oct-2023	1-Oct-2023	
Calculated Parameters														
Anion Sum	meq/L	N/A	1.1	1.2	8.70%	1.2	1.2	0.00%	7.4	7.4	0.00%	7.5	7	6.90%
Cation Sum	meq/L	N/A	0.97	0.97	0.00%	1.2	1.2	0.00%	7.4	7.5	1.34%	7.5	7.9	5.19%
Hardness (CaCO3)	mg/L	0.5	42	42	0.00%	52	52	0.00%	360	360	0.00%	360	380	5.41%
Ion Balance (% Difference)	%	N/A	NC	NC	NC	NC	NC	NC	0.035	0.7	180.95%	0.059	5.5	195.75%
Nitrate (N)	mg/L	0.02	<0.020	<0.020	0.00%	<0.010	<0.050	133.33%	6.9	6.9	0.00%	4.2	4.4	4.65%
Nitrate (NO3)	mg/L	0.089	<0.089	<0.089	0.00%	<0.044	<0.22	133.33%	31	30	3.28%	19	19	0.00%
Nitrite (NO2)	mg/L	0.066	<0.066	<0.066	0.00%	<0.033	<0.033	0.00%	0.074	0.045	48.74%	0.56	0.45	21.78%
Calculated Total Dissolved Solids	mg/L	10	55	56	1.80%	66	65	1.53%	430	430	0.00%	430	420	2.35%
Misc. Inorganics														
Conductivity	uS/cm	2	100	100	0.00%	120	110	8.70%	660	660	0.00%	630	630	0.00%
pH	pH	N/A	7.11	7.03	1.13%	6.47	6.44	0.46%	7.77	7.91	1.79%	7.91	7.95	0.50%
Total Organic Carbon (C)	mg/L	0.5	2.5	3	18.18%	3.6	3.3	8.70%	3.5	2.8	22.22%	2.4	2.4	0.00%
Total Dissolved Solids	mg/L	10	48	48	0.00%	56	52	7.41%	440	420	4.65%	420	420	0.00%
Total Suspended Solids	mg/L	0.96	3.1	3.4	9.23%	5.9	3.1	62.22%	140	86	47.79%	<1.0	6.1	143.66%
Anions														
Alkalinity (PP as CaCO3)	mg/L	1	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%
Alkalinity (Total as CaCO3)	mg/L	1	46	48	4.26%	47	45	4.35%	200	210	4.88%	200	190	5.13%
Bicarbonate (HCO3)	mg/L	1	56	59	5.22%	57	55	3.57%	250	250	0.00%	250	240	4.08%
Carbonate (CO3)	mg/L	1	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%
Hydroxide (OH)	mg/L	1	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%	<1.0	<1.0	0.00%
Chloride (Cl)	mg/L	1	1.3	1.4	7.41%	1.4	1.1	24.00%	1.9	2.1	10.00%	<1.0	<1.0	0.00%
Sulphate (SO4)	mg/L	5	7.4	7.4	0.00%	13	14	7.41%	130	130	0.00%	150	140	6.90%
Nutrients														
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	0.00%	<0.015	<0.015	0.00%	0.2	0.2	0.00%	0.038	0.037	2.67%
Orthophosphate (P)	mg/L	0.003	<0.0030	0.0055	58.82%	<0.0030	<0.0030	0.00%	<0.0030	<0.0030	0.00%	<0.0030	<0.0030	0.00%
Total Phosphorus (P)	mg/L	0.003	0.0089	0.0037	82.54%	0.051	0.019	91.43%	0.15	0.15	0.00%	0.0054	0.004	29.79%
Nitrite (N)	mg/L	0.02	<0.020	<0.020	0.00%	<0.010	<0.010	0.00%	0.022	0.014	44.44%	0.17	0.14	19.35%
Nitrate plus Nitrite (N)	mg/L	0.02	<0.020	<0.020	0.00%	<0.010	<0.050	133.33%	6.9	6.9	0.00%	4.4	4.5	2.25%
Elements														
Total Aluminum (Al)	mg/L	0.003	0.14	0.17	19.35%	0.062	0.053	15.65%	5.8	4.6	23.08%	0.02	0.018	10.53%
Total Antimony (Sb)	mg/L	0.0006	<0.00060	<0.00060	0.00%	0.0011	<0.00060	58.82%	0.0056	0.005	11.32%	0.0037	0.0036	2.74%
Total Arsenic (As)	mg/L	0.0002	0.00052	0.00041	23.66%	0.00027	0.00039	36.36%	0.057	0.036	45.16%	0.0027	0.0022	20.41%
Total Barium (Ba)	mg/L	0.01	<0.010	<0.010	0.00%	<0.010	<0.010	0.00%	0.13	0.083	44.13%	0.045	0.044	2.25%
Total Beryllium (Be)	mg/L	0.001	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%
Total Bismuth (Bi)	mg/L	0.001	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	<0.0010	<0.001	0.00%	<0.0010	<0.0010	0.00%
Total Boron (B)	mg/L	0.02	<0.020	<0.020	0.00%	<0.020	<0.020	0.00%	0.028	<0.020	33.33%	<0.020	<0.020	0.00%
Total Cadmium (Cd)	ug/L	0.02	<0.020	<0.020	0.00%	<0.020	<0.020	0.00%	0.32	0.14	78.26%	0.03	0.025	18.18%
Dissolved Calcium (Ca)	mg/L	0.3	12	12	0.00%	15	14	6.90%	120	120	0.00%	120	130	8.00%
Total Calcium (Ca)	mg/L	0.3	12	12	0.00%	15	14	6.90%	140	110	24.00%	120	120	0.00%
Total Cesium (Cs)	mg/L	0.0002	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	0.0002	<0.0002	0.00%	<0.00020	<0.00020	0.00%
Total Chromium (Cr)	mg/L	0.001	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	0.02	0.015	28.57%	<0.0010	<0.0010	0.00%
Total Cobalt (Co)	mg/L	0.0003	<0.00030	<0.00030	0.00%	<0.00030	<0.00030	0.00%	0.018	0.012	40.00%	0.00073	0.0006	19.55%
Total Copper (Cu)	mg/L	0.001	0.001	0.0017	51.85%	0.0016	0.0036	76.92%	0.066	0.042	44.44%	0.0095	0.005	62.07%
Dissolved Iron (Fe)	mg/L	0.06	<0.060	<0.060	0.00%	<0.060	<0.060	0.00%	<0.060	<0.060	0.00%	<0.060	<0.060	0.00%
Total Iron (Fe)	mg/L	0.06	0.2	0.19	5.13%	0.12	0.066	58.06%	17	0.12	34.48%	0.14	0.12	15.38%
Total Lead (Pb)	mg/L	0.0002	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	0.019	0.013	37.50%	<0.00020	<0.00020	0.00%
Total Lithium (Li)	mg/L	0.02	<0.020	<0.020	0.00%	<0.020	<0.020	0.00%	0.022	<0.020	9.52%	<0.020	<0.020	0.00%
Dissolved Magnesium (Mg)	mg/L	0.2	2.7	2.7	0.00%	3.8	3.8	0.00%	12	12	0.00%	12	13	8.00%
Total Magnesium (Mg)	mg/L	0.2	3.1	3	3.28%	3.7	3.6	2.74%	17	13	26.67%	11	11	0.00%
Dissolved Manganese (Mn)	mg/L	0.004	0.005	0.0051	1.98%	<0.0040	<0.0040	0.00%	0.35	0.27	25.81%	0.61	0.83	30.56%
Total Manganese (Mn)	mg/L	0.004	0.011	0.0078	34.04%	0.0075	0.0064	15.83%	1.6	0.74	73.50%	0.18	0.15	18.18%
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	0.00%	<0.0019	<0.0019	0.00%	0.0165	0.0153	7.55%	<0.0019	<0.0019	0.00%
Total Molybdenum (Mo)	mg/L	0.0002	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	0.0057	0.0048	17.14%	0.0061	0.0053	14.04%
Total Nickel (Ni)	mg/L	0.0005	0.0008	0.00059	30.22%	0.0011	0.0011	0.00%	0.047	0.033	35.00%	0.0052	0.0038	31.11%
Total Phosphorus (P)	mg/L	0.1	<0.10	<0.10	0.00%	<0.10	<0.10	0.00%	0.24	0.17	34.15%	<0.10	<0.10	0.00%
Dissolved Potassium (K)	mg/L	0.3	1.4	1.3	7.41%	1.7	1.7	0.00%	2.7	2.6	3.77%	2.9	3.4	15.87%
Total Potassium (K)	mg/L	0.3	1.4	1.4	0.00%	1.8	1.7	5.71%	4.1	2.9	34.29%	2.3	2.3	0.00%
Total Selenium (Se)	mg/L	0.0002	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	0.0015	0.0015	0.00%	0.002	0.0018	10.53%
Total Silicon (Si)	mg/L	0.5	<0.50	0.53	5.83%	<0.50	<0.50	0.00%	14	12	15.38%	5.3	5.2	1.90%
Total Silver (Ag)	mg/L	0.0001	<0.00010	<0.00010	0.00%	<0.00010	<0.00010	0.00%	0.00032	0.00024	28.57%	<0.00010	<0.00010	0.00%
Total Sodium (Na)	mg/L	0.5	2.3	2.2	4.44%	2.8	2.7	3.64%	4.8	3.8	23.26%	3.7	3.7	0.00%
Total Strontium (Sr)	mg/L	0.02	0.043	0.04	7.23%	0.049	0.047	4.17%	0.43	0.35	20.51%	0.36	0.36	0.00%
Total Sulphur (S)	mg/L	0.2	2.7	2.5	7.69%	4.7	4.3	8.89%	42	39	7.41%	46	46	0.00%
Total Thallium (Tl)	mg/L	0.0002	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%	<0.00020	<0.00020	0.00%
Total Tin (Sn)	mg/L	0.001	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	0.0039	0.0021	60.00%	<0.0010	<0.0010	0.00%
Total Titanium (Ti)	mg/L	0.001	0.0073	0.0077	5.33%	0.0026	0.0015	53.66%	0.083	0.061	30.56%	<0.0010	<0.0010	0.00%
Total Uranium (U)	mg/L	0.0001	0.00016	0.00015	6.45%	0.00014	0.00015	6.90%	0.0044	0.0034	25.64%	0.0033	0.0029	12.90%
Total Vanadium (V)	mg/L	0.001	<0.0010	<0.0010	0.00%	<0.0010	<0.0010	0.00%	0.011	0.0083	27.98%	<0.0010	<0.0010	0.00%
Total Zinc (Zn)	mg/L	0.003	<0.0030	0.012	120.00%	0.0031	<0.0030	3.28%	0.071	0.055	25.40%	0.0069	0.0034	67.96%
Ext. Pet. Hydrocarbon														
F2 (C10-C16 Hydrocarbons)	mg/L	0.1	<0.10	<0.10	0.00%	<0.10	<0.10	0.00%	<0.10	<0.10	0.00%	-	-	NC
F3 (C16-C34 Hydrocarbons)	mg/L	0.1	<0.10	<0.10	0.0									

Table B-6: Analytical Parameters - West Bay Surface Water
Gordon Lake Group Sites Long-Term Monitoring Program - Year 5

Parameter	Units	RDL	CCME	GLG-2023-00001-024	GLG-2023-00002-024	GLG-2023-00001-025	GLG-2023-00002-025	GLG-2023-00001-026	GLG-2023-00002-026	GLG-2023-00001-027	GLG-2023-00002-027	GLG-2023-00001-028	GLG-2023-00002-028
				WET1	WET1	WET2	WET2	GL1	GL1	GL2	GL2	GL3	GL3
				21-Jul-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023	21-Jul-2023	1-Oct-2023
Calculated Parameters													
Anion Sum	meq/L	N/A	NV	1.7	1.6	1.6	1.6	1.2	1.1	1.1	1.3	1.1	1.1
Cation Sum	meq/L	N/A	NV	1.6	1.6	1.7	1.6	1	1.1	0.97	1.6	1	1.1
Hardness (CaCO3)	mg/L	0.5	NV	68	65	70	67	43	47	42	69	43	45
Ion Balance (% Difference)	%	N/A	NV	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Nitrate (N)	mg/L	0.02	13	<0.010	0.042	<0.010	0.044	<0.010	<0.020	<0.010	<0.020	<0.010	<0.020
Nitrate (NO3)	mg/L	0.089	NV	<0.044	0.18	<0.044	0.2	<0.044	<0.089	<0.044	<0.089	<0.044	<0.089
Nitrite (NO2)	mg/L	0.066	NV	<0.033	<0.066	<0.033	<0.066	<0.033	<0.066	<0.033	<0.066	<0.033	<0.066
Misc. Inorganics													
Conductivity	uS/cm	2	NV	160	140	160	150	110	110	100	120	100	100
pH	pH	N/A	6.5 - 9.0	7.3	6.56	7.21	6.6	7	6.48	6.84	6.46	6.99	6.43
Total Organic Carbon (C)	mg/L	0.5	NV	18	13	18	14	2.9	4.1	2.8	4.6	2.6	2.5
Total Dissolved Solids	mg/L	10	NV	160	52	120	40	64	64	68	60	68	40
Total Suspended Solids	mg/L	0.96	NV	7.9	<0.99	28	<0.97	39	2.1	2.2	<0.95	1.4	<0.95
Anions													
Alkalinity (PP as CaCO3)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (Total as CaCO3)	mg/L	1	NV	69	59	66	56	52	46	45	47	48	45
Bicarbonate (HCO3)	mg/L	1	NV	84	72	81	69	63	56	55	57	58	55
Carbonate (CO3)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	mg/L	1	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (Cl)	mg/L	1	120	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	1.1	1	1.2	<1.0
Sulphate (SO4)	mg/L	5	NV	14	21	14	21	7.9	8.9	7.8	16	7.6	9.6
Nutrients													
Total Ammonia (N)	mg/L	0.015	0.019	0.021	<0.015	0.019	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Orthophosphate (P)	mg/L	0.003	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Total Phosphorus (P)	mg/L	0.003	NV	0.037	0.012	0.049	0.0093	0.0071	0.0044	0.0032	0.003	0.004	<0.0030
Nitrite (N)	mg/L	0.02	0.06	<0.010	<0.020	<0.010	<0.020	<0.010	<0.020	<0.010	<0.020	<0.010	<0.020
Nitrate plus Nitrite (N)	mg/L	0.02	NV	<0.010	0.042	<0.010	0.044	<0.010	<0.020	<0.010	<0.020	<0.010	<0.020
Elements													
Total Aluminum (Al)	mg/L	0.003	0.1	0.035	0.025	0.053	0.019	0.038	0.038	0.024	0.019	0.02	0.01
Total Antimony (Sb)	mg/L	0.0006	NV	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Total Arsenic (As)	mg/L	0.0002	0.005	0.00072	0.00058	0.00086	0.00059	0.00034	0.00048	0.00031	0.00038	0.00028	0.00037
Total Barium (Ba)	mg/L	0.01	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Beryllium (Be)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Bismuth (Bi)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Boron (B)	mg/L	0.02	NV	<0.020	<0.020	<0.020	0.022	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Cadmium (Cd)	ug/L	0.02	0.1 ^a	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dissolved Calcium (Ca)	mg/L	0.3	NV	18	17	19	17	12	13	12	19	12	13
Total Calcium (Ca)	mg/L	0.3	NV	19	17	19	16	13	14	12	14	13	13
Total Cesium (Cs)	mg/L	0.0002	NV	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Chromium (Cr)	mg/L	0.001	0.0089	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Cobalt (Co)	mg/L	0.0003	NV	0.00032	<0.00030	0.0004	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Total Copper (Cu)	mg/L	0.001	0.002 ^a	<0.0010	0.0029	<0.0010	0.0012	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Iron (Fe)	mg/L	0.06	NV	0.14	<0.060	0.22	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
Total Iron (Fe)	mg/L	0.06	0.3	0.28	0.14	0.52	0.12	0.072	0.09	<0.060	0.088	<0.060	<0.060
Total Lead (Pb)	mg/L	0.0002	NV	<0.00020	<0.00020	0.00066	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Lithium (Li)	mg/L	0.02	NV	<0.020	<0.020	<0.020	0.024	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dissolved Magnesium (Mg)	mg/L	0.2	NV	5.6	5.5	5.6	5.6	3	3.4	2.8	5.3	3	3.1
Total Magnesium (Mg)	mg/L	0.2	NV	5.6	5.7	5.6	5.3	3.1	3.6	2.9	3.7	3.1	3.2
Dissolved Manganese (Mn)	mg/L	0.004	NV	0.014	0.0054	0.019	<0.0040	<0.0040	<0.0040	<0.0040	0.0052	<0.0040	0.0073
Total Manganese (Mn)	mg/L	0.004	3.99 ^b	0.021	0.0093	0.049	0.0082	0.0049	0.0072	0.004	0.011	<0.0040	<0.0040
Total Mercury (Hg)	ug/L	0.0019	NV	0.0042	0.0028	0.0037	0.0045	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	mg/L	0.0002	0.073	<0.00020	0.00052	<0.00020	0.0005	<0.00020	0.0002	<0.00020	<0.00020	<0.00020	<0.00020
Total Nickel (Ni)	mg/L	0.0005	0.025 ^a	0.0014	0.0032	0.0015	0.0015	0.00057	0.0008	<0.00050	<0.00050	<0.00050	0.0021
Total Phosphorus (P)	mg/L	0.1	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Potassium (K)	mg/L	0.3	NV	1.5	1.4	1.6	1.4	1.5	1.4	1.3	1.8	1.4	1.4
Total Potassium (K)	mg/L	0.3	NV	1.6	1.4	1.6	1.5	1.5	1.4	1.4	1.5	1.5	1.5
Total Selenium (Se)	mg/L	0.0002	0.001	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Silicon (Si)	mg/L	0.5	NV	0.56	3.5	0.87	3.5	<0.50	0.9	<0.50	0.89	<0.50	<0.50
Total Silver (Ag)	mg/L	0.0001	0.00025	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sodium (Na)	mg/L	0.5	NV	5	4.8	5.4	5	2.5	3.1	2.3	4.2	2.5	2.5
Total Sodium (Na)	mg/L	0.5	NV	5.3	4.9	5.3	4.8	2.5	3.1	2.4	3.2	2.5	2.5
Total Strontium (Sr)	mg/L	0.02	NV	0.054	0.055	0.053	0.044	0.041	0.047	0.04	0.062	0.041	0.046
Total Sulphur (S)	mg/L	0.2	NV	4.9	5.9	5	6.2	2.6	3.5	2.5	4.6	2.6	2.7
Total Thallium (Tl)	mg/L	0.0002	0.0008	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Tin (Sn)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Titanium (Ti)	mg/L	0.001	NV	0.0016	0.0011	0.0021	<0.0010	0.0015	0.0015	0.0011	0.0039	<0.0010	<0.0010
Total Uranium (U)	mg/L	0.0001	0.015	0.0002	0.00022	0.0002	0.00019	0.00013	0.00017	0.00012	0.00014	0.00011	0.00011
Total Vanadium (V)	mg/L	0.001	NV	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Zinc (Zn)	mg/L	0.003	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Ext. Pet. Hydrocarbon													
F2 (C10-C16 Hydrocarbons)	mg/L	0.1	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				

Notes:

a - Variable, Water quality guidelines vary, depending on Hardness (as CaCO3). Criteria values are calculated using average Hardness (as CaCO3) collected at all surface water sampling locations over the three sampling events

b - Variable, Water quality guidelines for vary, depending on pH and hardness (as CaCO3). Criteria values are calculated using average pH and hardness collected at all surface water sampling locations over the three sampling events

RDL: Reported Detection Limits

NV: No Value

Where detection limit differs, the limit was changed due to sample matrix

* - " Denoted no value

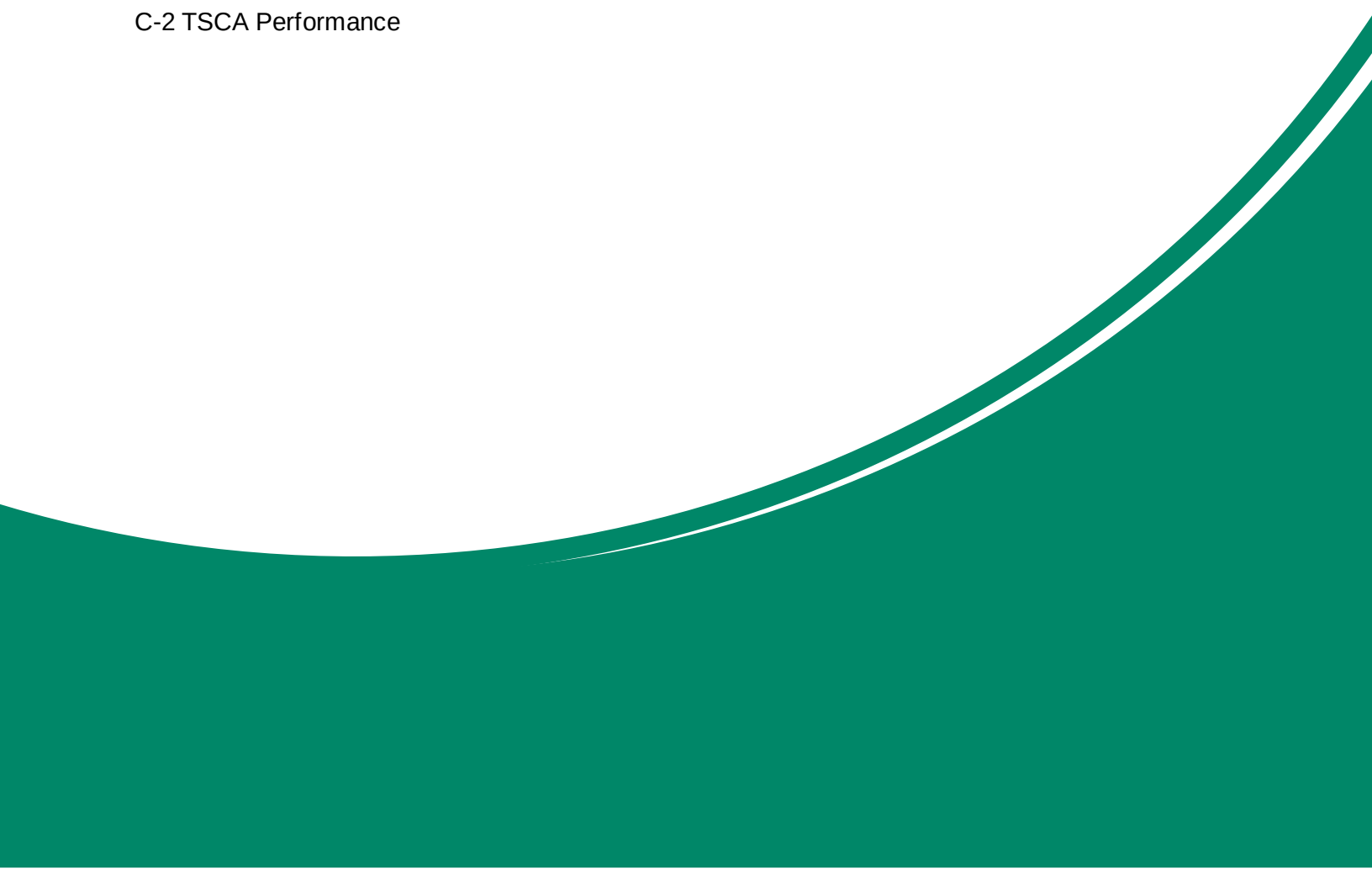
Legend
Exceeds FIGQG
Exceedes CCME

Appendix **C**

Photographic Log

C-1 Geotechnical Inspection and Site Visit

C-2 TSCA Performance

A decorative graphic at the bottom of the page features a solid green area that rises from the left and curves upwards towards the right, separated from the white background by a thin white line.

C-1 Geotechnical Inspection and Site Visit

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 1	Date 7/18/2023	
Direction Photo Taken Northeast		
Description South end of Camlaren. CAM_SO_08.		

Photo No. 2	Date 7/18/2023	
Direction Photo Taken South		
Description South end of Camlaren. CAM_SO_08.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 3	Date 7/18/2023	
Direction Photo Taken Southwest		
Description Southwest end of Camlaren. CAM_SO_12.		

Photo No. 4	Date 7/18/2023	
Direction Photo Taken Southeast		
Description Southwest end of Camlaren. CAM_SO_12.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 5	Date 7/18/2023	
Direction Photo Taken South		
Description CAM_SO_04 area close to TSCA.		

Photo No. 6	Date 7/18/2023	
Direction Photo Taken North		
Description CAM_SO_04 area close to TSCA.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 7	Date 7/18/2023	
Direction Photo Taken East		
Description CAM_SO_07 area in background. Observed staining in foreground (in CAM_SO_06) likely from remediation activities.		

Photo No. 8	Date 7/18/2023	
Direction Photo Taken North		
Description CAM_SO_06 in background.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 9	Date 10/1/2023	
Direction Photo Taken East		
Description CAM_SO_01 in background.		

Photo No. 10	Date 10/1/2023	
Direction Photo Taken N/A		
Description Fox holes to northwest of CAM_SO_01.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 11	Date 10/1/2023	
Direction Photo Taken Northeast		
Description CAM_SO_14.		

Photo No. 12	Date 10/1/2023	
Direction Photo Taken Southeast		
Description CAM_SO_14 in background.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 13	Date 7/18/2023	
Direction Photo Taken North		
Description North side of TSCA near MW3, observed aluminum debris pile.		

Photo No. 14	Date 7/18/2023	
Direction Photo Taken North		
Description Zenith Island excavation backfill material. Observed upslope.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 15	Date 7/18/2023	
Direction Photo Taken Northwest		
Description Zenith Island excavation backfill material. Observed downslope.		

Photo No. 16	Date 7/18/2023	
Direction Photo Taken Northeast		
Description Zenith Island excavation backfill material.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren + Zenith Island	Project No. 60710609
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Photo No. 17	Date 7/18/2023	
Direction Photo Taken North		
Description Aerial view of Southwest end of Camlaren.		

Photo No. 18	Date 7/18/2023	
Direction Photo Taken South		
Description North side of Camlaren TSCA.		

Site Name: Gordon Lake Group Sites	Site Location Kidney Pond	Project No. 60710609
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Photo No. 19	Date 7/20/2023	
Direction Photo Taken West		
Description KID_SO_11 in foreground. Revegetation and observed former ponded water.		

Photo No. 20	Date 7/20/2023	
Direction Photo Taken South		
Description KID_SO_10. Observed cracking from settlement.		

Site Name: Gordon Lake Group Sites	Site Location Kidney Pond	Project No. 60710609
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Photo No. 21	Date 7/20/2023	
Direction Photo Taken West		
Description KID_SO_10. Revegetation observed.		

Photo No. 22	Date 7/20/2023	
Direction Photo Taken Northwest		
Description Backfilled portal. Evidence of erosion observed. Revegetation at base of slope and within formed rills and top of slope.		

Site Name: Gordon Lake Group Sites	Site Location Kidney Pond	Project No. 60710609
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Photo No. 23	Date 7/20/2023	
Direction Photo Taken Southeast		
Description KID_WR_01: area of settled cover material in southeast side.		

Photo No. 24	Date 7/20/2023	
Direction Photo Taken Northwest		
Description North side of KID_WR_01 area, at base of KID_SO_07. Rills observed upslope.		

Site Name: Gordon Lake Group Sites	Site Location Kidney Pond	Project No. 60710609
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Photo No. 25	Date 7/20/2023	
Direction Photo Taken North		
Description East KID_WR_03.		

Photo No. 26	Date 7/20/2023	
Direction Photo Taken Southwest		
Description Aerial observation of KID_WR_04.		

Site Name: Gordon Lake Group Sites	Site Location Kidney Pond	Project No. 60710609
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Photo No. 27	Date 7/20/2023	
Direction Photo Taken Southwest		
Description Aerial observations downslope of KID_WR_04.		

Photo No. 28	Date 7/20/2023	
Direction Photo Taken East		
Description Surface water sampling location at Kidney Pond.		

Site Name: Gordon Lake Group Sites	Site Location Treacy	Project No. 60710609
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Photo No. 29	Date 7/20/2023
Direction Photo Taken South	
Description Aerial view of Treacy	



Photo No. 30	Date 7/20/2023
Direction Photo Taken Northwest	
Description Backfilled east trench. Observed upslope.	



Site Name: Gordon Lake Group Sites	Site Location Treacy	Project No. 60710609
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Photo No. 31	Date 7/20/2023	
Direction Photo Taken Northwest		
Description Backfilled west trench. Observed downslope.		

Photo No. 32	Date 7/20/2023	
Direction Photo Taken South		
Description TRE_SO_02 area in background. Revegetation observed.		

Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 33	Date 7/21/2023	
Direction Photo Taken Northwest		
Description Aerial view of Open pit and waste rock pile 1.		

Photo No. 34	Date 7/21/2023	
Direction Photo Taken Southeast		
Description Shoreline at south pond		

Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 35	Date 7/21/2023	
Direction Photo Taken Northeast		
Description Southeast slope of waste rock pile 2.		

Photo No. 36	Date 7/21/2023	
Direction Photo Taken Northwest		
Description Southwest slope of Waste rock pile 2.		

Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 37	Date 7/21/2023	
Direction Photo Taken Northeast		
Description Evidence of previous ponded water on northeast edge of WR02.		

Photo No. 38	Date 7/21/2023	
Direction Photo Taken Southeast		
Description Topographic low between waste rock piles 1 and 2. Evidence of ponded water and overland flow to the south.		

Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 39	Date 7/21/2023	
Direction Photo Taken North		
Description Fence collapsing inwards at southern end of fence line.		

Photo No. 40	Date 7/21/2023	
Direction Photo Taken North		
Description Fence bowing towards the open pit.		

Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 41	Date 7/21/2023
Direction Photo Taken East	
Description Barrier signage observed on west side.	



Photo No. 42	Date 7/21/2023
Direction Photo Taken South	
Description Barrier signage observed on north side.	



Site Name: Gordon Lake Group Sites	Site Location West Bay	Project No. 60710609
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Photo No. 43	Date 7/21/2023
Direction Photo Taken East	
Description Observed 0.3 m gap at bottom of fence where it does not touch the ground. Animals and humans have access to open pit.	

A photograph showing a chain-link fence on a rocky slope. The fence is sagging in places, creating gaps. A blue container and a yellow pole are visible on the ground in the foreground. The ground is covered with dark, jagged rocks and some patches of green moss or small plants. In the background, there is a dense line of green trees and shrubs. A blue container and a yellow pole are visible on the ground in the foreground.

Site Name: Gordon Lake Group Sites	Site Location Burnt Island	Project No. 60710609
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Photo No. 44	Date 7/21/2023	
Direction Photo Taken North		
Description Burnt Island aerial view.		

Photo No. 45	Date 7/21/2023	
Direction Photo Taken East		
Description SNP station 2016-11a.		

Site Name: Gordon Lake Group Sites	Site Location Burnt Island	Project No. 60710609
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Photo No. 46	Date 7/21/2023	
Direction Photo Taken Northwest		
Description Backfilled portal.		

Photo No. 47	Date 7/21/2023	
Direction Photo Taken Northwest		
Description Top of Waste rock area.		

Site Name: Gordon Lake Group Sites	Site Location Burnt Island	Project No. 60710609
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Photo No. 48	Date 7/21/2023	
Direction Photo Taken South		
Description Top of waste rock area looking downslope of south slope.		

Photo No. 49	Date 7/21/2023	
Direction Photo Taken North		
Description Mine opening shaft and backfilled area.		

Site Name: Gordon Lake Group Sites	Site Location Burnt Island	Project No. 60710609
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Photo No. 50	Date 7/21/2023	
Direction Photo Taken South-Southwest		
Description South end of covered tailings area.		

Photo No. 51	Date 7/21/2023	
Direction Photo Taken Northwest		
Description Central area of covered tailings area.		

Site Name: Gordon Lake Group Sites	Site Location Burnt Island	Project No. 60710609
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Photo No. 52	Date 7/21/2023
Direction Photo Taken Northeast	
Description Northeast side of covered tailings area. Significant revegetation.	



Site Name: Gordon Lake Group Sites	Site Location Goodrock	Project No. 60710609
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Photo No. 53	Date 7/21/2023	
Direction Photo Taken West		
Description Broken mine opening shaft.		

Photo No. 54	Date 7/21/2023	
Direction Photo Taken Northwest		
Description		

Site Name: Gordon Lake Group Sites	Site Location Goodrock	Project No. 60710609
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Photo No. 55	Date 7/21/2023	
Direction Photo Taken North		
Description Backfilled south pit		

Photo No. 56	Date 10/1/2023	
Direction Photo Taken North		
Description Metal impacted soil GOO_HS_01.		

Site Name: Gordon Lake Group Sites	Site Location Goodrock	Project No. 60710609
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Photo No. 57	Date 7/21/2023	
Direction Photo Taken Southeast		
Description Waste rock pile 1. Downgradient to shorelines.		

Site Name: Gordon Lake Group Sites	Site Location Storm Property	Project No. 60710609
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Photo No. 58	Date 7/21/2023	
Direction Photo Taken Southwest		
Description Aerial approach to Storm Property.		

Photo No. 59	Date 7/21/2023	
Direction Photo Taken South		
Description Waste Rock pile 2.		

Site Name: Gordon Lake Group Sites	Site Location Storm Property	Project No. 60710609
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Photo No. 60	Date 7/21/2023	
Direction Photo Taken Northeast		
Description Waste rock pile 1 observing upslope.		

Photo No. 61	Date 7/21/2023	
Direction Photo Taken Southeast		
Description Backfilled south mine shaft.		

Site Name: Gordon Lake Group Sites	Site Location Storm Property	Project No. 60710609
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Photo No. 62	Date 7/21/2023	
Direction Photo Taken Northeast		
Description Backfilled north mine shaft		

Photo No. 63	Date 7/21/2023	
Direction Photo Taken North		
Description Upslope of Waste rock pile 1. Photo taken at helicopter staging area.		

Site Name: Gordon Lake Group Sites	Site Location Murray Lake	Project No. 60710609
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Photo No. 64	Date 9/29/2023	
Direction Photo Taken West		
Description MUR_WR_02 in foreground.		

Photo No. 65	Date 9/29/2023	
Direction Photo Taken N/A		
Description MUR_WR_01		

Site Name: Gordon Lake Group Sites	Site Location Murray Lake	Project No. 60710609
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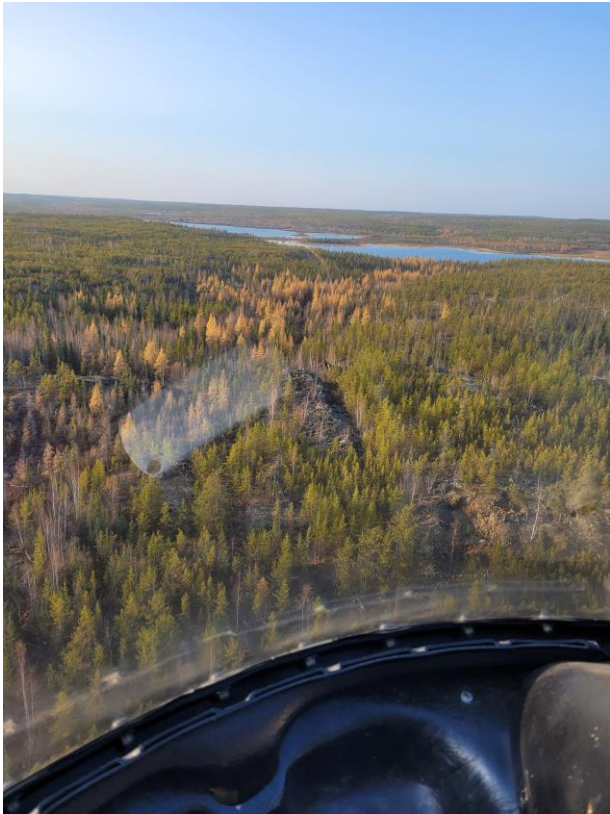
Photo No. 66	Date 9/29/2023	
Direction Photo Taken North		
Description Backfilled trench/shaft at Murray Lake.		

Photo No. 67	Date 10/201/2023	
Direction Photo Taken N/A		
Description Main shaft vent at Murray Lake.		

Site Name: Gordon Lake Group Sites	Site Location Try Me	Project No. 60710609
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Photo No. 68	Date 7/21/2023	
Direction Photo Taken North		
Description Main shaft vent at Try Me.		

C-2 TSCA Performance

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 1	Date 7/18/2023	
Direction Photo Taken North		
Description South slope of TSCA. Moose tracks observed across TSCA.		

Photo No. 2	Date 7/18/2023	
Direction Photo Taken Northwest		
Description South slope of TSCA facing southwest corner. Drainage channel in good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 3	Date 7/18/2023	
Direction Photo Taken Northeast		
Description South slope of TSCA facing southeast corner. No evidence of erosion on slope.		

Photo No. 4	Date 7/18/2023	
Direction Photo Taken Northwest		
Description Southeast corner of TSCA in good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 5	Date 7/18/2023	
Direction Photo Taken North		
Description South side of east slope of TSCA. VB1 in Background. Sparse vegetation on south side of slope.		

Photo No. 6	Date 7/18/2023	
Direction Photo Taken North		
Description Middle of east slope of TSCA. Significantly more revegetation in the middle of the slope.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 7	Date 7/18/2023	
Direction Photo Taken West		
Description Middle of east slope of TSCA. Drainage channel along slope. Coarse material fill preventing erosion of fine grains.		

Photo No. 8	Date 7/18/2023	
Direction Photo Taken North		
Description North side of east slope of TSCA. Small rills observed on slope indicating minor erosion with transportation of fine grains.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 9	Date 7/18/2023	
Direction Photo Taken N/A		
Description Vegetation changes at base of east slope, north of MW4. Evidence of ponded water due to vegetation type and soil type.		

Photo No. 10	Date 7/18/2023	
Direction Photo Taken N/A		
Description Cracking observed at base of TSCA before vegetation growth above. Size approximately 0.08 - 0.15 m in length.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 11	Date 7/18/2023	
Direction Photo Taken West		
Description Northeast corner of TSCA. Moose tracks observed across area. Minor vegetation along corner.		

Photo No. 12	Date 7/18/2023	
Direction Photo Taken North		
Description Vegetation at base of northeast corner of TSCA. Noted willow, alder, raspberries, and various grasses.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 13	Date 7/18/2023	
Direction Photo Taken West		
Description North slope of TSCA facing northwest corner.		

Photo No. 14	Date 7/18/2023	
Direction Photo Taken South		
Description North slope of TSCA. Good revegetation. Minor/moderate erosion observed. Transportation of fine grains and rills formed in slope.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 15	Date 7/18/2023	
Direction Photo Taken West		
Description North slope of TSCA including base of slope. Good revegetation. Moose tracks		

Photo No. 16	Date 7/18/2023	
Direction Photo Taken South		
Description Sparse vegetation on west side of north slope of TSCA. Minor erosion observed. Transportation of fine grains and rills formed in slope.		

Site Name:	Site Location	Project No.
Gordon Lake Group Sites	Camlaren, NT	60710609

Photo No.	Date	
17	7/18/2023	
Direction Photo Taken		
South		
Description		
West side of north slope of TSCA. Minor/moderate erosion observed. Transportation of fine grains and rills formed in slope.		

Photo No.	Date	
18	7/18/2023	
Direction Photo Taken		
Southeast		
Description		
Northwest slope of TSCA. No revegetation naturally growing.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 19	Date 7/18/2023	
Direction Photo Taken West		
Description Base of Northwest corner of TSCA. No natural revegetation. Drainage channel in good condition.		

Photo No. 20	Date 7/18/2023	
Direction Photo Taken Southeast		
Description North side of west slope of TSCA. Good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 21	Date 7/18/2023	
Direction Photo Taken South		
Description Long cracks observed west of drainage channel at base of TSCA. Approximately 10 m in length. Crack widens in background to approximately 0.08m (circled in red).		

Photo No. 22	Date 7/18/2023	
Direction Photo Taken South		
Description North side of drainage channel at base of west slope. Cracking observed on west side.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 23	Date 7/18/2023	
Direction Photo Taken South		
Description Continued observation of cracking as crew moved south along TSCA.		

Photo No. 24	Date 7/18/2023	
Direction Photo Taken N/A		
Description Continued cracking in central area at the base of the west slope.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 25	Date 7/18/2023	
Direction Photo Taken West		
Description Observed cracking and a fox den in background (circled in red).		

Photo No. 26	Date 7/18/2023	
Direction Photo Taken N/A		
Description Stained area of potential hydrocarbons by noted odour. Staining > 0.1 m deep.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 27	Date 7/18/2023	
Direction Photo Taken N/A		
Description Exposed geotextile observed approximately 10 m south of noted spill.		

Photo No. 28	Date 7/18/2023	
Direction Photo Taken North		
Description South side of west slope of TSCA.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 29 Date 7/18/2023 Direction Photo Taken Southeast Description Observed staining likely from hydrocarbons at south side of west slope of TSCA. Each approximately 0.3 m in length.	
Photo No. 30 Date 7/18/2023 Direction Photo Taken N/A Description Staining observed in southwest area of TSCA. Approximately 1 m x 0.5 m.	

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 31	Date 7/18/2023	
Direction Photo Taken N/A		
Description Observed staining in southwest area of TSCA. Approximately 1.5 m x 1 m.		

Photo No. 32	Date 7/18/2023	
Direction Photo Taken North		
Description South end at top of TSCA. Good condition with some revegetation.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 33	Date 7/18/2023	
Direction Photo Taken Northwest		
Description Cracking observed at south end at top of TSCA.		

Photo No. 34	Date 7/18/2023	
Direction Photo Taken North		
Description VT1 in foreground, MW1 and VB2 in background.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 35	Date 7/18/2023	
Direction Photo Taken Southwest		
Description North area at top of TSCA. Good condition.		

Photo No. 36	Date 7/18/2023	
Direction Photo Taken South		
Description West area at top of TSCA. Good condition.		

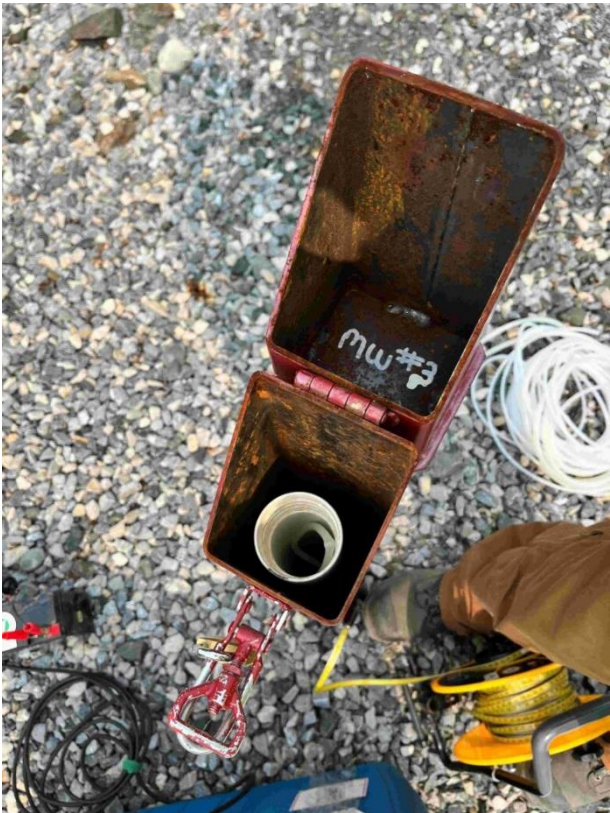
Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 37	Date 7/18/2023	
Direction Photo Taken Southeast		
Description Southwest area at top of TSCA. Sparse vegetation.		

Photo No. 38	Date 7/18/2023	
Direction Photo Taken N/A		
Description MW-1 in good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 39	Date 7/18/2023	
Direction Photo Taken N/A		
Description MW-2 in good condition.		

Photo No. 40	Date 7/18/2023	
Direction Photo Taken N/A		
Description MW-3 in good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 41	Date 7/18/2023	
Direction Photo Taken N/A		
Description MW-4 in good condition.		

Photo No. 42	Date 7/18/2023	
Direction Photo Taken N/A		
Description MW-5 in good condition.		

Site Name: Gordon Lake Group Sites	Site Location Camlaren, NT	Project No. 60710609
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Photo No. 43	Date 7/18/2023
Direction Photo Taken N/A	
Description MW-6 in good condition.	

A photograph showing a red, rusted metal monitoring well (MW-6) with its lid open. The lid is hinged and has "MW-6" written on it. Inside the well, a white PVC pipe is visible. The well is set in a concrete base. A yellow caution tape is visible on the left, and a person's leg in brown pants is on the right. The ground is dirt and gravel.

Appendix **D**

Inspection Forms

Visual Monitoring and Inspection Form			
Project Details			
Date:	21-Jul-23	Time:	15:30
Weather:	27 degrees. Sun and cloud with significant smoke		
Rainfall in last 24 hours?	No	Inspected by:	Janine Morris
Burnt Island			
Backfilled Excavation Locations			
LTM Station	Portal	Tailings	Mine Shaft
GPS Coordinates (12V)	390770E 6994470N	390463E 6994482N	390630E 6994509N
Animal Burrows	None Observed	None Observed	None Observed
Seepage / staining	No signs of staining downslope of backfilled area.	Some areas with minor topographic lows with evidence of ponded water by sorting of fine grains	None Observed
Signs of settlement	Deep pockets noted at top of backfilled area. Estimated > 0.3m deep x 1.5 m wide. Field crew did not walk up slope. Noted from helicopter.	Minor topographic lows noted on SW, NE and central areas of tailings cover where vegetation has regrown	No signs of cracking orsignificantly uneven topography
Drainage	Evidence of drainage to the SE as noted by fine and course grain sorting	Evidence of surface runoff to the SSE by evidence of natural grain sorting. Coarse graines settlign in minor rills formed.	No signs of rills forming or active water movement
Vegetation re-establishment and percentage cover	< 5% revetetation of slope. Spruce, grasses, unidentified shrub.	Significant regrowth in NE areas of tailings where branch cover was placed. Fireweed, willow and spruce. 5 - 10% regetation regrowth on areas not promotign revegetation. Grasses, willow, spruce, and fireweed.	Some vegetation regrowth. Fireweed and grasses gorwing in backfilled area.
Mine opening stability	N/A	N/A	Cap appears stable with no signs of cap uncovering
Other	Stability of backfilled area is adequate. Top of slope of the backfilled area should be closely monitored	N/A	N/A
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 46	Photo No. 50 through 52	Photo No. 49
Waste Rock Locations			
LTM Station	BUR_WR_01		
GPS Coordinates (Easting / Northing)	390800E 6994450N		
Seepage / staining	No staining noted downgradient of wasterock pile and no evidence of seepage		
Drainage (ARD)	No discolouration noted on or surrounding waste rock pile		
Vegetation re-establishment and percentage cover	Approximately 10% Vegetation cover of waste rock pile. Noted Spruce and paper birch		
Vegetation stress	No evidence of vegetation stress downgradient of wasterock pile.		
Other	N/A		
Photo Reference Number	Photo No. 44 , 47 and 48.		

Visual Monitoring and Inspection Form												
Project Details												
Date:	18-Jul-23	Time:	9:30				Date:	01-Oct-23	Time:	12:30		
Weather:	28 degrees. Sun and cloud. Smoke.						6 degrees. Overcast.					
Rainfall in last 24 hours?	No						Inspected by:	Janine Morris				
Camlaren and Zenith Island												
Backfilled Excavation Locations												
LTM Station	CAM_SO_04	CAM_SO_06	CAM_SO_07	CAM_SO_08	CAM_SO_12	CAM_SO_20	CAM_SO_23	CAM_SO_01	CAM_SO_03	CAM_SO_05	CAM_SO_14	Shaft
GPS Coordinates (12V)	388261E 6986000N	388223E 6985983N	388248E 6985964N	388226E 6985952N	388300E 6985893N	388361E 6986134N	386774E 6985512N	388185E 6986102N	388203E 6986005N	388249E 6986016N	388219E 6986167N	N/A
Animal Burrows	No burrows noted. Moose tracks observed across area.	No burrows noted. Moose tracks observed across area.	No burrows noted. Moose tracks observed across area.	No burrows noted. Moose tracks observed across area.	None observed	None observed	None observed	None on excavated area. Several fox holes noted upslope to the northwest of area.	No burrows noted. Moose tracks observed across area.	No burrows noted. Moose tracks observed across area.	None observed	N/A
Seepage / staining	None observed	None observed	None observed	None observed	None observed	Area at water table. No discolouration or seepage observed	None observed	None observed	None observed	None observed	None observed	N/A
Signs of settlement	Some cracking observed on north side of backfilled area. Potentially due to settlement. Approximate length 1 - 5 m	None observed	None observed	None observed	None observed	None observed	None observed	None observed	None observed	Some cracking observed on north side of backfilled area. Potentially due to settlement. Approximate length 1 - 5 m	None observed	N/A
Drainage	No signs of overland flow or erosion on backfilled area.	No signs of overland flow or erosion on backfilled area.	No signs of overland flow or erosion on backfilled area.	No signs of overland flow or erosion on backfilled area.	Overland flow likely to the SSE. No obvious evidence as grain size distrubution was fairly inofrm across the area.	Drainage to the north into Gordon Lake	No obvious flow paths observed on site. Likely to the NNW into Gordon lake.	Natural drainage downslope to the southwest. Minor evidence of fine grains transported.	No signs of overland flow or erosion on backfilled area.	No signs of overland flow or erosion on backfilled area.	No signs of overland flow or erosion on backfilled area.	N/A
Vegetation re-establishment and percentage cover	Sparse revegetation on central backfilled area. Some saplings and grasses. <1%.	Sparse revegetation on central backfilled area. Some saplings and grasses. <1%.	Sparse revegetation on central backfilled area. Some saplings and grasses. <1%.	Sparse revegetation on central backfilled area. Some saplings <1%. More regrowth to the east.	Approximately 20% revegetation. Observed willows, fireweed and grasses.	90% revegetation. Grasses.	Willows, saplings and grasses observed on NW and NE backfilled area. Between 1% to 30% coverage with higher revegetation areas tot he NE and NW downslope. Grasses observed in totpographic lows.	Good revegetation of alder and grasses observed. Approximately 60%.	More revegetation noted. Approximately 20%. Grasses and saplings.	Sparse revegetation on central backfilled area. Some saplings and grasses. <1%.	Good revegetation of alder and grasses observed. Approximately 40%.	N/A
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not located during program
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR	N/A
Photo Reference Number	Photo No. 5 and 6	Photo No. 7 and 8	Photo No. 7	Photo No. 1 and 2	Photo No. 3 and 4	N/A	Photo No. 14 through 16	Photo No. 9 and 10	Photo No. 8	Photo No. 7	Photo No. 11 and 12	N/A

Visual Monitoring and Inspection Form			
Project Details			
Date:	21-Jul-23	Time:	16:00
Weather:	27 degrees. Sun and cloud with significant smoke		
Date:	01-Oct-23	Time:	13:00
Weather:	6 degrees. Overcast.		
Rainfall in last 24 hours?	No	Inspected by:	Janine Morris
Comments: Did not locate a suitable landing area. Visual inspections made from the air.			
Goodrock			
Backfilled Excavation Locations			
LTM Station	GOO_HS_01	South pit	North Mine Shaft
GPS Coordinates (12V)	391981E 6990799N	392086E 6990772N	392125E 6990827N
Animal Burrows	None observed	None observed	None observed
Seepage / staining	None observed	None observed	No evidence of seepage at time of inspection
Signs of settlement	None observed	None observed	None observed
Drainage	None observed	None observed	Drainage to the NE by evidence of collected fine grains downgradient
Vegetation re-establishment and percentage cover	None observed	Paper birch saplings observed in backfilled area	Paper birch saplings observed in backfilled area
Mine opening stability	N/A	N/A	Shaft observed broken from the base.
Other	Did not locate during aerial inspection.	Inspection difficult from the air. Observations are generalized.	N/A
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 56	Photo No. 55	Photo No. 53
Waste Rock Locations			
LTM Station	GOO_WR_01	GOO_WR_02	
GPS Coordinates (Easting / Northing)	391800E 6991367N	392091 E 6990778N	
Seepage / staining	No evidence of staining along shoreline	No evidence of staining along waste rock trench.	
Drainage (ARD)	No evidence of ARD	No evidence of ARD. Overland flow direction to the north.	
Vegetation re-establishment and percentage cover	Tree growth in cracks/higher moisture areas of berock outcrop. Dominantly paper birch. Some spruce.	Paper birch observed in upgradient area of waste rock pile (south). Vegetation growth similar to surrounding area	
Vegetation stress	No evidence of vegetation stress. Aerial view of shoreline shows evidence of aquatic vegetation growth along shoreline.	No evidence of vegetation stress. Vegetation in surrounding area and downgradient appears in good health.	
Other	Overland flow gradient to WNW into Gordon lake	Inspection difficult from the air. Observations are generalized.	
Photo Reference Number	Photo No. 57	Photo No. 54	

Visual Monitoring and Inspection Form				
Project Details				
Date:	20-Jul-23	Time:	15:55	
Weather:	28 degrees. Sun and cloud with significant smoke			
Rainfall in last 24 hours?	No	Inspected by:	Janine Morris	
Comments:	Coordinates from work plan do not match the maps provided. Field crew based inspection from the map.			
Goodrock				
Backfilled Excavation Locations				
LTM Station	KID_SO_07	KID_SO_11	KID_SO_10	Portal
GPS Coordinates (12V)	381497E 6982775N	381481E 6982755N	381452E 6982763N	381495E 6982792N
Animal Burrows	None observed	None observed	None observed	None observed
Seepage / staining	Evidence of ponded water downslope of area with evidence of topographic low and vegetation regrowth.	Evidence of ponded water as evidence by topographic low and increased vegetation (grasses).	Evidence of ponded water as evidence by topographic low and increased vegetation (grasses).	Evidence of ponded water downslope of area with evidence of topographic low and vegetation regrowth.
Signs of settlement	N/A	Some areas of cracking and settlement observed. Likely a result of ponded water.	Some areas of cracking from settlement observed. Likely a result of ponded water.	None observed
Drainage	Rills noted on slope towards the south approximately 0.15 m deep x 0.5m wide. Course grained material deposited in rills.	See above for notes on ponding water.	See above for notes on ponding water.	Rills approximately 0.5m wide x 0.15 m deep were noted on slope towards the south. Course grained material deposited in rills.
Vegetation re-establishment and percentage cover	Paper birch saplings in rills noted above. Paper birch and willow at base of slope.	Approximately 30% vegetation cover. Primarily grasses with paper birch saplings.	<10 % vegetation cover. Observed grasses, willow, and fireweed.	Paper birch saplings in rills noted above. Paper birch and willow at base of slope.
Mine opening stability	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 24	Photo No. 19	Photo No. 20 and 21	Photo No. 22
Waste Rock Locations				
LTM Station	KID_WR_01	KID_WR_03	KID_WR_04	
GPS Coordinates (Easting / Northing)	381564E 6982752N	381600E 6982707N	382478E 6982328N	
Seepage / staining	No evidence of staining. Cracks and settlement over covered material observed in areas to the west and south. Loose cover material to the south poses a hazard for walking on site. Loose material is not stable and settles approximately 0.4m when walked on.	No staining observed downgradient of waste rock pile.	Evidence of ponded water on north side of excavation	
Drainage (ARD)	No signs of discolouration on or around site.	Overland flow gradient to the west into Kidney Pond.	No evidence of staining downgradient of excavated waste rock pile	
Vegetation re-establishment and percentage cover	<1% vegetation cover. Observed paper birch and grasses across the main site. The perimeter shows better regrowth with fireweed, willow, grasses, and spruce.	lichen and paper birch sapling growth on waste rock pile	No evidence of regrowth in excavated area.	
Vegetation stress	No signs of vegetation stress.	No signs of vegetation stress downgradient. Thick vegetation near Kidney pond.	No change in vegetation downgradient of waste rock excavation.	
Other	N/A	N/A	Inspection completed by air	
Photo Reference Number	Photo No. 23	Photo No. 25	Photo No. 26 and 27	

Visual Monitoring and Inspection Form				
Project Details				
Date:	20-Jul-23		Time:	16:30
Weather:	28 degrees. Sun and cloud with significant smoke			
Rainfall in last 24 hours?	No		Inspected by:	Janine Morris
Treacy				
Backfilled Excavation Locations				
LTM Station	TRE_SO_01	TRE_SO_02	East Trench	West Trench
GPS Coordinates (12V)		381398E 6981185N	381397E 6981166N	381370E 6981168N
Animal Burrows	None observed	None observed	None observed	None observed
Seepage / staining	No staining observed	No staining observed	No staining observed	No staining observed
Signs of settlement	None Observed	None Observed	Topographic low observed within backfilled areas where revegetation assistance was placed. Approximately 0.15 m lower than surrounding area	None observed
Drainage	Backfilled area appears relatively flat.	Backfilled area appears relatively flat with some topographic lows to the north.	Natural drainage would be to the east-southeast. Within this trench pooling is likely to occur in the topographic low at the alder bush.	Coarse grained material and debris accumulating downslope towards Gordon Lake to the NW. Would likely protect fine grained material from entering water body.
Vegetation re-establishment and percentage cover	Grasses and kinnikinnick observed around edge of backfilled area.	Alder, paper birch, and grasses observed. <10% coverage.	Alder bush observed within backfilled trench. Grasses revegetating along the edge.	None observed within backfilled trench. Paper birch sapling observed adjacent to trench on north side and one Kinnikinnick bush upgradient.
Mine opening stability	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 29	Photo No. 32	Photo No. 30	Photo No. 31

Visual Monitoring and Inspection Form		
Project Details		
Date:	21-Jul-23	Time:
Weather:	27 degrees. Sun and cloud with significant smoke	
Rainfall in last 24 hours?	No	Inspected by: Janine Morris
Storm Property		
Backfilled Excavation Locations		
LTM Station	South Mine Shaft	North Mine Shaft
GPS Coordinates (12V)	392393E 6988008N	392431E 6988035N
Animal Burrows	None observed	None observed
Seepage / staining	None observed	None observed
Signs of settlement	No signs of cracking or settlement around shaft.	No signs of cracking or settlement around backfilled area.
Drainage	No evidence of rills or ponded water. Downgradient is likely towards the SW into the lake.	No evidence of rills or ponded water. Downgradient is likely towards the SW into the lake.
Vegetation re-establishment and percentage cover	< 1% cover. Young saplings observed. Likely paper birch.	< 5% cover. Young saplings observed. Likely paper birch. Willow observed.
Mine opening stability	Mine shaft in good condition and no evidence of uncovering of plug.	Backfilled material appears stable.
Other	N/A	N/A
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 61	Photo No. 63
Waste Rock Locations		
LTM Station	STO WR 01	STO WR 02
GPS Coordinates (Easting / Northing)	392431E 6988035N	392377E 6988008N
Seepage / staining	No evidence of water pooling or staining surrounding waste rock area.	No evidence of water pooling or staining surrounding waste rock area.
Drainage (ARD)	No discolouration observed on or surrounding waste rock area.	No discolouration observed on or surrounding waste rock area.
Vegetation re-establishment and percentage cover	Paper birch sapling observed within waste rock pile.	Paper birch sapling observed within waste rock pile.
Vegetation stress	No sign of vegetation stress within or surrounding the waste rock pile.	No sign of vegetation stress within or surrounding the waste rock pile.
Other	N/A	N/A
Photo Reference Number	Photo No 60 and 62	Photo No. 59

Visual Monitoring and Inspection Form		
Project Details		
Date:	21-Jul-23	Time: 12:30
Weather:	27 degrees. Sun and cloud with significant smoke	
Rainfall in last 24 hours?	No	Inspected by: Janine Morris
West Bay		
Backfilled Excavation Locations		
LTM Station	Open Pit	
GPS Coordinates (12V)	386674E 6978352N	
Animal Burrows	None observed	
Seepage / staining	N/A	
Signs of settlement	N/A	
Drainage	N/A	
Vegetation re-establishment and percentage cover	N/A	
Mine opening stability	N/A	
Other (Effectiveness of barrier)	Fencing at south end slanted inward towards the pond. Approximately a 45 degree angle and can be walked on to enter open pit. At the southwest edge of the fence is a 0.3 m gap at the bottom of the fence where it does not touch the ground. Animals and humans have access.	
General Condition of Backfilled Excavation (circle)	GOOD / POOR	
Photo Reference Number	Photo No. 33 and 39 through 43	
Waste Rock Locations		
LTM Station	WES_WR_01	WES_WR_02
GPS Coordinates (Easting / Northing)	386641E 6978234N	386697E 6978253N
Seepage / staining	No discolouration observed on or surrounding waste rock pile.	Evidence of ponded water downslope to SW with accumulation of fine grains.
Drainage (ARD)	Evidence of previous ponded water downslope on NE side. Observed piezometer from former monitoring.	Topographic low identified with medium brown colour, fine grained material. Not suspected to be ARD, potential former hydrocarbon from remediation. Return in September to reassess.
Vegetation re-establishment and percentage cover	<1% revegetation. Some shrubs observed on SW edge.	Paper birch saplings observed downgradient of waste rock pile and paper birch trees observed from aerial approach on top of waste rock pile.
Vegetation stress	No signs of vegetation stress. In area of former ponded water,	No vegetation stress observed.
Other	N/A	N/A
Photo Reference Number	Photo No. 33 and 38	Photo No. 35 through 37

Visual Monitoring and Inspection Form		
Project Details		
Date:	29-Sep-23	Time: 17:25
Weather:	6 degrees. Overcast.	
Rainfall in last 24 hours?	No	Inspected by: Janine Morris
Murray Lake		
Backfilled Excavation Locations		
LTM Station	Main Shaft	Deep trench/Shaft
GPS Coordinates (12V)	378092E 6988787N	N/A
Animal Burrows	None observed	None observed
Seepage / staining	None observed	N/A
Signs of settlement	None observed	None observed
Drainage	Vent in area of flat topography and no natural drainage. Ponded water not observed indicating either good drainage or not a topographic low.	Natural drainage to the north into Murray Lake
Vegetation re-establishment and percentage cover	<1%. Sparse grasses establishing around edge of disturbed area.	None observed
Mine opening stability	Appears stable. Vent upright and no signs of settlement surrounding.	N/A
Other	Inspection taken from air due to lack of landing pad for helicopter	Inspection taken from air due to lack of landing pad for helicopter
General Condition of Backfilled Excavation (circle)	GOOD / POOR	GOOD / POOR
Photo Reference Number	Photo No. 67	Photo No. 66
Waste Rock Locations		
LTM Station	MUR_WR_01	MUR_WR_02
GPS Coordinates (Easting / Northing)	377837E 6988826N	378441E 6988353N
Seepage / staining	No discolouration observed on or surrounding waste rock pile.	No discolouration observed on or surrounding waste rock pile.
Drainage (ARD)	None Observed	None Observed
Vegetation re-establishment and percentage cover	None observed	None observed
Vegetation stress	No signs of vegetation stress.	No vegetation stress observed.
Other	Inspection taken from air due to lack of landing pad for helicopter	Inspection taken from air due to lack of landing pad for helicopter
Photo Reference Number	Photo No. 65	Photo No. 64

Visual Monitoring and Inspection Form		
Project Details		
Date:	29-Sep-23	Time: 17:35
Weather:	6 degrees. Overcast.	
Rainfall in last 24 hours?	No	Inspected by: Janine Morris
Try Me		
Backfilled Excavation Locations		
LTM Station	Shaft	
GPS Coordinates (12V)	374743E 6995654N	
Animal Burrows	None observed	
Seepage / staining	None observed	
Signs of settlement	None observed	
Drainage	Vent not observed in an area of significant drainage. Assumed drainage pathway to the southeast.	
Vegetation re-establishment and percentage cover	No significant regrowth. Debris surrounding vent may encourage regrowth.	
Mine opening stability	Appears stable. Vent upright and no signs of settlement surrounding.	
Other	Inspection taken from air due to lack of landing pad for helicopter	
General Condition of Backfilled Excavation (circle)	GOOD / POOR	
Photo Reference Number	Photo No. 68	

Appendix **E**

**Certificate of Analysis, Laboratory Quality
Assurance Reports, Laboratory Reports**



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-01-01, 700027-02-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/07/28
Report #: R3372972
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355158

Received: 2023/07/18, 08:10

Sample Matrix: Grab Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	3	N/A	2023/07/22	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	3	N/A	2023/07/22	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	3	N/A	2023/07/22		Auto Calc
Cadmium - low level CCME (Total) (1)	3	N/A	2023/07/27		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	3	N/A	2023/07/25	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Conductivity @25C (1)	3	N/A	2023/07/22	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	3	2023/07/23	2023/07/23	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	3	N/A	2023/07/22		Auto Calc
Mercury (Total) by CV (1)	3	2023/07/22	2023/07/25	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	3	N/A	2023/07/21	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	3	2023/07/26	2023/07/26	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Total (1)	3	2023/07/26	2023/07/26	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	3	N/A	2023/07/26		Auto Calc
Sum of cations, anions (1)	3	N/A	2023/07/22		Auto Calc
Elements by CRC ICPMS (total) (1)	3	2023/07/25	2023/07/27	CAL SOP-00265	EPA 6020 m
Ammonia-N (Total) (1)	3	N/A	2023/07/24	AB SOP-00007	SM 24 4500 NH ₃ A G m
Nitrate and Nitrite (1)	1	N/A	2023/07/24		Auto Calc
Nitrate and Nitrite (1)	2	N/A	2023/07/25		Auto Calc
NO ₂ (N); NO ₂ (N) + NO ₃ (N) in Water (1)	3	N/A	2023/07/22	AB SOP-00091	SM 24 4500 NO ₃ m
Nitrate (as N) (1)	1	2023/07/20	2023/07/24		Auto Calc
Nitrate (as N) (1)	2	2023/07/20	2023/07/25		Auto Calc
pH @25°C (1, 4)	3	N/A	2023/07/22	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (1, 5)	3	N/A	2023/07/22	AB SOP-00025	SM 24 4500-P A,F m
Total Dissolved Solids (Filt. Residue) (1)	2	2023/07/25	2023/07/26	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Filt. Residue) (1)	1	2023/07/25	2023/07/27	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Calculated) (1)	3	N/A	2023/07/26		Auto Calc
Carbon (Total Organic) (1, 6)	3	N/A	2023/07/26	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	3	2023/07/24	2023/07/26	AB SOP-00024	SM 24 4500-P A,B,F m
Total Suspended Solids (NFR) (1)	3	2023/07/25	2023/07/26	AB SOP-00061	SM 24 2540 D m



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 700027-01-01, 700027-02-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/07/28
 Report #: R3372972
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355158

Received: 2023/07/18, 08:10

Sample Matrix: Surface Water
 # Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	6	N/A	2023/07/22	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	6	N/A	2023/07/22	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	6	N/A	2023/07/22		Auto Calc
Cadmium - low level CCME (Total) (1)	6	N/A	2023/07/27		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	6	N/A	2023/07/25	AB SOP-00020	SM24-4500-Cl/SO4-E m
Conductivity @25C (1)	6	N/A	2023/07/22	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	4	2023/07/21	2023/07/22	AB SOP-00037	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	2	2023/07/23	2023/07/23	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	6	N/A	2023/07/22		Auto Calc
Mercury (Total) by CV (1)	6	2023/07/22	2023/07/25	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	6	N/A	2023/07/21	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	6	2023/07/26	2023/07/26	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Total (1)	6	2023/07/26	2023/07/26	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	6	N/A	2023/07/26		Auto Calc
Sum of cations, anions (1)	6	N/A	2023/07/22		Auto Calc
Elements by CRC ICPMS (total) (1)	6	2023/07/25	2023/07/27	CAL SOP-00265	EPA 6020 m
Ammonia-N (Total) (1)	6	N/A	2023/07/24	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite (1)	4	N/A	2023/07/24		Auto Calc
Nitrate and Nitrite (1)	2	N/A	2023/07/25		Auto Calc
NO ₂ (N); NO ₂ (N) + NO ₃ (N) in Water (1)	6	N/A	2023/07/22	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N) (1)	4	2023/07/20	2023/07/24		Auto Calc
Nitrate (as N) (1)	2	2023/07/20	2023/07/25		Auto Calc
pH @25°C (1, 4)	6	N/A	2023/07/22	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (1, 5)	6	N/A	2023/07/22	AB SOP-00025	SM 24 4500-P A,B,F m
Total Dissolved Solids (Filt. Residue) (1)	6	2023/07/25	2023/07/26	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Calculated) (1)	6	N/A	2023/07/26		Auto Calc
Carbon (Total Organic) (1, 6)	5	N/A	2023/07/26	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (1, 6)	1	N/A	2023/07/27	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	1	2023/07/24	2023/07/25	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	5	2023/07/24	2023/07/26	AB SOP-00024	SM 24 4500-P A,B,F m



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-01-01, 700027-02-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/07/28
Report #: R3372972
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355158

Received: 2023/07/18, 08:10

Sample Matrix: Surface Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Suspended Solids (NFR) (1)	6	2023/07/25	2023/07/26	AB SOP-00061	SM 24 2540 D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) Silica gel clean up employed.

(3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.

(4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

(5) Orthophosphate > Total Phosphorus Imbalance: When applicable, Orthophosphate, Total Phosphorus and dissolved Phosphorus results were reviewed and data quality meets acceptable levels unless otherwise noted.

(6) TOC present in the sample should be considered as non-purgeable TOC.



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-01-01, 700027-02-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/07/28
Report #: R3372972
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355158

Received: 2023/07/18, 08:10

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.



RESULTS OF CHEMICAL ANALYSES OF GRAB WATER

Bureau Veritas ID		BVA369	BVA369			BVA370		
Sampling Date		2023/07/18 11:50	2023/07/18 11:50			2023/07/18 14:10		
COC Number		700027-01-01	700027-01-01			700027-02-01		
	UNITS	GLG-2023-00001-020	GLG-2023-00001-020 Lab-Dup	RDL	QC Batch	GLG-2023-00001-001	RDL	QC Batch

Calculated Parameters								
Anion Sum	meq/L	40	N/A	N/A	B041624	32	N/A	B041624
Cation Sum	meq/L	40	N/A	N/A	B041624	31	N/A	B041624
Hardness (CaCO ₃)	mg/L	1700	N/A	0.50	B041467	1200	0.50	B041467
Ion Balance (% Difference)	%	0.36	N/A	N/A	B041808	1.7	N/A	B041808
Nitrate (N)	mg/L	<0.020	N/A	0.020	B041380	<0.020	0.020	B041380
Nitrate (NO ₃)	mg/L	<0.089	N/A	0.089	B041809	<0.089	0.089	B041809
Nitrite (NO ₂)	mg/L	<0.066	N/A	0.066	B041809	<0.066	0.066	B041809
Calculated Total Dissolved Solids	mg/L	2500	N/A	25	B041377	1800	10	B041377
Elements								
Total Cadmium (Cd)	ug/L	6.1	N/A	0.020	B041134	<0.020	0.020	B041134
Misc. Inorganics								
Conductivity	uS/cm	2800	N/A	2.0	B043929	2400	2.0	B043925
pH	pH	7.15	N/A	N/A	B043928	7.57	N/A	B043924
Total Organic Carbon (C)	mg/L	3.0	N/A	0.50	B048015	12	0.50	B048015
Total Dissolved Solids	mg/L	2500	N/A	10	B046152	1800	10	B046152
Total Suspended Solids	mg/L	110	N/A	0.95	B046167	45 (1)	1.5	B046167
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	B043926	<1.0	1.0	B043923
Alkalinity (Total as CaCO ₃)	mg/L	340	N/A	1.0	B043926	820	1.0	B043923
Bicarbonate (HCO ₃)	mg/L	410	N/A	1.0	B043926	990	1.0	B043923
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	B043926	<1.0	1.0	B043923
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	B043926	<1.0	1.0	B043923
Chloride (Cl)	mg/L	9.0	N/A	1.0	B047461	35	1.0	B047461
Sulphate (SO ₄)	mg/L	1600	N/A	25	B047461	720	10	B047461
Nutrients								
Total Ammonia (N)	mg/L	0.90	N/A	0.015	B044919	1.3	0.015	B044919
Orthophosphate (P)	mg/L	0.0031	N/A	0.0030	B043617	<0.0030	0.0030	B043618
Total Phosphorus (P)	mg/L	0.044	0.044	0.0030	B044694	0.086	0.0030	B044676
Nitrite (N)	mg/L	<0.020 (2)	N/A	0.020	B043713	<0.020 (2)	0.020	B043713

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Detection limit raised based on sample volume used for analysis.

(2) Detection limits raised due to sample matrix.



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF GRAB WATER

Bureau Veritas ID		BVA369	BVA369			BVA370		
Sampling Date		2023/07/18 11:50	2023/07/18 11:50			2023/07/18 14:10		
COC Number		700027-01-01	700027-01-01			700027-02-01		
	UNITS	GLG-2023-00001-020	GLG-2023-00001-020 Lab-Dup	RDL	QC Batch	GLG-2023-00001-001	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B043713	<0.020 (1)	0.020	B043713

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Detection limits raised due to sample matrix.



RESULTS OF CHEMICAL ANALYSES OF GRAB WATER

Bureau Veritas ID		BVA370			BVA371	BVA371		
Sampling Date		2023/07/18 14:10			2023/07/18 13:05	2023/07/18 13:05		
COC Number		700027-02-01			700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-001 Lab-Dup	RDL	QC Batch	GLG-2023-00001-002	GLG-2023-00001-002 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	N/A	N/A	B041624	13	N/A	N/A	B041624
Cation Sum	meq/L	N/A	N/A	B041624	13	N/A	N/A	B041624
Hardness (CaCO ₃)	mg/L	N/A	0.50	B041467	590	N/A	0.50	B041467
Ion Balance (% Difference)	%	N/A	N/A	B041808	0.0010	N/A	N/A	B041808
Nitrate (N)	mg/L	N/A	0.020	B041380	<0.020	N/A	0.020	B041380
Nitrate (NO ₃)	mg/L	N/A	0.089	B041809	<0.089	N/A	0.089	B041809
Nitrite (NO ₂)	mg/L	N/A	0.066	B041809	<0.066	N/A	0.066	B041809
Calculated Total Dissolved Solids	mg/L	N/A	10	B041377	780	N/A	10	B041377
Elements								
Total Cadmium (Cd)	ug/L	N/A	0.020	B041134	0.059	N/A	0.020	B041134
Misc. Inorganics								
Conductivity	uS/cm	N/A	2.0	B043925	1100	N/A	2.0	B043929
pH	pH	N/A	N/A	B043924	7.33	N/A	N/A	B043928
Total Organic Carbon (C)	mg/L	N/A	0.50	B048015	9.5	N/A	0.50	B048015
Total Dissolved Solids	mg/L	N/A	10	B046152	770	760	10	B046154
Total Suspended Solids	mg/L	N/A	1.5	B046167	23	N/A	0.96	B046167
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	N/A	1.0	B043923	<1.0	N/A	1.0	B043926
Alkalinity (Total as CaCO ₃)	mg/L	N/A	1.0	B043923	320	N/A	1.0	B043926
Bicarbonate (HCO ₃)	mg/L	N/A	1.0	B043923	400	N/A	1.0	B043926
Carbonate (CO ₃)	mg/L	N/A	1.0	B043923	<1.0	N/A	1.0	B043926
Hydroxide (OH)	mg/L	N/A	1.0	B043923	<1.0	N/A	1.0	B043926
Chloride (Cl)	mg/L	N/A	1.0	B047461	5.7	N/A	1.0	B047461
Sulphate (SO ₄)	mg/L	N/A	10	B047461	320	N/A	5.0	B047461
Nutrients								
Total Ammonia (N)	mg/L	N/A	0.015	B044919	0.43	N/A	0.015	B044919
Orthophosphate (P)	mg/L	<0.0030	0.0030	B043618	0.0033	N/A	0.0030	B043617
Total Phosphorus (P)	mg/L	N/A	0.0030	B044676	0.0041	0.0074	0.0030	B044676
Nitrite (N)	mg/L	N/A	0.020	B043713	<0.020 (1)	N/A	0.020	B043757
Nitrate plus Nitrite (N)	mg/L	N/A	0.020	B043713	<0.020 (1)	N/A	0.020	B043757
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference.								



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		BVA369	BVA370	BVA371		
Sampling Date		2023/07/18 11:50	2023/07/18 14:10	2023/07/18 13:05		
COC Number		700027-01-01	700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-020	GLG-2023-00001-001	GLG-2023-00001-002	RDL	QC Batch
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	1.6	0.10	B041731
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	0.16	0.10	B041731
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	0.20	B041731
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	104	100	100	N/A	B041731
RDL = Reportable Detection Limit						
N/A = Not Applicable						



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

MERCURY BY COLD VAPOR (GRAB WATER)

Bureau Veritas ID		BVA369	BVA370	BVA371		
Sampling Date		2023/07/18 11:50	2023/07/18 14:10	2023/07/18 13:05		
COC Number		700027-01-01	700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-020	GLG-2023-00001-001	GLG-2023-00001-002	RDL	QC Batch
Elements						
Total Mercury (Hg)	ug/L	0.0029	<0.0019	<0.0019	0.0019	B043696
RDL = Reportable Detection Limit						



BUREAU
VERITAS

Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (GRAB WATER)

Bureau Veritas ID		BVA369			BVA370		
Sampling Date		2023/07/18 11:50			2023/07/18 14:10		
COC Number		700027-01-01			700027-02-01		
	UNITS	GLG-2023-00001-020	RDL	QC Batch	GLG-2023-00001-001	RDL	QC Batch
Elements							
Total Aluminum (Al)	mg/L	1.5	0.0030	B048045	0.020	0.0030	B048115
Total Antimony (Sb)	mg/L	<0.00060	0.00060	B048045	<0.00060	0.00060	B048115
Total Arsenic (As)	mg/L	0.042	0.00020	B048045	0.014	0.00020	B048115
Total Barium (Ba)	mg/L	0.021	0.010	B048052	0.31	0.010	B048119
Total Beryllium (Be)	mg/L	<0.0010	0.0010	B048045	<0.0010	0.0010	B048115
Total Boron (B)	mg/L	0.16	0.020	B048052	0.11	0.020	B048119
Dissolved Calcium (Ca)	mg/L	480	0.30	B043265	350	0.30	B043262
Total Calcium (Ca)	mg/L	470	0.30	B048052	320	0.30	B048119
Total Chromium (Cr)	mg/L	0.0016	0.0010	B048045	<0.0010	0.0010	B048115
Total Cobalt (Co)	mg/L	0.016	0.00030	B048045	0.018	0.00030	B048115
Total Copper (Cu)	mg/L	0.0060	0.0010	B048045	<0.0010	0.0010	B048115
Dissolved Iron (Fe)	mg/L	45	0.060	B043265	19	0.060	B043262
Total Iron (Fe)	mg/L	65	0.060	B048052	25	0.060	B048119
Total Lead (Pb)	mg/L	0.0050	0.00020	B048045	<0.00020	0.00020	B048115
Total Lithium (Li)	mg/L	0.027	0.020	B048052	<0.020	0.020	B048119
Dissolved Magnesium (Mg)	mg/L	130	0.20	B043265	91	0.20	B043262
Total Magnesium (Mg)	mg/L	140	0.20	B048052	95	0.20	B048119
Dissolved Manganese (Mn)	mg/L	1.6	0.0040	B043265	4.0	0.0040	B043262
Total Manganese (Mn)	mg/L	1.5	0.0040	B048052	4.3	0.0040	B048119
Total Molybdenum (Mo)	mg/L	0.0019	0.00020	B048045	0.00072	0.00020	B048115
Total Nickel (Ni)	mg/L	0.026	0.00050	B048045	0.0011	0.00050	B048115
Total Phosphorus (P)	mg/L	<0.10	0.10	B048052	<0.10	0.10	B048119
Dissolved Potassium (K)	mg/L	45	0.30	B043265	25	0.30	B043262
Total Potassium (K)	mg/L	46	0.30	B048052	23	0.30	B048119
Total Selenium (Se)	mg/L	0.00037	0.00020	B048045	<0.00020	0.00020	B048115
Total Silicon (Si)	mg/L	11	0.50	B048052	9.4	0.50	B048119
Total Silver (Ag)	mg/L	0.00017	0.00010	B048045	<0.00010	0.00010	B048115
Dissolved Sodium (Na)	mg/L	46	0.50	B043265	110	0.50	B043262
Total Sodium (Na)	mg/L	47	0.50	B048052	93	0.50	B048119
Total Strontium (Sr)	mg/L	3.8	0.020	B048052	1.8	0.020	B048119
Total Sulphur (S)	mg/L	500	1.0	B048052	220	0.20	B048119
Total Thallium (Tl)	mg/L	<0.00020	0.00020	B048045	<0.00020	0.00020	B048115
RDL = Reportable Detection Limit							



ELEMENTS BY ATOMIC SPECTROSCOPY (GRAB WATER)

Bureau Veritas ID		BVA369			BVA370		
Sampling Date		2023/07/18 11:50			2023/07/18 14:10		
COC Number		700027-01-01			700027-02-01		
	UNITS	GLG-2023-00001-020	RDL	QC Batch	GLG-2023-00001-001	RDL	QC Batch
Total Tin (Sn)	mg/L	<0.0010	0.0010	B048045	<0.0010	0.0010	B048115
Total Titanium (Ti)	mg/L	0.0048	0.0010	B048045	<0.0010	0.0010	B048115
Total Uranium (U)	mg/L	0.0019	0.00010	B048045	0.0095	0.00010	B048115
Total Vanadium (V)	mg/L	<0.0010	0.0010	B048045	0.0012	0.0010	B048115
Total Zinc (Zn)	mg/L	0.63	0.0030	B048045	<0.0030	0.0030	B048115
Total Metals by ICPMS							
Total Bismuth (Bi)	mg/L	<0.0050	0.0050	B046221	<0.0050	0.0050	B046221
Total Cesium (Cs)	mg/L	<0.0010	0.0010	B046221	<0.0010	0.0010	B046221
RDL = Reportable Detection Limit							

**ELEMENTS BY ATOMIC SPECTROSCOPY (GRAB WATER)**

Bureau Veritas ID		BVA371	BVA371		
Sampling Date		2023/07/18 13:05	2023/07/18 13:05		
COC Number		700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-002	GLG-2023-00001-002 Lab-Dup	RDL	QC Batch
Elements					
Total Aluminum (Al)	mg/L	0.047	N/A	0.0030	B048045
Total Antimony (Sb)	mg/L	<0.00060	N/A	0.00060	B048045
Total Arsenic (As)	mg/L	0.017	N/A	0.00020	B048045
Total Barium (Ba)	mg/L	0.054	N/A	0.010	B048052
Total Beryllium (Be)	mg/L	<0.0010	N/A	0.0010	B048045
Total Boron (B)	mg/L	0.032	N/A	0.020	B048052
Dissolved Calcium (Ca)	mg/L	190	190	0.30	B043265
Total Calcium (Ca)	mg/L	190	N/A	0.30	B048052
Total Chromium (Cr)	mg/L	<0.0010	N/A	0.0010	B048045
Total Cobalt (Co)	mg/L	0.012	N/A	0.00030	B048045
Total Copper (Cu)	mg/L	0.0017	N/A	0.0010	B048045
Dissolved Iron (Fe)	mg/L	10	10	0.060	B043265
Total Iron (Fe)	mg/L	12	N/A	0.060	B048052
Total Lead (Pb)	mg/L	0.00051	N/A	0.00020	B048045
Total Lithium (Li)	mg/L	<0.020	N/A	0.020	B048052
Dissolved Magnesium (Mg)	mg/L	24	24	0.20	B043265
Total Magnesium (Mg)	mg/L	27	N/A	0.20	B048052
Dissolved Manganese (Mn)	mg/L	6.5	6.5	0.0040	B043265
Total Manganese (Mn)	mg/L	6.1	N/A	0.0040	B048052
Total Molybdenum (Mo)	mg/L	0.0018	N/A	0.00020	B048045
Total Nickel (Ni)	mg/L	0.023	N/A	0.00050	B048045
Total Phosphorus (P)	mg/L	<0.10	N/A	0.10	B048052
Dissolved Potassium (K)	mg/L	4.9	4.8	0.30	B043265
Total Potassium (K)	mg/L	4.9	N/A	0.30	B048052
Total Selenium (Se)	mg/L	<0.00020	N/A	0.00020	B048045
Total Silicon (Si)	mg/L	7.4	N/A	0.50	B048052
Total Silver (Ag)	mg/L	<0.00010	N/A	0.00010	B048045
Dissolved Sodium (Na)	mg/L	19	19	0.50	B043265
Total Sodium (Na)	mg/L	19	N/A	0.50	B048052
Total Strontium (Sr)	mg/L	0.54	N/A	0.020	B048052
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



ELEMENTS BY ATOMIC SPECTROSCOPY (GRAB WATER)

Bureau Veritas ID		BVA371	BVA371		
Sampling Date		2023/07/18 13:05	2023/07/18 13:05		
COC Number		700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-002	GLG-2023-00001-002 Lab-Dup	RDL	QC Batch
Total Sulphur (S)	mg/L	110	N/A	0.20	B048052
Total Thallium (Tl)	mg/L	<0.00020	N/A	0.00020	B048045
Total Tin (Sn)	mg/L	<0.0010	N/A	0.0010	B048045
Total Titanium (Ti)	mg/L	<0.0010	N/A	0.0010	B048045
Total Uranium (U)	mg/L	0.0021	N/A	0.00010	B048045
Total Vanadium (V)	mg/L	<0.0010	N/A	0.0010	B048045
Total Zinc (Zn)	mg/L	0.011	N/A	0.0030	B048045
Total Metals by ICPMS					
Total Bismuth (Bi)	mg/L	<0.0050	N/A	0.0050	B046221
Total Cesium (Cs)	mg/L	<0.0010	N/A	0.0010	B046221
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

VOLATILE ORGANICS BY GC-MS (GRAB WATER)

Bureau Veritas ID		BVA369	BVA370	BVA371		
Sampling Date		2023/07/18 11:50	2023/07/18 14:10	2023/07/18 13:05		
COC Number		700027-01-01	700027-02-01	700027-02-01		
	UNITS	GLG-2023-00001-020	GLG-2023-00001-001	GLG-2023-00001-002	RDL	QC Batch
Volatiles						
Benzene	ug/L	3.1	<0.40	<0.40	0.40	B042266
Toluene	ug/L	3.2	<0.40	<0.40	0.40	B042266
Ethylbenzene	ug/L	0.48	<0.40	5.9	0.40	B042266
m & p-Xylene	ug/L	1.4	<0.80	9.6	0.80	B042266
o-Xylene	ug/L	0.66	<0.40	0.58	0.40	B042266
Xylenes (Total)	ug/L	2.0	<0.89	10	0.89	B041806
F1 (C6-C10) - BTEX	ug/L	<100	<100	220	100	B041806
F1 (C6-C10)	ug/L	<100	<100	240	100	B042266
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	104	104	104	N/A	B042266
4-Bromofluorobenzene (sur.)	%	92	92	90	N/A	B042266
D4-1,2-Dichloroethane (sur.)	%	83	82	82	N/A	B042266
RDL = Reportable Detection Limit						
N/A = Not Applicable						



RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER

Bureau Veritas ID		BVA363	BVA363			BVA364		
Sampling Date		2023/07/18 14:40	2023/07/18 14:40			2023/07/18 12:40		
COC Number		700027-01-01	700027-01-01			700027-01-01		
	UNITS	GLG-2023-00001-007	GLG-2023-00001-007 Lab-Dup	RDL	QC Batch	GLG-2023-00001-008	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	1.2	N/A	N/A	B041624	1.1	N/A	B041624
Cation Sum	meq/L	1.0	N/A	N/A	B041624	0.97	N/A	B041624
Hardness (CaCO ₃)	mg/L	43	N/A	0.50	B041467	42	0.50	B041467
Ion Balance (% Difference)	%	NC	N/A	N/A	B041376	NC	N/A	B041376
Nitrate (N)	mg/L	<0.020	N/A	0.020	B041380	<0.020	0.020	B041380
Nitrate (NO ₃)	mg/L	<0.089	N/A	0.089	B041510	<0.089	0.089	B041510
Nitrite (NO ₂)	mg/L	<0.066	N/A	0.066	B041510	<0.066	0.066	B041510
Calculated Total Dissolved Solids	mg/L	57	N/A	10	B041377	53	10	B041377
Elements								
Total Cadmium (Cd)	ug/L	<0.020	N/A	0.020	B041134	<0.020	0.020	B041134
Misc. Inorganics								
Conductivity	uS/cm	100	N/A	2.0	B043925	100	2.0	B043929
pH	pH	7.17	N/A	N/A	B043924	7.08	N/A	B043928
Total Organic Carbon (C)	mg/L	2.2	N/A	0.50	B048015	2.3	0.50	B048015
Total Dissolved Solids	mg/L	44	N/A	10	B046152	48	10	B046152
Total Suspended Solids	mg/L	<0.99	<0.99	0.99	B046167	<1.0	1.0	B046167
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	B043923	<1.0	1.0	B043926
Alkalinity (Total as CaCO ₃)	mg/L	49	N/A	1.0	B043923	46	1.0	B043926
Bicarbonate (HCO ₃)	mg/L	59	N/A	1.0	B043923	56	1.0	B043926
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	B043923	<1.0	1.0	B043926
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	B043923	<1.0	1.0	B043926
Chloride (Cl)	mg/L	1.4	N/A	1.0	B047461	<1.0	1.0	B047461
Sulphate (SO ₄)	mg/L	7.2	N/A	1.0	B047461	7.2	1.0	B047461
Nutrients								
Total Ammonia (N)	mg/L	<0.015	N/A	0.015	B044919	<0.015	0.015	B044919
Orthophosphate (P)	mg/L	<0.0030	N/A	0.0030	B043618	<0.0030	0.0030	B043617
Total Phosphorus (P)	mg/L	<0.0030	N/A	0.0030	B044694	<0.0030	0.0030	B044676
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								
N/A = Not Applicable								



RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER

Bureau Veritas ID		BVA363	BVA363			BVA364		
Sampling Date		2023/07/18 14:40	2023/07/18 14:40			2023/07/18 12:40		
COC Number		700027-01-01	700027-01-01			700027-01-01		
	UNITS	GLG-2023-00001-007	GLG-2023-00001-007 Lab-Dup	RDL	QC Batch	GLG-2023-00001-008	RDL	QC Batch
Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B043757	<0.020 (2)	0.020	B043713
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B043757	<0.020 (2)	0.020	B043713

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Detection limits raised due to matrix interference.

(2) Detection limits raised due to sample matrix.

BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER

Bureau Veritas ID		BVA365			BVA366		
Sampling Date		2023/07/18 13:40			2023/07/18 12:00		
COC Number		700027-01-01			700027-01-01		
	UNITS	GLG-2023-00001-009	RDL	QC Batch	GLG-2023-00001-010	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	1.1	N/A	B041624	1.2	N/A	B041624
Cation Sum	meq/L	0.97	N/A	B041624	0.97	N/A	B041624
Hardness (CaCO ₃)	mg/L	42	0.50	B041467	42	0.50	B041467
Ion Balance (% Difference)	%	NC	N/A	B041376	NC	N/A	B041376
Nitrate (N)	mg/L	<0.020	0.020	B041380	<0.020	0.020	B041380
Nitrate (NO ₃)	mg/L	<0.089	0.089	B041510	<0.089	0.089	B041510
Nitrite (NO ₂)	mg/L	<0.066	0.066	B041510	<0.066	0.066	B041510
Calculated Total Dissolved Solids	mg/L	55	10	B041377	56	10	B041377
Elements							
Total Cadmium (Cd)	ug/L	<0.020	0.020	B041134	<0.020	0.020	B041134
Misc. Inorganics							
Conductivity	uS/cm	100	2.0	B043929	100	2.0	B043929
pH	pH	7.11	N/A	B043928	7.03	N/A	B043928
Total Organic Carbon (C)	mg/L	2.5	0.50	B048015	3.0	0.50	B048438
Total Dissolved Solids	mg/L	48	10	B046152	48	10	B046152
Total Suspended Solids	mg/L	3.1	0.95	B046167	3.4	0.97	B046167
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B043926	<1.0	1.0	B043926
Alkalinity (Total as CaCO ₃)	mg/L	46	1.0	B043926	48	1.0	B043926
Bicarbonate (HCO ₃)	mg/L	56	1.0	B043926	59	1.0	B043926
Carbonate (CO ₃)	mg/L	<1.0	1.0	B043926	<1.0	1.0	B043926
Hydroxide (OH)	mg/L	<1.0	1.0	B043926	<1.0	1.0	B043926
Chloride (Cl)	mg/L	1.3	1.0	B047461	1.4	1.0	B047461
Sulphate (SO ₄)	mg/L	7.4	1.0	B047461	7.4	1.0	B047461
Nutrients							
Total Ammonia (N)	mg/L	<0.015	0.015	B044919	<0.015	0.015	B044919
Orthophosphate (P)	mg/L	<0.0030	0.0030	B043617	0.0055	0.0030	B043618
Total Phosphorus (P)	mg/L	0.0089	0.0030	B044676	0.0037 (1)	0.0030	B044676
RDL = Reportable Detection Limit							
N/A = Not Applicable							
(1) Phosphorus < Orthophosphate: Both values fall within the method uncertainty for duplicates and are likely equivalent.							



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER

Bureau Veritas ID		BVA365			BVA366		
Sampling Date		2023/07/18 13:40			2023/07/18 12:00		
COC Number		700027-01-01			700027-01-01		
	UNITS	GLG-2023-00001-009	RDL	QC Batch	GLG-2023-00001-010	RDL	QC Batch
Nitrite (N)	mg/L	<0.020 (1)	0.020	B043757	<0.020 (2)	0.020	B043713
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	0.020	B043757	<0.020 (2)	0.020	B043713
RDL = Reportable Detection Limit							
(1) Detection limits raised due to matrix interference.							
(2) Detection limits raised due to sample matrix.							

**RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER**

Bureau Veritas ID		BVA367	BVA367		BVA368		
Sampling Date		2023/07/18 12:10	2023/07/18 12:10		2023/07/18 15:50		
COC Number		700027-01-01	700027-01-01		700027-01-01		
	UNITS	GLG-2023-00001-011	GLG-2023-00001-011 Lab-Dup	QC Batch	GLG-2023-00001-012	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	1.0	N/A	B041624	1.1	N/A	B041624
Cation Sum	meq/L	1.1	N/A	B041624	0.97	N/A	B041624
Hardness (CaCO ₃)	mg/L	47	N/A	B041467	42	0.50	B041467
Ion Balance (% Difference)	%	NC	N/A	B041376	NC	N/A	B041808
Nitrate (N)	mg/L	<0.020	N/A	B041380	<0.020	0.020	B041380
Nitrate (NO ₃)	mg/L	<0.089	N/A	B041510	<0.089	0.089	B041510
Nitrite (NO ₂)	mg/L	<0.066	N/A	B041510	<0.066	0.066	B041510
Calculated Total Dissolved Solids	mg/L	55	N/A	B041377	55	10	B041377
Elements							
Total Cadmium (Cd)	ug/L	<0.020	N/A	B041134	<0.020	0.020	B041134
Misc. Inorganics							
Conductivity	uS/cm	100	N/A	B043925	100	2.0	B043925
pH	pH	7.15	N/A	B043924	7.22	N/A	B043924
Total Organic Carbon (C)	mg/L	2.2	N/A	B048015	2.3	0.50	B048015
Total Dissolved Solids	mg/L	56	N/A	B046152	52	10	B046152
Total Suspended Solids	mg/L	<1.0	N/A	B046167	<1.0	1.0	B046167
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	B043923	<1.0	1.0	B043923
Alkalinity (Total as CaCO ₃)	mg/L	43	N/A	B043923	46	1.0	B043923
Bicarbonate (HCO ₃)	mg/L	52	N/A	B043923	56	1.0	B043923
Carbonate (CO ₃)	mg/L	<1.0	N/A	B043923	<1.0	1.0	B043923
Hydroxide (OH)	mg/L	<1.0	N/A	B043923	<1.0	1.0	B043923
Chloride (Cl)	mg/L	1.4	N/A	B047461	1.2	1.0	B047461
Sulphate (SO ₄)	mg/L	7.1	N/A	B047461	7.3	1.0	B047461
Nutrients							
Total Ammonia (N)	mg/L	<0.015	N/A	B044919	<0.015	0.015	B044919
Orthophosphate (P)	mg/L	<0.0030	N/A	B043618	<0.0030	0.0030	B043617
Total Phosphorus (P)	mg/L	<0.0030	<0.0030	B044671	<0.0030	0.0030	B044676
Nitrite (N)	mg/L	<0.020 (1)	N/A	B043757	<0.020 (1)	0.020	B043757
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	N/A	B043757	<0.020 (1)	0.020	B043757
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference.							



BUREAU
VERITAS

Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		BVA363	BVA364	BVA365	BVA366		
Sampling Date		2023/07/18 14:40	2023/07/18 12:40	2023/07/18 13:40	2023/07/18 12:00		
COC Number		700027-01-01	700027-01-01	700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-007	GLG-2023-00001-008	GLG-2023-00001-009	GLG-2023-00001-010	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B039995
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B039995
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B039995
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	103	98	101	99	N/A	B039995
RDL = Reportable Detection Limit N/A = Not Applicable							

Bureau Veritas ID		BVA367	BVA368		
Sampling Date		2023/07/18 12:10	2023/07/18 15:50		
COC Number		700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-011	GLG-2023-00001-012	RDL	QC Batch
Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B041731
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B041731
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	0.20	B041731
Surrogate Recovery (%)					
O-TERPHENYL (sur.)	%	102	101	N/A	B041731
RDL = Reportable Detection Limit N/A = Not Applicable					



MERCURY BY COLD VAPOR (SURFACE WATER)

Bureau Veritas ID		BVA363	BVA364	BVA365	BVA366		
Sampling Date		2023/07/18 14:40	2023/07/18 12:40	2023/07/18 13:40	2023/07/18 12:00		
COC Number		700027-01-01	700027-01-01	700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-007	GLG-2023-00001-008	GLG-2023-00001-009	GLG-2023-00001-010	RDL	QC Batch
Elements							
Total Mercury (Hg)	ug/L	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	B043696
RDL = Reportable Detection Limit							

Bureau Veritas ID		BVA367	BVA368		
Sampling Date		2023/07/18 12:10	2023/07/18 15:50		
COC Number		700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-011	GLG-2023-00001-012	RDL	QC Batch
Elements					
Total Mercury (Hg)	ug/L	<0.0019	<0.0019	0.0019	B043696
RDL = Reportable Detection Limit					



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Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVA363		BVA364		BVA365		
Sampling Date		2023/07/18 14:40		2023/07/18 12:40		2023/07/18 13:40		
COC Number		700027-01-01		700027-01-01		700027-01-01		
	UNITS	GLG-2023-00001-007	QC Batch	GLG-2023-00001-008	QC Batch	GLG-2023-00001-009	RDL	QC Batch

Elements								
Total Aluminum (Al)	mg/L	0.010	B048045	0.013	B048115	0.14	0.0030	B048045
Total Antimony (Sb)	mg/L	<0.00060	B048045	<0.00060	B048115	<0.00060	0.00060	B048045
Total Arsenic (As)	mg/L	0.00036	B048045	0.00026	B048115	0.00052	0.00020	B048045
Total Barium (Ba)	mg/L	<0.010	B048052	<0.010	B048119	<0.010	0.010	B048052
Total Beryllium (Be)	mg/L	<0.0010	B048045	<0.0010	B048115	<0.0010	0.0010	B048045
Total Boron (B)	mg/L	<0.020	B048052	<0.020	B048119	<0.020	0.020	B048052
Dissolved Calcium (Ca)	mg/L	13	B043265	12	B043262	12	0.30	B043262
Total Calcium (Ca)	mg/L	13	B048052	12	B048119	12	0.30	B048052
Total Chromium (Cr)	mg/L	<0.0010	B048045	0.0011	B048115	<0.0010	0.0010	B048045
Total Cobalt (Co)	mg/L	<0.00030	B048045	<0.00030	B048115	<0.00030	0.00030	B048045
Total Copper (Cu)	mg/L	<0.0010	B048045	<0.0010	B048115	0.0010	0.0010	B048045
Dissolved Iron (Fe)	mg/L	<0.060	B043265	<0.060	B043262	<0.060	0.060	B043262
Total Iron (Fe)	mg/L	<0.060	B048052	<0.060	B048119	0.20	0.060	B048052
Total Lead (Pb)	mg/L	<0.00020	B048045	<0.00020	B048115	<0.00020	0.00020	B048045
Total Lithium (Li)	mg/L	<0.020	B048052	<0.020	B048119	<0.020	0.020	B048052
Dissolved Magnesium (Mg)	mg/L	2.8	B043265	2.7	B043262	2.7	0.20	B043262
Total Magnesium (Mg)	mg/L	3.2	B048052	3.0	B048119	3.1	0.20	B048052
Dissolved Manganese (Mn)	mg/L	<0.0040	B043265	<0.0040	B043262	0.0050	0.0040	B043262
Total Manganese (Mn)	mg/L	<0.0040	B048052	<0.0040	B048119	0.011	0.0040	B048052
Total Molybdenum (Mo)	mg/L	<0.00020	B048045	<0.00020	B048115	<0.00020	0.00020	B048045
Total Nickel (Ni)	mg/L	<0.00050	B048045	<0.00050	B048115	0.00080	0.00050	B048045
Total Phosphorus (P)	mg/L	<0.10	B048052	<0.10	B048119	<0.10	0.10	B048052
Dissolved Potassium (K)	mg/L	1.4	B043265	1.4	B043262	1.4	0.30	B043262
Total Potassium (K)	mg/L	1.5	B048052	1.4	B048119	1.4	0.30	B048052
Total Selenium (Se)	mg/L	<0.00020	B048045	<0.00020	B048115	<0.00020	0.00020	B048045
Total Silicon (Si)	mg/L	<0.50	B048052	<0.50	B048119	<0.50	0.50	B048052
Total Silver (Ag)	mg/L	<0.00010	B048045	<0.00010	B048115	<0.00010	0.00010	B048045
Dissolved Sodium (Na)	mg/L	2.4	B043265	2.3	B043262	2.3	0.50	B043262
Total Sodium (Na)	mg/L	2.4	B048052	2.2	B048119	2.3	0.50	B048052
Total Strontium (Sr)	mg/L	0.044	B048052	0.041	B048119	0.043	0.020	B048052
Total Sulphur (S)	mg/L	2.8	B048052	2.6	B048119	2.7	0.20	B048052
Total Thallium (Tl)	mg/L	<0.00020	B048045	<0.00020	B048115	<0.00020	0.00020	B048045

RDL = Reportable Detection Limit



ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVA363		BVA364		BVA365		
Sampling Date		2023/07/18 14:40		2023/07/18 12:40		2023/07/18 13:40		
COC Number		700027-01-01		700027-01-01		700027-01-01		
	UNITS	GLG-2023-00001-007	QC Batch	GLG-2023-00001-008	QC Batch	GLG-2023-00001-009	RDL	QC Batch
Total Tin (Sn)	mg/L	<0.0010	B048045	<0.0010	B048115	<0.0010	0.0010	B048045
Total Titanium (Ti)	mg/L	<0.0010	B048045	<0.0010	B048115	0.0073	0.0010	B048045
Total Uranium (U)	mg/L	0.00011	B048045	0.00010	B048115	0.00016	0.00010	B048045
Total Vanadium (V)	mg/L	<0.0010	B048045	<0.0010	B048115	<0.0010	0.0010	B048045
Total Zinc (Zn)	mg/L	<0.0030	B048045	<0.0030	B048115	<0.0030	0.0030	B048045
Total Metals by ICPMS								
Total Bismuth (Bi)	mg/L	<0.0010	B046221	<0.0010	B046221	<0.0010	0.0010	B046221
Total Cesium (Cs)	mg/L	<0.00020	B046221	<0.00020	B046221	<0.00020	0.00020	B046221
RDL = Reportable Detection Limit								



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Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVA366		BVA367		BVA368		
Sampling Date		2023/07/18 12:00		2023/07/18 12:10		2023/07/18 15:50		
COC Number		700027-01-01		700027-01-01		700027-01-01		
	UNITS	GLG-2023-00001-010	QC Batch	GLG-2023-00001-011	QC Batch	GLG-2023-00001-012	RDL	QC Batch

Elements								
Total Aluminum (Al)	mg/L	0.17	B048115	0.013	B048045	0.013	0.0030	B048045
Total Antimony (Sb)	mg/L	<0.00060	B048115	<0.00060	B048045	<0.00060	0.00060	B048045
Total Arsenic (As)	mg/L	0.00041	B048115	0.00041	B048045	0.00036	0.00020	B048045
Total Barium (Ba)	mg/L	<0.010	B048119	<0.010	B048052	<0.010	0.010	B048052
Total Beryllium (Be)	mg/L	<0.0010	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Total Boron (B)	mg/L	<0.020	B048119	<0.020	B048052	<0.020	0.020	B048052
Dissolved Calcium (Ca)	mg/L	12	B043262	14	B043262	12	0.30	B043265
Total Calcium (Ca)	mg/L	12	B048119	13	B048052	13	0.30	B048052
Total Chromium (Cr)	mg/L	<0.0010	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Total Cobalt (Co)	mg/L	<0.00030	B048115	<0.00030	B048045	<0.00030	0.00030	B048045
Total Copper (Cu)	mg/L	0.0017	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Dissolved Iron (Fe)	mg/L	<0.060	B043262	<0.060	B043262	<0.060	0.060	B043265
Total Iron (Fe)	mg/L	0.19	B048119	<0.060	B048052	<0.060	0.060	B048052
Total Lead (Pb)	mg/L	<0.00020	B048115	<0.00020	B048045	<0.00020	0.00020	B048045
Total Lithium (Li)	mg/L	<0.020	B048119	<0.020	B048052	<0.020	0.020	B048052
Dissolved Magnesium (Mg)	mg/L	2.7	B043262	3.1	B043262	2.7	0.20	B043265
Total Magnesium (Mg)	mg/L	3.0	B048119	3.2	B048052	3.2	0.20	B048052
Dissolved Manganese (Mn)	mg/L	0.0051	B043262	<0.0040	B043262	<0.0040	0.0040	B043265
Total Manganese (Mn)	mg/L	0.0078	B048119	<0.0040	B048052	<0.0040	0.0040	B048052
Total Molybdenum (Mo)	mg/L	<0.00020	B048115	<0.00020	B048045	<0.00020	0.00020	B048045
Total Nickel (Ni)	mg/L	0.00059	B048115	<0.00050	B048045	<0.00050	0.00050	B048045
Total Phosphorus (P)	mg/L	<0.10	B048119	<0.10	B048052	<0.10	0.10	B048052
Dissolved Potassium (K)	mg/L	1.3	B043262	1.5	B043262	1.3	0.30	B043265
Total Potassium (K)	mg/L	1.4	B048119	1.4	B048052	1.4	0.30	B048052
Total Selenium (Se)	mg/L	<0.00020	B048115	<0.00020	B048045	<0.00020	0.00020	B048045
Total Silicon (Si)	mg/L	0.53	B048119	<0.50	B048052	<0.50	0.50	B048052
Total Silver (Ag)	mg/L	<0.00010	B048115	<0.00010	B048045	<0.00010	0.00010	B048045
Dissolved Sodium (Na)	mg/L	2.3	B043262	2.5	B043262	2.3	0.50	B043265
Total Sodium (Na)	mg/L	2.2	B048119	2.4	B048052	2.3	0.50	B048052
Total Strontium (Sr)	mg/L	0.040	B048119	0.045	B048052	0.045	0.020	B048052
Total Sulphur (S)	mg/L	2.5	B048119	2.9	B048052	2.7	0.20	B048052
Total Thallium (Tl)	mg/L	<0.00020	B048115	<0.00020	B048045	<0.00020	0.00020	B048045

RDL = Reportable Detection Limit



ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVA366		BVA367		BVA368		
Sampling Date		2023/07/18 12:00		2023/07/18 12:10		2023/07/18 15:50		
COC Number		700027-01-01		700027-01-01		700027-01-01		
	UNITS	GLG-2023-00001-010	QC Batch	GLG-2023-00001-011	QC Batch	GLG-2023-00001-012	RDL	QC Batch
Total Tin (Sn)	mg/L	<0.0010	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Total Titanium (Ti)	mg/L	0.0077	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Total Uranium (U)	mg/L	0.00015	B048115	0.00011	B048045	0.00010	0.00010	B048045
Total Vanadium (V)	mg/L	<0.0010	B048115	<0.0010	B048045	<0.0010	0.0010	B048045
Total Zinc (Zn)	mg/L	0.012	B048115	<0.0030	B048045	<0.0030	0.0030	B048045
Total Metals by ICPMS								
Total Bismuth (Bi)	mg/L	<0.0010	B046221	<0.0010	B046221	<0.0010	0.0010	B046221
Total Cesium (Cs)	mg/L	<0.00020	B046221	<0.00020	B046221	<0.00020	0.00020	B046221
RDL = Reportable Detection Limit								



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Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		BVA363	BVA364	BVA365	BVA366		
Sampling Date		2023/07/18 14:40	2023/07/18 12:40	2023/07/18 13:40	2023/07/18 12:00		
COC Number		700027-01-01	700027-01-01	700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-007	GLG-2023-00001-008	GLG-2023-00001-009	GLG-2023-00001-010	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B042266
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B042266
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B042266
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B042266
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B042266
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	<0.89	0.89	B041806
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	B041806
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B042266

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	106	104	104	104	N/A	B042266
4-Bromofluorobenzene (sur.)	%	90	91	92	92	N/A	B042266
D4-1,2-Dichloroethane (sur.)	%	81	84	83	83	N/A	B042266

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID		BVA367	BVA368		
Sampling Date		2023/07/18 12:10	2023/07/18 15:50		
COC Number		700027-01-01	700027-01-01		
	UNITS	GLG-2023-00001-011	GLG-2023-00001-012	RDL	QC Batch

Volatiles					
Benzene	ug/L	<0.40	<0.40	0.40	B042266
Toluene	ug/L	<0.40	<0.40	0.40	B042266
Ethylbenzene	ug/L	<0.40	<0.40	0.40	B042266
m & p-Xylene	ug/L	<0.80	<0.80	0.80	B042266
o-Xylene	ug/L	<0.40	<0.40	0.40	B042266
Xylenes (Total)	ug/L	<0.89	<0.89	0.89	B041806
F1 (C6-C10) - BTEX	ug/L	<100	<100	100	B041806
F1 (C6-C10)	ug/L	<100	<100	100	B042266

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	106	104	N/A	B042266
4-Bromofluorobenzene (sur.)	%	90	91	N/A	B042266
D4-1,2-Dichloroethane (sur.)	%	80	82	N/A	B042266

RDL = Reportable Detection Limit

N/A = Not Applicable



GENERAL COMMENTS

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

Package 1	9.3°C
Package 2	7.7°C

Sample BVA363 [GLG-2023-00001-007] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA364 [GLG-2023-00001-008] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA365 [GLG-2023-00001-009] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA366 [GLG-2023-00001-010] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA367 [GLG-2023-00001-011] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA368 [GLG-2023-00001-012] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA369 [GLG-2023-00001-020] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA370 [GLG-2023-00001-001] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVA371 [GLG-2023-00001-002] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

ELEMENTS BY ATOMIC SPECTROSCOPY (GRAB WATER) Comments

Sample BVA369 [GLG-2023-00001-020] Elements by CRC ICPMS (total): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Sample BVA370 [GLG-2023-00001-001] Elements by CRC ICPMS (total): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Sample BVA371 [GLG-2023-00001-002] Elements by CRC ICPMS (total): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Results relate only to the items tested.



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Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B039995	BQU	Spiked Blank	O-TERPHENYL (sur.)	2023/07/21		104	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/21		102	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/21		98	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/21		81	%	60 - 140
B039995	BQU	Method Blank	O-TERPHENYL (sur.)	2023/07/21		97	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/21	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/07/21	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/07/21	<0.20		mg/L	
B041731	BQU	Matrix Spike	O-TERPHENYL (sur.)	2023/07/23		102	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/23		105	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/23		97	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/23		93	%	60 - 140
B041731	BQU	Spiked Blank	O-TERPHENYL (sur.)	2023/07/23		108	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/23		114	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/23		106	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/23		101	%	60 - 140
B041731	BQU	Method Blank	O-TERPHENYL (sur.)	2023/07/23		107	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/23	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/07/23	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/07/23	<0.20		mg/L	
B041731	BQU	RPD	F2 (C10-C16 Hydrocarbons)	2023/07/23	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2023/07/23	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2023/07/23	NC		%	30
B042266	DO1	Matrix Spike	1,4-Difluorobenzene (sur.)	2023/07/22		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/22		94	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/22		81	%	50 - 140
			Benzene	2023/07/22		95	%	50 - 140
			Toluene	2023/07/22		96	%	50 - 140
			Ethylbenzene	2023/07/22		95	%	50 - 140
			m & p-Xylene	2023/07/22		98	%	50 - 140
			o-Xylene	2023/07/22		97	%	50 - 140
			F1 (C6-C10)	2023/07/22		70	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/22		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/22		93	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/22		81	%	50 - 140
B042266	DO1	Spiked Blank	Benzene	2023/07/22		94	%	60 - 130
			Toluene	2023/07/22		95	%	60 - 130
			Ethylbenzene	2023/07/22		94	%	60 - 130
			m & p-Xylene	2023/07/22		97	%	60 - 130
			o-Xylene	2023/07/22		96	%	60 - 130
			F1 (C6-C10)	2023/07/22		92	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/22		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/22		94	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/22		83	%	50 - 140
			Benzene	2023/07/22	<0.40		ug/L	
			Toluene	2023/07/22	<0.40		ug/L	
			Ethylbenzene	2023/07/22	<0.40		ug/L	
B042266	DO1	Method Blank	m & p-Xylene	2023/07/22	<0.80		ug/L	
			o-Xylene	2023/07/22	<0.40		ug/L	
			F1 (C6-C10)	2023/07/22	<100		ug/L	
			Benzene	2023/07/22	NC		%	30
			Toluene	2023/07/22	NC		%	30
			Ethylbenzene	2023/07/22	NC		%	30
			m & p-Xylene	2023/07/22	NC		%	30



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B043262	MPU	Matrix Spike	o-Xylene	2023/07/22	NC		%	30
			F1 (C6-C10)	2023/07/22	NC		%	30
			Dissolved Calcium (Ca)	2023/07/21		94	%	80 - 120
			Dissolved Iron (Fe)	2023/07/21		92	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/21		89	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/21		97	%	80 - 120
			Dissolved Potassium (K)	2023/07/21		95	%	80 - 120
B043262	MPU	Spiked Blank	Dissolved Sodium (Na)	2023/07/21		NC	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/21		107	%	80 - 120
			Dissolved Iron (Fe)	2023/07/21		99	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/21		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/21		107	%	80 - 120
			Dissolved Potassium (K)	2023/07/21		105	%	80 - 120
			Dissolved Sodium (Na)	2023/07/21		105	%	80 - 120
B043262	MPU	Method Blank	Dissolved Calcium (Ca)	2023/07/21	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/21	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/21	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/21	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/21	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/21	<0.50		mg/L	
B043262	MPU	RPD	Dissolved Calcium (Ca)	2023/07/21	1.3		%	20
			Dissolved Iron (Fe)	2023/07/21	7.7		%	20
			Dissolved Magnesium (Mg)	2023/07/21	0.59		%	20
			Dissolved Manganese (Mn)	2023/07/21	5.2		%	20
			Dissolved Potassium (K)	2023/07/21	0.33		%	20
			Dissolved Sodium (Na)	2023/07/21	2.2		%	20
B043265	MPU	Matrix Spike [BVA371-04]	Dissolved Calcium (Ca)	2023/07/21		NC	%	80 - 120
			Dissolved Iron (Fe)	2023/07/21		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/21		92	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/21		NC	%	80 - 120
			Dissolved Potassium (K)	2023/07/21		99	%	80 - 120
			Dissolved Sodium (Na)	2023/07/21		100	%	80 - 120
B043265	MPU	Spiked Blank	Dissolved Calcium (Ca)	2023/07/21		104	%	80 - 120
			Dissolved Iron (Fe)	2023/07/21		98	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/21		98	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/21		105	%	80 - 120
			Dissolved Potassium (K)	2023/07/21		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/21		104	%	80 - 120
B043265	MPU	Method Blank	Dissolved Calcium (Ca)	2023/07/21	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/21	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/21	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/21	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/21	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/21	<0.50		mg/L	
B043265	MPU	RPD [BVA371-04]	Dissolved Calcium (Ca)	2023/07/21	0.24		%	20
			Dissolved Iron (Fe)	2023/07/21	0.63		%	20
			Dissolved Magnesium (Mg)	2023/07/21	1.6		%	20
			Dissolved Manganese (Mn)	2023/07/21	0.52		%	20
			Dissolved Potassium (K)	2023/07/21	2.5		%	20
			Dissolved Sodium (Na)	2023/07/21	0.25		%	20
B043617	CTU	Matrix Spike	Orthophosphate (P)	2023/07/22		97	%	80 - 120
B043617	CTU	Spiked Blank	Orthophosphate (P)	2023/07/22		99	%	80 - 120
B043617	CTU	Method Blank	Orthophosphate (P)	2023/07/22	<0.0030		mg/L	
B043617	CTU	RPD	Orthophosphate (P)	2023/07/22	NC		%	20



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B043618	CTU	Matrix Spike [BVA370-02]	Orthophosphate (P)	2023/07/22		97	%	80 - 120
B043618	CTU	Spiked Blank	Orthophosphate (P)	2023/07/22		99	%	80 - 120
B043618	CTU	Method Blank	Orthophosphate (P)	2023/07/22	<0.0030		mg/L	
B043618	CTU	RPD [BVA370-02]	Orthophosphate (P)	2023/07/22	NC		%	20
B043696	KKM	Matrix Spike	Total Mercury (Hg)	2023/07/25		100	%	80 - 120
B043696	KKM	Spiked Blank	Total Mercury (Hg)	2023/07/25		102	%	80 - 120
B043696	KKM	Method Blank	Total Mercury (Hg)	2023/07/25	<0.0019		ug/L	
B043696	KKM	RPD	Total Mercury (Hg)	2023/07/25	16		%	20
B043713	ISW	Matrix Spike	Nitrite (N)	2023/07/22		NC	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/22		NC	%	80 - 120
B043713	ISW	Spiked Blank	Nitrite (N)	2023/07/22		104	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/22		100	%	80 - 120
B043713	ISW	Method Blank	Nitrite (N)	2023/07/24	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/24	<0.010		mg/L	
B043713	ISW	RPD	Nitrite (N)	2023/07/22	0.25		%	20
			Nitrate plus Nitrite (N)	2023/07/22	0.87		%	20
B043757	ISW	Matrix Spike	Nitrite (N)	2023/07/22		109	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/22		133 (1)	%	80 - 120
B043757	ISW	Spiked Blank	Nitrite (N)	2023/07/22		102	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/22		102	%	80 - 120
B043757	ISW	Method Blank	Nitrite (N)	2023/07/22	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/22	<0.010		mg/L	
B043757	ISW	RPD	Nitrite (N)	2023/07/22	NC		%	20
			Nitrate plus Nitrite (N)	2023/07/22	NC		%	20
B043923	JVM	Spiked Blank	Alkalinity (Total as CaCO3)	2023/07/22		105	%	80 - 120
B043923	JVM	Method Blank	Alkalinity (PP as CaCO3)	2023/07/22	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/07/22	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/07/22	<1.0		mg/L	
			Carbonate (CO3)	2023/07/22	<1.0		mg/L	
			Hydroxide (OH)	2023/07/22	<1.0		mg/L	
B043923	JVM	RPD	Alkalinity (PP as CaCO3)	2023/07/22	NC		%	20
			Alkalinity (Total as CaCO3)	2023/07/22	0.14		%	20
			Bicarbonate (HCO3)	2023/07/22	0.14		%	20
			Carbonate (CO3)	2023/07/22	NC		%	20
			Hydroxide (OH)	2023/07/22	NC		%	20
B043924	JVM	Spiked Blank	pH	2023/07/22		100	%	97 - 103
B043924	JVM	RPD	pH	2023/07/22	0.24		%	N/A
B043925	JVM	Spiked Blank	Conductivity	2023/07/22		103	%	90 - 110
B043925	JVM	Method Blank	Conductivity	2023/07/22	<2.0		uS/cm	
B043925	JVM	RPD	Conductivity	2023/07/22	0.20		%	10
B043926	JVM	Spiked Blank	Alkalinity (Total as CaCO3)	2023/07/22		108	%	80 - 120
B043926	JVM	Method Blank	Alkalinity (PP as CaCO3)	2023/07/22	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/07/22	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/07/22	<1.0		mg/L	
			Carbonate (CO3)	2023/07/22	<1.0		mg/L	
			Hydroxide (OH)	2023/07/22	<1.0		mg/L	
B043926	JVM	RPD	Alkalinity (PP as CaCO3)	2023/07/22	NC		%	20
			Alkalinity (Total as CaCO3)	2023/07/22	4.2		%	20
			Bicarbonate (HCO3)	2023/07/22	4.2		%	20
			Carbonate (CO3)	2023/07/22	NC		%	20
			Hydroxide (OH)	2023/07/22	NC		%	20
B043928	JVM	Spiked Blank	pH	2023/07/22		100	%	97 - 103
B043928	JVM	RPD	pH	2023/07/22	0.17		%	N/A
B043929	JVM	Spiked Blank	Conductivity	2023/07/22		103	%	90 - 110



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B043929	JVM	Method Blank	Conductivity	2023/07/22	<2.0		uS/cm	
B043929	JVM	RPD	Conductivity	2023/07/22	1.1		%	10
B044671	MAP	Matrix Spike [BVA367-05]	Total Phosphorus (P)	2023/07/25		113	%	80 - 120
B044671	MAP	QC Standard	Total Phosphorus (P)	2023/07/25		90	%	80 - 120
B044671	MAP	Spiked Blank	Total Phosphorus (P)	2023/07/25		100	%	80 - 120
B044671	MAP	Method Blank	Total Phosphorus (P)	2023/07/25	<0.0030		mg/L	
B044671	MAP	RPD [BVA367-05]	Total Phosphorus (P)	2023/07/25	NC		%	20
B044676	MAP	Matrix Spike [BVA371-05]	Total Phosphorus (P)	2023/07/26		113	%	80 - 120
B044676	MAP	QC Standard	Total Phosphorus (P)	2023/07/26		92	%	80 - 120
B044676	MAP	Spiked Blank	Total Phosphorus (P)	2023/07/26		105	%	80 - 120
B044676	MAP	Method Blank	Total Phosphorus (P)	2023/07/26	<0.0030		mg/L	
B044676	MAP	RPD [BVA371-05]	Total Phosphorus (P)	2023/07/26	NC		%	20
B044694	MAP	Matrix Spike [BVA369-05]	Total Phosphorus (P)	2023/07/25		119	%	80 - 120
B044694	MAP	QC Standard	Total Phosphorus (P)	2023/07/25		92	%	N/A
B044694	MAP	Spiked Blank	Total Phosphorus (P)	2023/07/25		103	%	80 - 120
B044694	MAP	Method Blank	Total Phosphorus (P)	2023/07/25	<0.0030		mg/L	
B044694	MAP	RPD [BVA369-05]	Total Phosphorus (P)	2023/07/26	1.0		%	20
B044919	AFI	Matrix Spike	Total Ammonia (N)	2023/07/24		95	%	80 - 120
B044919	AFI	Spiked Blank	Total Ammonia (N)	2023/07/24		102	%	80 - 120
B044919	AFI	Method Blank	Total Ammonia (N)	2023/07/24	<0.015		mg/L	
B044919	AFI	RPD	Total Ammonia (N)	2023/07/24	NC		%	20
B046152	DPL	Matrix Spike	Total Dissolved Solids	2023/07/26		NC	%	80 - 120
B046152	DPL	Spiked Blank	Total Dissolved Solids	2023/07/26		98	%	80 - 120
B046152	DPL	Method Blank	Total Dissolved Solids	2023/07/26	<10		mg/L	
B046152	DPL	RPD	Total Dissolved Solids	2023/07/26	1.3		%	20
B046154	DPL	Matrix Spike [BVA371-01]	Total Dissolved Solids	2023/07/27		NC	%	80 - 120
B046154	DPL	Spiked Blank	Total Dissolved Solids	2023/07/27		98	%	80 - 120
B046154	DPL	Method Blank	Total Dissolved Solids	2023/07/27	<10		mg/L	
B046154	DPL	RPD [BVA371-01]	Total Dissolved Solids	2023/07/27	2.1		%	20
B046167	LYV	Matrix Spike [BVA364-01]	Total Suspended Solids	2023/07/26		118	%	80 - 120
B046167	LYV	Spiked Blank	Total Suspended Solids	2023/07/26		97	%	80 - 120
B046167	LYV	Method Blank	Total Suspended Solids	2023/07/26	<1.0		mg/L	
B046167	LYV	RPD [BVA363-01]	Total Suspended Solids	2023/07/26	NC		%	20
B046221	STI	Matrix Spike	Total Bismuth (Bi)	2023/07/27		92	%	80 - 120
			Total Cesium (Cs)	2023/07/27		104	%	80 - 120
B046221	STI	Spiked Blank	Total Bismuth (Bi)	2023/07/27		99	%	80 - 120
			Total Cesium (Cs)	2023/07/27		108	%	80 - 120
B046221	STI	Method Blank	Total Bismuth (Bi)	2023/07/27	<0.0010		mg/L	
			Total Cesium (Cs)	2023/07/27	<0.00020		mg/L	
B046221	STI	RPD	Total Bismuth (Bi)	2023/07/27	NC		%	20
B047461	TOR	Matrix Spike	Chloride (Cl)	2023/07/25		101	%	80 - 120
			Sulphate (SO4)	2023/07/25		NC	%	80 - 120
B047461	TOR	Spiked Blank	Chloride (Cl)	2023/07/25		105	%	80 - 120
			Sulphate (SO4)	2023/07/25		102	%	80 - 120
B047461	TOR	Method Blank	Chloride (Cl)	2023/07/25	<1.0		mg/L	
			Sulphate (SO4)	2023/07/25	<1.0		mg/L	
B047461	TOR	RPD	Chloride (Cl)	2023/07/25	11		%	20
			Sulphate (SO4)	2023/07/25	1.1		%	20
B048015	YHK	Matrix Spike	Total Organic Carbon (C)	2023/07/26		94	%	80 - 120
B048015	YHK	Spiked Blank	Total Organic Carbon (C)	2023/07/26		102	%	80 - 120
B048015	YHK	Method Blank	Total Organic Carbon (C)	2023/07/26	<0.50		mg/L	
B048015	YHK	RPD	Total Organic Carbon (C)	2023/07/26	NC		%	20
B048045	MKJ	Matrix Spike	Total Aluminum (Al)	2023/07/26		110	%	80 - 120
			Total Antimony (Sb)	2023/07/26		126 (1)	%	80 - 120



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B048045	MKJ	Spiked Blank	Total Arsenic (As)	2023/07/26		112	%	80 - 120
			Total Beryllium (Be)	2023/07/26		111	%	80 - 120
			Total Chromium (Cr)	2023/07/26		110	%	80 - 120
			Total Cobalt (Co)	2023/07/26		111	%	80 - 120
			Total Copper (Cu)	2023/07/26		110	%	80 - 120
			Total Lead (Pb)	2023/07/26		112	%	80 - 120
			Total Molybdenum (Mo)	2023/07/26		116	%	80 - 120
			Total Nickel (Ni)	2023/07/26		111	%	80 - 120
			Total Selenium (Se)	2023/07/26		117	%	80 - 120
			Total Silver (Ag)	2023/07/26		110	%	80 - 120
			Total Thallium (Tl)	2023/07/26		112	%	80 - 120
			Total Tin (Sn)	2023/07/26		114	%	80 - 120
			Total Titanium (Ti)	2023/07/26		115	%	80 - 120
			Total Uranium (U)	2023/07/26		111	%	80 - 120
			Total Vanadium (V)	2023/07/26		113	%	80 - 120
			Total Zinc (Zn)	2023/07/26		113	%	80 - 120
			Total Aluminum (Al)	2023/07/26		109	%	80 - 120
			Total Antimony (Sb)	2023/07/26		120	%	80 - 120
			Total Arsenic (As)	2023/07/26		108	%	80 - 120
			Total Beryllium (Be)	2023/07/26		106	%	80 - 120
			Total Chromium (Cr)	2023/07/26		106	%	80 - 120
			Total Cobalt (Co)	2023/07/26		107	%	80 - 120
			Total Copper (Cu)	2023/07/26		106	%	80 - 120
			Total Lead (Pb)	2023/07/26		108	%	80 - 120
			Total Molybdenum (Mo)	2023/07/26		108	%	80 - 120
			Total Nickel (Ni)	2023/07/26		106	%	80 - 120
			Total Selenium (Se)	2023/07/26		115	%	80 - 120
			Total Silver (Ag)	2023/07/26		106	%	80 - 120
			Total Thallium (Tl)	2023/07/26		108	%	80 - 120
			Total Tin (Sn)	2023/07/26		106	%	80 - 120
			Total Titanium (Ti)	2023/07/26		107	%	80 - 120
			Total Uranium (U)	2023/07/26		106	%	80 - 120
			Total Vanadium (V)	2023/07/26		108	%	80 - 120
			Total Zinc (Zn)	2023/07/26		109	%	80 - 120
B048045	MKJ	Method Blank	Total Aluminum (Al)	2023/07/26	<0.0030		mg/L	
			Total Antimony (Sb)	2023/07/26	<0.00060		mg/L	
			Total Arsenic (As)	2023/07/26	<0.00020		mg/L	
			Total Beryllium (Be)	2023/07/26	<0.0010		mg/L	
			Total Chromium (Cr)	2023/07/26	<0.0010		mg/L	
			Total Cobalt (Co)	2023/07/26	<0.00030		mg/L	
			Total Copper (Cu)	2023/07/26	<0.0010		mg/L	
			Total Lead (Pb)	2023/07/26	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/07/26	<0.00020		mg/L	
			Total Nickel (Ni)	2023/07/26	<0.00050		mg/L	
			Total Selenium (Se)	2023/07/26	<0.00020		mg/L	
			Total Silver (Ag)	2023/07/26	<0.00010		mg/L	
			Total Thallium (Tl)	2023/07/26	<0.00020		mg/L	
			Total Tin (Sn)	2023/07/26	<0.0010		mg/L	
			Total Titanium (Ti)	2023/07/26	<0.0010		mg/L	
			Total Uranium (U)	2023/07/26	<0.00010		mg/L	
			Total Vanadium (V)	2023/07/26	<0.0010		mg/L	
			Total Zinc (Zn)	2023/07/26	<0.0030		mg/L	
B048045	MKJ	RPD	Total Aluminum (Al)	2023/07/26	6.0		%	20
			Total Antimony (Sb)	2023/07/26	NC		%	20



BUREAU
VERITAS

Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B048052	KKC	Matrix Spike	Total Arsenic (As)	2023/07/26	NC		%	20
			Total Beryllium (Be)	2023/07/26	NC		%	20
			Total Chromium (Cr)	2023/07/26	NC		%	20
			Total Cobalt (Co)	2023/07/26	NC		%	20
			Total Copper (Cu)	2023/07/26	18		%	20
			Total Lead (Pb)	2023/07/26	1.3		%	20
			Total Molybdenum (Mo)	2023/07/26	0.14		%	20
			Total Nickel (Ni)	2023/07/26	NC		%	20
			Total Selenium (Se)	2023/07/26	13		%	20
			Total Silver (Ag)	2023/07/26	NC		%	20
			Total Thallium (Tl)	2023/07/26	NC		%	20
			Total Tin (Sn)	2023/07/26	NC		%	20
			Total Titanium (Ti)	2023/07/26	NC		%	20
			Total Uranium (U)	2023/07/26	NC		%	20
			Total Vanadium (V)	2023/07/26	NC		%	20
			Total Zinc (Zn)	2023/07/26	NC		%	20
			Total Barium (Ba)	2023/07/26		100	%	80 - 120
			Total Boron (B)	2023/07/26		101	%	80 - 120
			Total Calcium (Ca)	2023/07/26		NC	%	80 - 120
			Total Iron (Fe)	2023/07/26		110	%	80 - 120
B048052	KKC	Spiked Blank	Total Lithium (Li)	2023/07/26		101	%	80 - 120
			Total Magnesium (Mg)	2023/07/26		108	%	80 - 120
			Total Manganese (Mn)	2023/07/26		108	%	80 - 120
			Total Phosphorus (P)	2023/07/26		106	%	80 - 120
			Total Potassium (K)	2023/07/26		104	%	80 - 120
			Total Silicon (Si)	2023/07/26		99	%	80 - 120
			Total Sodium (Na)	2023/07/26		102	%	80 - 120
			Total Strontium (Sr)	2023/07/26		97	%	80 - 120
			Total Sulphur (S)	2023/07/26		104	%	80 - 120
			Total Barium (Ba)	2023/07/26		98	%	80 - 120
			Total Boron (B)	2023/07/26		99	%	80 - 120
			Total Calcium (Ca)	2023/07/26		100	%	80 - 120
B048052	KKC	Method Blank	Total Iron (Fe)	2023/07/26		109	%	80 - 120
			Total Lithium (Li)	2023/07/26		98	%	80 - 120
			Total Magnesium (Mg)	2023/07/26		105	%	80 - 120
			Total Manganese (Mn)	2023/07/26		107	%	80 - 120
			Total Phosphorus (P)	2023/07/26		105	%	80 - 120
			Total Potassium (K)	2023/07/26		101	%	80 - 120
			Total Silicon (Si)	2023/07/26		98	%	80 - 120
			Total Sodium (Na)	2023/07/26		99	%	80 - 120
			Total Strontium (Sr)	2023/07/26		95	%	80 - 120
			Total Sulphur (S)	2023/07/26		101	%	80 - 120
			Total Barium (Ba)	2023/07/26	<0.010		mg/L	
			Total Boron (B)	2023/07/26	<0.020		mg/L	
			Total Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Total Iron (Fe)	2023/07/26	<0.060		mg/L	
			Total Lithium (Li)	2023/07/26	<0.020		mg/L	
			Total Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Total Manganese (Mn)	2023/07/26	<0.0040		mg/L	
			Total Phosphorus (P)	2023/07/26	<0.10		mg/L	
			Total Potassium (K)	2023/07/26	<0.30		mg/L	
			Total Silicon (Si)	2023/07/26	<0.50		mg/L	
			Total Sodium (Na)	2023/07/26	<0.50		mg/L	
			Total Strontium (Sr)	2023/07/26	<0.020		mg/L	



**BUREAU
VERITAS**

Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B048052	KKC	RPD	Total Sulphur (S)	2023/07/26	<0.20		mg/L	
			Total Barium (Ba)	2023/07/26	0.46		%	20
			Total Boron (B)	2023/07/26	NC		%	20
			Total Calcium (Ca)	2023/07/26	0.22		%	20
			Total Iron (Fe)	2023/07/26	NC		%	20
			Total Lithium (Li)	2023/07/26	NC		%	20
			Total Magnesium (Mg)	2023/07/26	0.049		%	20
			Total Manganese (Mn)	2023/07/26	NC		%	20
			Total Phosphorus (P)	2023/07/26	1.4		%	20
			Total Potassium (K)	2023/07/26	0.67		%	20
			Total Silicon (Si)	2023/07/26	0.73		%	20
			Total Sodium (Na)	2023/07/26	0.70		%	20
			Total Strontium (Sr)	2023/07/26	1.3		%	20
			Total Sulphur (S)	2023/07/26	0.55		%	20
B048115	MKJ	Matrix Spike	Total Aluminum (Al)	2023/07/26		101	%	80 - 120
			Total Antimony (Sb)	2023/07/26		113	%	80 - 120
			Total Arsenic (As)	2023/07/26		103	%	80 - 120
			Total Beryllium (Be)	2023/07/26		103	%	80 - 120
			Total Chromium (Cr)	2023/07/26		101	%	80 - 120
			Total Cobalt (Co)	2023/07/26		101	%	80 - 120
			Total Copper (Cu)	2023/07/26		98	%	80 - 120
			Total Lead (Pb)	2023/07/26		101	%	80 - 120
			Total Molybdenum (Mo)	2023/07/26		107	%	80 - 120
			Total Nickel (Ni)	2023/07/26		99	%	80 - 120
			Total Selenium (Se)	2023/07/26		106	%	80 - 120
			Total Silver (Ag)	2023/07/26		101	%	80 - 120
			Total Thallium (Tl)	2023/07/26		102	%	80 - 120
			Total Tin (Sn)	2023/07/26		103	%	80 - 120
			Total Titanium (Ti)	2023/07/26		104	%	80 - 120
			Total Uranium (U)	2023/07/26		102	%	80 - 120
			Total Vanadium (V)	2023/07/26		104	%	80 - 120
			Total Zinc (Zn)	2023/07/26		99	%	80 - 120
B048115	MKJ	Spiked Blank	Total Aluminum (Al)	2023/07/26		102	%	80 - 120
			Total Antimony (Sb)	2023/07/26		113	%	80 - 120
			Total Arsenic (As)	2023/07/26		102	%	80 - 120
			Total Beryllium (Be)	2023/07/26		100	%	80 - 120
			Total Chromium (Cr)	2023/07/26		101	%	80 - 120
			Total Cobalt (Co)	2023/07/26		102	%	80 - 120
			Total Copper (Cu)	2023/07/26		102	%	80 - 120
			Total Lead (Pb)	2023/07/26		103	%	80 - 120
			Total Molybdenum (Mo)	2023/07/26		104	%	80 - 120
			Total Nickel (Ni)	2023/07/26		101	%	80 - 120
			Total Selenium (Se)	2023/07/26		108	%	80 - 120
			Total Silver (Ag)	2023/07/26		101	%	80 - 120
			Total Thallium (Tl)	2023/07/26		103	%	80 - 120
			Total Tin (Sn)	2023/07/26		102	%	80 - 120
B048115	MKJ	Method Blank	Total Titanium (Ti)	2023/07/26		103	%	80 - 120
			Total Uranium (U)	2023/07/26		101	%	80 - 120
			Total Vanadium (V)	2023/07/26		103	%	80 - 120
			Total Zinc (Zn)	2023/07/26		103	%	80 - 120
			Total Aluminum (Al)	2023/07/26	<0.0030		mg/L	
			Total Antimony (Sb)	2023/07/26	<0.00060		mg/L	
			Total Arsenic (As)	2023/07/26	<0.00020		mg/L	
			Total Beryllium (Be)	2023/07/26	<0.0010		mg/L	



**BUREAU
VERITAS**

Bureau Veritas Job #: C355158
Report Date: 2023/07/28

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B048115	MKJ	RPD	Total Chromium (Cr)	2023/07/26	<0.0010		mg/L	
			Total Cobalt (Co)	2023/07/26	<0.00030		mg/L	
			Total Copper (Cu)	2023/07/26	<0.0010		mg/L	
			Total Lead (Pb)	2023/07/26	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/07/26	<0.00020		mg/L	
			Total Nickel (Ni)	2023/07/26	<0.00050		mg/L	
			Total Selenium (Se)	2023/07/26	<0.00020		mg/L	
			Total Silver (Ag)	2023/07/26	<0.00010		mg/L	
			Total Thallium (Tl)	2023/07/26	<0.00020		mg/L	
			Total Tin (Sn)	2023/07/26	<0.0010		mg/L	
			Total Titanium (Ti)	2023/07/26	<0.0010		mg/L	
			Total Uranium (U)	2023/07/26	<0.00010		mg/L	
			Total Vanadium (V)	2023/07/26	<0.0010		mg/L	
			Total Zinc (Zn)	2023/07/26	<0.0030		mg/L	
			Total Aluminum (Al)	2023/07/26	NC		%	20
			Total Antimony (Sb)	2023/07/26	NC		%	20
			Total Arsenic (As)	2023/07/26	11		%	20
			Total Beryllium (Be)	2023/07/26	NC		%	20
			Total Chromium (Cr)	2023/07/26	NC		%	20
			Total Cobalt (Co)	2023/07/26	2.8		%	20
			Total Copper (Cu)	2023/07/26	NC		%	20
			Total Lead (Pb)	2023/07/26	NC		%	20
			Total Molybdenum (Mo)	2023/07/26	1.5		%	20
			Total Nickel (Ni)	2023/07/26	1.7		%	20
			Total Selenium (Se)	2023/07/26	NC		%	20
			Total Silver (Ag)	2023/07/26	NC		%	20
			Total Thallium (Tl)	2023/07/26	NC		%	20
			Total Tin (Sn)	2023/07/26	NC		%	20
			Total Titanium (Ti)	2023/07/26	NC		%	20
			Total Uranium (U)	2023/07/26	1.0		%	20
			Total Vanadium (V)	2023/07/26	13		%	20
			Total Zinc (Zn)	2023/07/26	NC		%	20
B048119	MPU	Matrix Spike	Total Barium (Ba)	2023/07/26		99	%	80 - 120
			Total Boron (B)	2023/07/26		94	%	80 - 120
			Total Calcium (Ca)	2023/07/26		96	%	80 - 120
			Total Iron (Fe)	2023/07/26		100	%	80 - 120
			Total Lithium (Li)	2023/07/26		93	%	80 - 120
			Total Magnesium (Mg)	2023/07/26		100	%	80 - 120
			Total Manganese (Mn)	2023/07/26		96	%	80 - 120
			Total Phosphorus (P)	2023/07/26		100	%	80 - 120
			Total Potassium (K)	2023/07/26		97	%	80 - 120
			Total Silicon (Si)	2023/07/26		98	%	80 - 120
			Total Sodium (Na)	2023/07/26		NC	%	80 - 120
			Total Strontium (Sr)	2023/07/26		94	%	80 - 120
			Total Sulphur (S)	2023/07/26		100	%	80 - 120
			Total Barium (Ba)	2023/07/26		101	%	80 - 120
B048119	MPU	Spiked Blank	Total Boron (B)	2023/07/26		97	%	80 - 120
			Total Calcium (Ca)	2023/07/26		96	%	80 - 120
			Total Iron (Fe)	2023/07/26		104	%	80 - 120
			Total Lithium (Li)	2023/07/26		95	%	80 - 120
			Total Magnesium (Mg)	2023/07/26		103	%	80 - 120
			Total Manganese (Mn)	2023/07/26		99	%	80 - 120
			Total Phosphorus (P)	2023/07/26		103	%	80 - 120
			Total Potassium (K)	2023/07/26		98	%	80 - 120



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B048119	MPU	Method Blank	Total Silicon (Si)	2023/07/26		99	%	80 - 120
			Total Sodium (Na)	2023/07/26		91	%	80 - 120
			Total Strontium (Sr)	2023/07/26		96	%	80 - 120
			Total Sulphur (S)	2023/07/26		99	%	80 - 120
			Total Barium (Ba)	2023/07/26	<0.010		mg/L	
			Total Boron (B)	2023/07/26	<0.020		mg/L	
			Total Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Total Iron (Fe)	2023/07/26	<0.060		mg/L	
			Total Lithium (Li)	2023/07/26	<0.020		mg/L	
			Total Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Total Manganese (Mn)	2023/07/26	<0.0040		mg/L	
			Total Phosphorus (P)	2023/07/26	<0.10		mg/L	
			Total Potassium (K)	2023/07/26	<0.30		mg/L	
			Total Silicon (Si)	2023/07/26	<0.50		mg/L	
			Total Sodium (Na)	2023/07/26	<0.50		mg/L	
			Total Strontium (Sr)	2023/07/26	<0.020		mg/L	
B048119	MPU	RPD	Total Sulphur (S)	2023/07/26	<0.20		mg/L	
			Total Barium (Ba)	2023/07/26	1.8		%	20
			Total Boron (B)	2023/07/26	0.30		%	20
			Total Calcium (Ca)	2023/07/26	2.1		%	20
			Total Iron (Fe)	2023/07/26	1.4		%	20
			Total Lithium (Li)	2023/07/26	3.7		%	20
			Total Magnesium (Mg)	2023/07/26	2.5		%	20
			Total Manganese (Mn)	2023/07/26	1.8		%	20
			Total Phosphorus (P)	2023/07/26	NC		%	20
			Total Potassium (K)	2023/07/26	2.5		%	20
			Total Silicon (Si)	2023/07/26	1.2		%	20
			Total Sodium (Na)	2023/07/26	0.076		%	20
			Total Strontium (Sr)	2023/07/26	2.4		%	20
			Total Sulphur (S)	2023/07/26	0.73		%	20
B048438	YHK	Matrix Spike	Total Organic Carbon (C)	2023/07/27		NC	%	80 - 120
B048438	YHK	Spiked Blank	Total Organic Carbon (C)	2023/07/27		104	%	80 - 120
B048438	YHK	Method Blank	Total Organic Carbon (C)	2023/07/27	<0.50		mg/L	
B048438	YHK	RPD	Total Organic Carbon (C)	2023/07/27	7.1		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C355158

Report Date: 2023/07/28

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics



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INVOICE TO:					Report Information					Project Information					Laboratory Use Only				
Company Name #6699 AECOM CANADA LTD.					Company Name AECOM Canada Ltd.					Quotation # C21789					Bureau Veritas Job #				
Contact Name BANE BROTSCHI					Contact Name JANINE MORRIS					P.O. #					C755158				
Address 1 8817 Stony Plain Road NW					Address					Project # 60710609					Chain Of Custody Record				
EDMONTON AB T5S 0C2										Project Name					Project Manager				
(587) 337-4190 Fax: (780) 486-7070					(867) 446-3953 Fax:					Site # Gordon Lake					CH700027-01-01				
Email bane.brotschi@aecom.com					Email janine.morris@aecom.com, bane.brotschi@aecom.com					Sampled By					Parminster Virk				
Regulatory Criteria					Special Instructions					Analysis Requested					Turnaround Time (TAT) Required				
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form					Regulated Drinking Water ? (Y/N)					Metals Field Filtered ? (Y/N)					Please provide advance notice for rush projects				
Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas					Routine Water					Regulated Metals (CCME/AT1) - Total Hg					Regular (Standard) TAT (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 job specific - contact your Project Manager for details.				
					Total Suspended Solids (NFR), TDS					AT1 BTEX and F1-F4 in Water					Job Specific Rush TAT (if applies to entire submission)				
					Ammonia-N (Total)					Total Phosphorus					Date Required: _____ Time Required: _____				
					Orthophosphate by KoneLab					Carbon (Total Organic)					Rush Confirmation Number _____				
					Total Metals - Bismuth, Cesium					# of Bottles					(call lab for #)				
Sample Barcode Label					Sample (Location) Identification					Date Sampled					Time Sampled				
Matrix																			
1					GLG-2023-00001-006					23/07/18					1440 SW				
2					GLG-2023-00001-007					23/07/18					1440 SW				
3					GLG-2023-00001-008					23/07/18					1240				
4					GLG-2023-00001-009					23/07/18					1340				
5					GLG-2023-00001-010					23/07/18					1200				
6					GLG-2023-00001-011					23/07/18					1210				
7					GLG-2023-00001-012					23/07/18					1550				
8					GLG-2023-00001-016					23/07/18					11:50				
9					GLG-2023-00001-047					23/07/18					11:50				
10					GLG-2023-00001-020					23/07/18					11:50				
* RELINQUISHED BY: (Signature/Print)					Date: (YY/MM/DD)					Time					RECEIVED BY: (Signature/Print)				
Janine Morris					23/07/18					1730					Erika Patel				
															Date: (YY/MM/DD)				
															Time				
															# Jars used and not submitted				
															Time Sensitive				
															Temperature (°C) on Receipt				
															Custody Seal Intact on Cooler?				
															[X] Yes [] No				
															H ARE				
															White: Bureau Veritas Yellow: Client				
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.																			
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.																			



mcal-07-805

Bureau Veritas Canada (2019) Inc.

INVOICE TO:				Report Information				Project Information				Laboratory Use Only			
Company Name #6699 AECOM CANADA LTD.				Company Name <u>AECOM Canada Ltd.</u>				Quotation # C21789				Bureau Veritas Job #		Bottle Order #:	
Contact Name BANE BROTSCHI				Contact Name JANINE MORRIS				P.O. #				<u>C355158</u>			
Address 18817 Stony Plain Road NW				Address				Project # 60710609				Chain Of Custody Record		Project Manager	
EDMONTON AB T5S 0C2								Project Name						Parminster Virk	
Phone (587) 337-4190 Fax: (780) 486-7070				Phone (867) 446-3953 Fax:				Site # Gordon Lake				CH700027-02-01			
Email bane.brotschi@aecom.com				Email janine.morris@aecom.com, bane.brotschi@aecom.com				Sampled By							
Regulatory Criteria				Special Instructions				Analysis Requested				Turnaround Time (TAT) Required			
												Please provide advance notice for rush projects			
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form				Regulated Drinking Water ? (Y/N)				Metals Field Filtered ? (Y/N)				Regular (Standard) TAT (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number _____ (call lab for #)			
Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas				Routine Water				Regulated Metals (CCME/AT1) - Total, Total Hg				Total Suspended Solids (NFR), TDS			
				AT1 BTEX and F+P4 in Water				Ammonia-N (Total)				Total Phosphorus			
				Orthophosphate by KoneLab				Carbon (Total Organic)				Total Metals - Bismuth, Cesium			
				# of Bottles				Comments							
1				GLG-2023-00001-024											
2				GLG-2023-00001-001				23/07/18 14:10 GW				10			
3				GLG-2023-00001-002				23/07/18 13:05 GW				10			
4				GLG-2023-00001-003											
5				GLG-2023-00001-004											
6				GLG-2023-00001-005											
7				GLG-2023-00001-013											
8				GLG-2023-00001-014											
9				GLG-2023-00001-015											
10				GLG-2023-00001-020											
* RELINQUISHED BY: (Signature/Print)				Date: (YY/MM/DD)				Time				RECEIVED BY: (Signature/Print)			
<u>Janine Morris</u>				22/07/23				1730				<u>[Signature]</u>			
												Date: (YY/MM/DD)			
												Time			
												# jars used and not submitted			
												Time Sensitive			
												Temperature (°C) on Receipt			
												Custody Seal Intact on Cooler?			
												☒ Yes ☐ No			

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

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



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 700027-03-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/07/31
 Report #: R3373776
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355732

Received: 2023/07/21, 08:00

Sample Matrix: Water
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	4	N/A	2023/07/28	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	4	N/A	2023/07/27	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	4	N/A	2023/07/27		Auto Calc
Cadmium - low level CCME (Total) (1)	4	N/A	2023/07/28		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	4	N/A	2023/07/28	AB SOP-00020	SM24-4500-Cl/SO4-E m
Conductivity @25C (1)	4	N/A	2023/07/28	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	4	2023/07/26	2023/07/26	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	2	N/A	2023/07/26		Auto Calc
Hardness (1)	2	N/A	2023/07/27		Auto Calc
Mercury (Total) by CV (1)	4	2023/07/27	2023/07/27	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	1	N/A	2023/07/26	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	2	N/A	2023/07/26	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	1	N/A	2023/07/27	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	4	2023/07/27	2023/07/27	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Total (1)	4	2023/07/27	2023/07/28	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	4	N/A	2023/07/30		Auto Calc
Sum of cations, anions (1)	2	N/A	2023/07/26		Auto Calc
Sum of cations, anions (1)	2	N/A	2023/07/27		Auto Calc
Elements by CRC ICPMS (total) (1)	2	2023/07/26	2023/07/27	CAL SOP-00265	EPA 6020 m
Elements by CRC ICPMS (total) (1)	2	2023/07/26	2023/07/28	CAL SOP-00265	EPA 6020 m
Ammonia-N (Total) (1)	4	N/A	2023/07/29	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite (1)	3	N/A	2023/07/27		Auto Calc
Nitrate and Nitrite (1)	1	N/A	2023/07/28		Auto Calc
NO ₂ (N); NO ₂ (N) + NO ₃ (N) in Water (1)	4	N/A	2023/07/25	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N) (1)	3	2023/07/23	2023/07/27		Auto Calc
Nitrate (as N) (1)	1	2023/07/23	2023/07/28		Auto Calc
pH @25°C (1, 4)	4	N/A	2023/07/28	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (1, 5)	4	N/A	2023/07/25	AB SOP-00025	SM 24 4500-P A,F m
Total Dissolved Solids (Filt. Residue) (1)	4	2023/07/27	2023/07/27	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Calculated) (1)	4	N/A	2023/07/30		Auto Calc



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-03-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/07/31
Report #: R3373776
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355732

Received: 2023/07/21, 08:00

Sample Matrix: Water
Samples Received: 4

Analyses	Date		Date Analyzed	Laboratory Method	Analytical Method
	Quantity	Extracted			
Carbon (Total Organic) (1, 6)	4	N/A	2023/07/28	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	1	2023/07/27	2023/07/28	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	1	2023/07/27	2023/07/30	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	2	2023/07/28	2023/07/28	AB SOP-00024	SM 24 4500-P A,B,F m
Total Suspended Solids (NFR) (1)	4	2023/07/27	2023/07/28	AB SOP-00061	SM 24 2540 D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) Silica gel clean up employed.

(3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.

(4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

(5) Orthophosphate > Total Phosphorus Imbalance: When applicable, Orthophosphate, Total Phosphorus and dissolved Phosphorus results were reviewed and data quality meets acceptable levels unless otherwise noted.

(6) TOC present in the sample should be considered as non-purgeable TOC.



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-03-01

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CANADA T5S 0C2

Report Date: 2023/07/31
Report #: R3373776
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C355732

Received: 2023/07/21, 08:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BVE350	BVE350		BVE351		
Sampling Date		2023/07/20 14:30	2023/07/20 14:30		2023/07/20 12:00		
COC Number		700027-03-01	700027-03-01		700027-03-01		
	UNITS	GLG-2023-00001-004	GLG-2023-00001-004 Lab-Dup	QC Batch	GLG-2023-00001-005	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	7.4	N/A	B044314	7.4	N/A	B044314
Cation Sum	meq/L	7.4	N/A	B044314	7.5	N/A	B044314
Hardness (CaCO ₃)	mg/L	360	N/A	B044311	360	0.50	B044311
Ion Balance (% Difference)	%	0.035	N/A	B044312	0.70	N/A	B044312
Nitrate (N)	mg/L	6.9	N/A	B044316	6.9	0.10	B044316
Nitrate (NO ₃)	mg/L	31	N/A	B044315	30	0.44	B044315
Nitrite (NO ₂)	mg/L	0.074	N/A	B044315	0.045	0.033	B044315
Calculated Total Dissolved Solids	mg/L	430	N/A	B044317	430	10	B044317
Elements							
Total Cadmium (Cd)	ug/L	0.32	N/A	B044309	0.14	0.020	B044309
Misc. Inorganics							
Conductivity	uS/cm	660	N/A	B049194	660	2.0	B048110
pH	pH	7.77	N/A	B049193	7.91	N/A	B048109
Total Organic Carbon (C)	mg/L	3.5	N/A	B050160	2.8	0.50	B050160
Total Dissolved Solids	mg/L	440	440	B049857	420	10	B049857
Total Suspended Solids	mg/L	140	N/A	B049718	86	1.0	B049718
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	B049185	<1.0	1.0	B048057
Alkalinity (Total as CaCO ₃)	mg/L	200	N/A	B049185	210	1.0	B048057
Bicarbonate (HCO ₃)	mg/L	250	N/A	B049185	250	1.0	B048057
Carbonate (CO ₃)	mg/L	<1.0	N/A	B049185	<1.0	1.0	B048057
Hydroxide (OH)	mg/L	<1.0	N/A	B049185	<1.0	1.0	B048057
Chloride (Cl)	mg/L	1.9	N/A	B051016	2.1	1.0	B051017
Sulphate (SO ₄)	mg/L	130	N/A	B051016	130	5.0	B051017
Nutrients							
Total Ammonia (N)	mg/L	0.20	N/A	B051833	0.20	0.015	B051833
Orthophosphate (P)	mg/L	<0.0030	N/A	B047539	<0.0030	0.0030	B047539
Total Phosphorus (P)	mg/L	0.15	N/A	B051461	0.15	0.0030	B050512
Nitrite (N)	mg/L	0.022	N/A	B047175	0.014	0.010	B047154
Nitrate plus Nitrite (N)	mg/L	6.9	N/A	B047175	6.9	0.10	B047154
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BVE352			BVE353		
Sampling Date		2023/07/20 15:50			2023/07/20 16:30		
COC Number		700027-03-01			700027-03-01		
	UNITS	GLG-2023-00001-013	RDL	QC Batch	GLG-2023-00001-014	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	2.0	N/A	B044314	1.1	N/A	B044314
Cation Sum	meq/L	1.9	N/A	B044314	1.0	N/A	B044314
Hardness (CaCO ₃)	mg/L	83	0.50	B044311	43	0.50	B044311
Ion Balance (% Difference)	%	NC	N/A	B044312	NC	N/A	B044312
Nitrate (N)	mg/L	<0.010	0.010	B044316	0.010	0.010	B044316
Nitrate (NO ₃)	mg/L	<0.044	0.044	B044315	0.046	0.044	B044315
Nitrite (NO ₂)	mg/L	<0.033	0.033	B044315	<0.033	0.033	B044315
Calculated Total Dissolved Solids	mg/L	100	10	B044317	55	10	B044317
Elements							
Total Cadmium (Cd)	ug/L	0.021	0.020	B044309	<0.020	0.020	B044309
Misc. Inorganics							
Conductivity	uS/cm	180	2.0	B048110	95	2.0	B049194
pH	pH	7.24	N/A	B048109	6.71	N/A	B049193
Total Organic Carbon (C)	mg/L	23	0.50	B050160	2.4	0.50	B050160
Total Dissolved Solids	mg/L	150	10	B049857	80	10	B049857
Total Suspended Solids	mg/L	210 (1)	1.5	B049718	1.4	1.0	B049718
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B048057	<1.0	1.0	B049185
Alkalinity (Total as CaCO ₃)	mg/L	89	1.0	B048057	45	1.0	B049185
Bicarbonate (HCO ₃)	mg/L	110	1.0	B048057	55	1.0	B049185
Carbonate (CO ₃)	mg/L	<1.0	1.0	B048057	<1.0	1.0	B049185
Hydroxide (OH)	mg/L	<1.0	1.0	B048057	<1.0	1.0	B049185
Chloride (Cl)	mg/L	1.2	1.0	B051017	1.6	1.0	B051017
Sulphate (SO ₄)	mg/L	9.4	1.0	B051017	7.4	1.0	B051017
Nutrients							
Total Ammonia (N)	mg/L	0.032	0.015	B051833	<0.015	0.015	B051833
Orthophosphate (P)	mg/L	<0.0030	0.0030	B047539	<0.0030	0.0030	B047539
Total Phosphorus (P)	mg/L	0.24	0.015	B051461	<0.0030	0.0030	B050542
Nitrite (N)	mg/L	<0.010	0.010	B047154	<0.010	0.010	B047508
Nitrate plus Nitrite (N)	mg/L	<0.010	0.010	B047154	0.010	0.010	B047508
RDL = Reportable Detection Limit							
N/A = Not Applicable							
(1) Detection limit raised based on sample volume used for analysis.							



BUREAU
VERITAS

Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		BVE350	BVE351	BVE352	BVE353		
Sampling Date		2023/07/20 14:30	2023/07/20 12:00	2023/07/20 15:50	2023/07/20 16:30		
COC Number		700027-03-01	700027-03-01	700027-03-01	700027-03-01		
	UNITS	GLG-2023-00001-004	GLG-2023-00001-005	GLG-2023-00001-013	GLG-2023-00001-014	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B045203
F3 (C16-C34 Hydrocarbons)	mg/L	0.17	<0.10	<0.10	0.14	0.10	B045203
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B045203

Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	83	87	84	91	N/A	B045203

RDL = Reportable Detection Limit

N/A = Not Applicable



MERCURY BY COLD VAPOR (WATER)

Bureau Veritas ID		BVE350		BVE351		BVE352		
Sampling Date		2023/07/20 14:30		2023/07/20 12:00		2023/07/20 15:50		
COC Number		700027-03-01		700027-03-01		700027-03-01		
	UNITS	GLG-2023-00001-004	QC Batch	GLG-2023-00001-005	QC Batch	GLG-2023-00001-013	RDL	QC Batch
Elements								
Total Mercury (Hg)	ug/L	0.0165	B049787	0.0153	B049850	<0.0019	0.0019	B049787
RDL = Reportable Detection Limit								

Bureau Veritas ID		BVE353		
Sampling Date		2023/07/20 16:30		
COC Number		700027-03-01		
	UNITS	GLG-2023-00001-014	RDL	QC Batch
Elements				
Total Mercury (Hg)	ug/L	<0.0019	0.0019	B049787
RDL = Reportable Detection Limit				



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		BVE350		BVE351		BVE352		
Sampling Date		2023/07/20 14:30		2023/07/20 12:00		2023/07/20 15:50		
COC Number		700027-03-01		700027-03-01		700027-03-01		
	UNITS	GLG-2023-00001-004	QC Batch	GLG-2023-00001-005	QC Batch	GLG-2023-00001-013	RDL	QC Batch

Elements

Total Aluminum (Al)	mg/L	5.8	B049564	4.6	B049564	0.15	0.0030	B049564
Total Antimony (Sb)	mg/L	0.0056	B049564	0.0050	B049564	<0.00060	0.00060	B049564
Total Arsenic (As)	mg/L	0.057	B049564	0.036	B049564	0.0079	0.00020	B049564
Total Barium (Ba)	mg/L	0.13	B049569	0.083	B049569	0.036	0.010	B049569
Total Beryllium (Be)	mg/L	<0.0010	B049564	<0.0010	B049564	<0.0010	0.0010	B049564
Total Boron (B)	mg/L	0.028	B049569	<0.020	B049569	<0.020	0.020	B049569
Dissolved Calcium (Ca)	mg/L	N/A	N/A	N/A	B048928	22	0.30	B048928
Total Calcium (Ca)	mg/L	140	B049569	110	B049569	23	0.30	B049569
Total Chromium (Cr)	mg/L	0.020	B049564	0.015	B049564	<0.0010	0.0010	B049564
Total Cobalt (Co)	mg/L	0.018	B049564	0.012	B049564	0.0091	0.00030	B049564
Total Copper (Cu)	mg/L	0.066	B049564	0.042	B049564	0.013	0.0010	B049564
Dissolved Iron (Fe)	mg/L	N/A	N/A	N/A	B048928	<0.060	0.060	B048928
Total Iron (Fe)	mg/L	17	B049569	12	B049569	0.75	0.060	B049569
Total Lead (Pb)	mg/L	0.019	B049564	0.013	B049564	<0.00020	0.00020	B049564
Total Lithium (Li)	mg/L	0.022	B049569	<0.020	B049569	<0.020	0.020	B049569
Dissolved Magnesium (Mg)	mg/L	N/A	N/A	N/A	B048928	7.0	0.20	B048928
Total Magnesium (Mg)	mg/L	17	B049569	13	B049569	7.1	0.20	B049569
Dissolved Manganese (Mn)	mg/L	N/A	N/A	N/A	B048928	0.018	0.0040	B048928
Total Manganese (Mn)	mg/L	1.6	B049569	0.74	B049569	0.98	0.0040	B049569
Total Molybdenum (Mo)	mg/L	0.0057	B049564	0.0048	B049564	<0.00020	0.00020	B049564
Total Nickel (Ni)	mg/L	0.047	B049564	0.033	B049564	0.024	0.00050	B049564
Total Phosphorus (P)	mg/L	0.24	B049569	0.17	B049569	0.17	0.10	B049569
Dissolved Potassium (K)	mg/L	N/A	N/A	N/A	B048928	2.5	0.30	B048928
Total Potassium (K)	mg/L	4.1	B049569	2.9	B049569	2.8	0.30	B049569
Total Selenium (Se)	mg/L	0.0015	B049564	0.0015	B049564	<0.00020	0.00020	B049564
Total Silicon (Si)	mg/L	14	B049569	12	B049569	0.67	0.50	B049569
Total Silver (Ag)	mg/L	0.00032	B049564	0.00024	B049564	<0.00010	0.00010	B049564
Dissolved Sodium (Na)	mg/L	N/A	N/A	N/A	B048928	4.8	0.50	B048928
Total Sodium (Na)	mg/L	4.8	B049569	3.8	B049569	5.1	0.50	B049569
Total Strontium (Sr)	mg/L	0.43	B049569	0.35	B049569	0.11	0.020	B049569
Total Sulphur (S)	mg/L	42	B049569	39	B049569	4.4	0.20	B049569

RDL = Reportable Detection Limit

N/A = Not Applicable



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		BVE350		BVE351		BVE352		
Sampling Date		2023/07/20 14:30		2023/07/20 12:00		2023/07/20 15:50		
COC Number		700027-03-01		700027-03-01		700027-03-01		
	UNITS	GLG-2023-00001-004	QC Batch	GLG-2023-00001-005	QC Batch	GLG-2023-00001-013	RDL	QC Batch
Total Thallium (Tl)	mg/L	<0.00020	B049564	<0.00020	B049564	<0.00020	0.00020	B049564
Total Tin (Sn)	mg/L	0.0039	B049564	0.0021	B049564	<0.0010	0.0010	B049564
Total Titanium (Ti)	mg/L	0.083	B049564	0.061	B049564	0.0017	0.0010	B049564
Total Uranium (U)	mg/L	0.0044	B049564	0.0034	B049564	<0.00010	0.00010	B049564
Total Vanadium (V)	mg/L	0.011	B049564	0.0083	B049564	<0.0010	0.0010	B049564
Total Zinc (Zn)	mg/L	0.071	B049564	0.055	B049564	0.038	0.0030	B049564
Lab Filtered Elements								
Dissolved Calcium (Ca)	mg/L	120	B047939	120	B046422	N/A	0.30	B046422
Dissolved Iron (Fe)	mg/L	<0.060	B047939	<0.060	B046422	N/A	0.060	B046422
Dissolved Magnesium (Mg)	mg/L	12	B047939	12	B046422	N/A	0.20	B046422
Dissolved Manganese (Mn)	mg/L	0.35	B047939	0.27	B046422	N/A	0.0040	B046422
Dissolved Potassium (K)	mg/L	2.7	B047939	2.6	B046422	N/A	0.30	B046422
Dissolved Sodium (Na)	mg/L	4.0	B047939	4.1	B046422	N/A	0.50	B046422
Total Metals by ICPMS								
Total Bismuth (Bi)	mg/L	<0.0010	B048152	<0.0010	B048091	<0.0010	0.0010	B048152
Total Cesium (Cs)	mg/L	0.00020	B048152	<0.00020	B048091	<0.00020	0.00020	B048152
RDL = Reportable Detection Limit N/A = Not Applicable								



BUREAU
VERITAS

Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		BVE353		
Sampling Date		2023/07/20 16:30		
COC Number		700027-03-01		
	UNITS	GLG-2023-00001-014	RDL	QC Batch
Elements				
Total Aluminum (Al)	mg/L	0.015	0.0030	B049564
Total Antimony (Sb)	mg/L	<0.00060	0.00060	B049564
Total Arsenic (As)	mg/L	0.00035	0.00020	B049564
Total Barium (Ba)	mg/L	<0.010	0.010	B049569
Total Beryllium (Be)	mg/L	<0.0010	0.0010	B049564
Total Boron (B)	mg/L	<0.020	0.020	B049569
Total Calcium (Ca)	mg/L	12	0.30	B049569
Total Chromium (Cr)	mg/L	<0.0010	0.0010	B049564
Total Cobalt (Co)	mg/L	<0.00030	0.00030	B049564
Total Copper (Cu)	mg/L	<0.0010	0.0010	B049564
Total Iron (Fe)	mg/L	<0.060	0.060	B049569
Total Lead (Pb)	mg/L	<0.00020	0.00020	B049564
Total Lithium (Li)	mg/L	<0.020	0.020	B049569
Total Magnesium (Mg)	mg/L	3.0	0.20	B049569
Total Manganese (Mn)	mg/L	<0.0040	0.0040	B049569
Total Molybdenum (Mo)	mg/L	<0.00020	0.00020	B049564
Total Nickel (Ni)	mg/L	0.00055	0.00050	B049564
Total Phosphorus (P)	mg/L	<0.10	0.10	B049569
Total Potassium (K)	mg/L	1.4	0.30	B049569
Total Selenium (Se)	mg/L	<0.00020	0.00020	B049564
Total Silicon (Si)	mg/L	<0.50	0.50	B049569
Total Silver (Ag)	mg/L	<0.00010	0.00010	B049564
Total Sodium (Na)	mg/L	2.4	0.50	B049569
Total Strontium (Sr)	mg/L	0.044	0.020	B049569
Total Sulphur (S)	mg/L	2.5	0.20	B049569
Total Thallium (Tl)	mg/L	<0.00020	0.00020	B049564
Total Tin (Sn)	mg/L	<0.0010	0.0010	B049564
Total Titanium (Ti)	mg/L	<0.0010	0.0010	B049564
Total Uranium (U)	mg/L	0.00011	0.00010	B049564
Total Vanadium (V)	mg/L	<0.0010	0.0010	B049564
Total Zinc (Zn)	mg/L	<0.0030	0.0030	B049564
RDL = Reportable Detection Limit				



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		BVE353		
Sampling Date		2023/07/20 16:30		
COC Number		700027-03-01		
	UNITS	GLG-2023-00001-014	RDL	QC Batch
Lab Filtered Elements				
Dissolved Calcium (Ca)	mg/L	12	0.30	B048467
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B048467
Dissolved Magnesium (Mg)	mg/L	3.1	0.20	B048467
Dissolved Manganese (Mn)	mg/L	<0.0040	0.0040	B048467
Dissolved Potassium (K)	mg/L	1.5	0.30	B048467
Dissolved Sodium (Na)	mg/L	2.3	0.50	B048467
Total Metals by ICPMS				
Total Bismuth (Bi)	mg/L	<0.0010	0.0010	B048091
Total Cesium (Cs)	mg/L	<0.00020	0.00020	B048091
RDL = Reportable Detection Limit				



BUREAU
VERITAS

Bureau Veritas Job #: C355732
Report Date: 2023/07/31

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVE350	BVE350	BVE351	BVE352		
Sampling Date		2023/07/20 14:30	2023/07/20 14:30	2023/07/20 12:00	2023/07/20 15:50		
COC Number		700027-03-01	700027-03-01	700027-03-01	700027-03-01		
	UNITS	GLG-2023-00001-004	GLG-2023-00001-004 Lab-Dup	GLG-2023-00001-005	GLG-2023-00001-013	RDL	QC Batch
Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B045267
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B045267
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B045267
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B045267
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B045267
Xylenes (Total)	ug/L	<0.89	N/A	<0.89	<0.89	0.89	B044307
F1 (C6-C10) - BTEX	ug/L	<100	N/A	<100	<100	100	B044307
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B045267
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	104	102	104	103	N/A	B045267
4-Bromofluorobenzene (sur.)	%	101	99	98	99	N/A	B045267
D4-1,2-Dichloroethane (sur.)	%	100	99	99	100	N/A	B045267
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							

Bureau Veritas ID		BVE353		
Sampling Date		2023/07/20 16:30		
COC Number		700027-03-01		
	UNITS	GLG-2023-00001-014	RDL	QC Batch
Volatiles				
Benzene	ug/L	<0.40	0.40	B045267
Toluene	ug/L	<0.40	0.40	B045267
Ethylbenzene	ug/L	<0.40	0.40	B045267
m & p-Xylene	ug/L	<0.80	0.80	B045267
o-Xylene	ug/L	<0.40	0.40	B045267
Xylenes (Total)	ug/L	<0.89	0.89	B044307
F1 (C6-C10) - BTEX	ug/L	<100	100	B044307
F1 (C6-C10)	ug/L	<100	100	B045267
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	105	N/A	B045267
4-Bromofluorobenzene (sur.)	%	98	N/A	B045267
D4-1,2-Dichloroethane (sur.)	%	100	N/A	B045267
RDL = Reportable Detection Limit N/A = Not Applicable				



GENERAL COMMENTS

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

Package 1	9.0°C
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Sample BVE350 [GLG-2023-00001-004] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVE351 [GLG-2023-00001-005] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVE352 [GLG-2023-00001-013] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVE353 [GLG-2023-00001-014] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B045203	BQU	Matrix Spike	O-TERPHENYL (sur.)	2023/07/26		73	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26		68	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/26		76	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/26		73	%	60 - 140
B045203	BQU	Spiked Blank	O-TERPHENYL (sur.)	2023/07/26		83	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26		74	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/26		84	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/26		80	%	60 - 140
B045203	BQU	Method Blank	O-TERPHENYL (sur.)	2023/07/26		90	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/07/26	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/07/26	<0.20		mg/L	
B045203	BQU	RPD	F2 (C10-C16 Hydrocarbons)	2023/07/26	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2023/07/26	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2023/07/26	NC		%	30
B045267	AJG	Matrix Spike [BVE351-06]	1,4-Difluorobenzene (sur.)	2023/07/27		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		104	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/27		99	%	50 - 140
			Benzene	2023/07/27		101	%	50 - 140
			Toluene	2023/07/27		101	%	50 - 140
			Ethylbenzene	2023/07/27		102	%	50 - 140
			m & p-Xylene	2023/07/27		104	%	50 - 140
			o-Xylene	2023/07/27		98	%	50 - 140
			F1 (C6-C10)	2023/07/27		82	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/27		104	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		99	%	50 - 140
B045267	AJG	Spiked Blank	D4-1,2-Dichloroethane (sur.)	2023/07/27		99	%	50 - 140
			Benzene	2023/07/27		103	%	60 - 130
			Toluene	2023/07/27		103	%	60 - 130
			Ethylbenzene	2023/07/27		103	%	60 - 130
			m & p-Xylene	2023/07/27		105	%	60 - 130
			o-Xylene	2023/07/27		99	%	60 - 130
			F1 (C6-C10)	2023/07/27		105	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/27		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		100	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/27		97	%	50 - 140
			Benzene	2023/07/27	<0.40		ug/L	
B045267	AJG	Method Blank	Toluene	2023/07/27	<0.40		ug/L	
			Ethylbenzene	2023/07/27	<0.40		ug/L	
			m & p-Xylene	2023/07/27	<0.80		ug/L	
			o-Xylene	2023/07/27	<0.40		ug/L	
			F1 (C6-C10)	2023/07/27	<100		ug/L	
			Benzene	2023/07/27	NC		%	30
			Toluene	2023/07/27	NC		%	30
			Ethylbenzene	2023/07/27	NC		%	30
			m & p-Xylene	2023/07/27	NC		%	30
			o-Xylene	2023/07/27	NC		%	30
			F1 (C6-C10)	2023/07/27	NC		%	30
B045267	AJG	RPD [BVE350-06]	Benzene	2023/07/27	NC		%	30
			Toluene	2023/07/27	NC		%	30
			Ethylbenzene	2023/07/27	NC		%	30
			m & p-Xylene	2023/07/27	NC		%	30
			o-Xylene	2023/07/27	NC		%	30
			F1 (C6-C10)	2023/07/27	NC		%	30
B046422	MPU	Matrix Spike	Dissolved Calcium (Ca)	2023/07/25		97	%	80 - 120
			Dissolved Iron (Fe)	2023/07/25		106	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/25		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/25		97	%	80 - 120
			Dissolved Potassium (K)	2023/07/25		96	%	80 - 120
			Dissolved Sodium (Na)	2023/07/25		NC	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B046422	MPU	Spiked Blank	Dissolved Calcium (Ca)	2023/07/25		98	%	80 - 120
			Dissolved Iron (Fe)	2023/07/25		103	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/25		99	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/25		95	%	80 - 120
			Dissolved Potassium (K)	2023/07/25		99	%	80 - 120
			Dissolved Sodium (Na)	2023/07/25		98	%	80 - 120
B046422	MPU	Method Blank	Dissolved Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/26	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/26	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/26	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/26	<0.50		mg/L	
B046422	MPU	RPD	Dissolved Calcium (Ca)	2023/07/25	2.1		%	20
			Dissolved Iron (Fe)	2023/07/25	NC		%	20
			Dissolved Magnesium (Mg)	2023/07/25	2.0		%	20
			Dissolved Manganese (Mn)	2023/07/25	3.2		%	20
			Dissolved Potassium (K)	2023/07/25	3.5		%	20
			Dissolved Sodium (Na)	2023/07/25	2.3		%	20
B047154	AFI	Matrix Spike	Nitrite (N)	2023/07/25		104	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		129 (1)	%	80 - 120
B047154	AFI	Spiked Blank	Nitrite (N)	2023/07/25		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		102	%	80 - 120
B047154	AFI	Method Blank	Nitrite (N)	2023/07/25	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/25	<0.010		mg/L	
B047154	AFI	RPD	Nitrite (N)	2023/07/25	NC		%	20
			Nitrate plus Nitrite (N)	2023/07/25	NC		%	20
B047175	AFI	Matrix Spike	Nitrite (N)	2023/07/25		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		82	%	80 - 120
B047175	AFI	Spiked Blank	Nitrite (N)	2023/07/25		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		106	%	80 - 120
B047175	AFI	Method Blank	Nitrite (N)	2023/07/25	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/25	<0.010		mg/L	
B047175	AFI	RPD	Nitrite (N)	2023/07/25	NC		%	20
			Nitrate plus Nitrite (N)	2023/07/25	NC		%	20
B047508	AFI	Matrix Spike	Nitrite (N)	2023/07/25		96	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		112	%	80 - 120
B047508	AFI	Spiked Blank	Nitrite (N)	2023/07/25		102	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/25		97	%	80 - 120
B047508	AFI	Method Blank	Nitrite (N)	2023/07/25	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/25	<0.010		mg/L	
B047508	AFI	RPD	Nitrite (N)	2023/07/25	NC		%	20
			Nitrate plus Nitrite (N)	2023/07/25	0.38		%	20
B047539	MAP	Matrix Spike	Orthophosphate (P)	2023/07/25		98	%	80 - 120
B047539	MAP	Spiked Blank	Orthophosphate (P)	2023/07/25		98	%	80 - 120
B047539	MAP	Method Blank	Orthophosphate (P)	2023/07/25	<0.0030		mg/L	
B047539	MAP	RPD	Orthophosphate (P)	2023/07/25	6.6		%	20
B047939	VSC	Matrix Spike	Dissolved Calcium (Ca)	2023/07/26		102	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		110	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/26		103	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		108	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		94	%	80 - 120
B047939	VSC	Spiked Blank	Dissolved Calcium (Ca)	2023/07/26		97	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		96	%	80 - 120



BUREAU
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Bureau Veritas Job #: C355732

Report Date: 2023/07/31

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B047939	VSC	Method Blank	Dissolved Magnesium (Mg)	2023/07/26		99	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		94	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		99	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		96	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/26	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/26	<0.0040		mg/L	
B047939	VSC	RPD	Dissolved Potassium (K)	2023/07/26	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/26	<0.50		mg/L	
			Dissolved Calcium (Ca)	2023/07/26	0.64		%	20
			Dissolved Iron (Fe)	2023/07/26	12		%	20
			Dissolved Magnesium (Mg)	2023/07/26	1.0		%	20
			Dissolved Manganese (Mn)	2023/07/26	9.7		%	20
			Dissolved Potassium (K)	2023/07/26	0.33		%	20
			Dissolved Sodium (Na)	2023/07/26	0.46		%	20
B048057	JVM	Spiked Blank	Alkalinity (Total as CaCO ₃)	2023/07/28		100	%	80 - 120
B048057	JVM	Method Blank	Alkalinity (PP as CaCO ₃)	2023/07/28	<1.0		mg/L	
			Alkalinity (Total as CaCO ₃)	2023/07/28	<1.0		mg/L	
			Bicarbonate (HCO ₃)	2023/07/28	<1.0		mg/L	
			Carbonate (CO ₃)	2023/07/28	<1.0		mg/L	
			Hydroxide (OH)	2023/07/28	<1.0		mg/L	
			Alkalinity (PP as CaCO ₃)	2023/07/28	NC		%	20
B048057	JVM	RPD	Alkalinity (Total as CaCO ₃)	2023/07/28	0.43		%	20
			Bicarbonate (HCO ₃)	2023/07/28	0.43		%	20
			Carbonate (CO ₃)	2023/07/28	NC		%	20
			Hydroxide (OH)	2023/07/28	NC		%	20
B048091	STI	Matrix Spike	Total Bismuth (Bi)	2023/07/27		94	%	80 - 120
			Total Cesium (Cs)	2023/07/27		104	%	80 - 120
B048091	STI	Spiked Blank	Total Bismuth (Bi)	2023/07/27		94	%	80 - 120
			Total Cesium (Cs)	2023/07/27		100	%	80 - 120
B048091	STI	Method Blank	Total Bismuth (Bi)	2023/07/27	<0.0010		mg/L	
			Total Cesium (Cs)	2023/07/27	<0.00020		mg/L	
B048091	STI	RPD	Total Bismuth (Bi)	2023/07/27	NC		%	20
B048109	JVM	Spiked Blank	pH	2023/07/28		100	%	97 - 103
B048109	JVM	RPD	pH	2023/07/28	0.41		%	N/A
B048110	JVM	Spiked Blank	Conductivity	2023/07/28		102	%	90 - 110
B048110	JVM	Method Blank	Conductivity	2023/07/28	<2.0		uS/cm	
B048110	JVM	RPD	Conductivity	2023/07/28	0.42		%	10
B048152	RY3	Matrix Spike	Total Bismuth (Bi)	2023/07/28		99	%	80 - 120
			Total Cesium (Cs)	2023/07/28		103	%	80 - 120
B048152	RY3	Spiked Blank	Total Bismuth (Bi)	2023/07/28		98	%	80 - 120
			Total Cesium (Cs)	2023/07/28		101	%	80 - 120
B048152	RY3	Method Blank	Total Bismuth (Bi)	2023/07/28	<0.0010		mg/L	
			Total Cesium (Cs)	2023/07/28	<0.00020		mg/L	
B048152	RY3	RPD	Total Bismuth (Bi)	2023/07/28	NC		%	20
B048467	VSC	Matrix Spike	Dissolved Calcium (Ca)	2023/07/26		98	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		104	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/26		105	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		101	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		100	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		94	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/26		96	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		101	%	80 - 120
B048467	VSC	Spiked Blank	Dissolved Calcium (Ca)	2023/07/26		96	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		101	%	80 - 120



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B048467	VSC	Method Blank	Dissolved Magnesium (Mg)	2023/07/26		102	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		97	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		98	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		93	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/26	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/26	<0.0040		mg/L	
B048467	VSC	RPD	Dissolved Potassium (K)	2023/07/26	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/26	<0.50		mg/L	
			Dissolved Calcium (Ca)	2023/07/26	0.013		%	20
			Dissolved Iron (Fe)	2023/07/26	NC		%	20
			Dissolved Magnesium (Mg)	2023/07/26	0.57		%	20
			Dissolved Manganese (Mn)	2023/07/26	NC		%	20
			Dissolved Potassium (K)	2023/07/26	4.9		%	20
			Dissolved Sodium (Na)	2023/07/26	0.048		%	20
B048928	VSC	Matrix Spike	Dissolved Calcium (Ca)	2023/07/26		103	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		100	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/26		106	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		100	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		101	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/26		102	%	80 - 120
			Dissolved Iron (Fe)	2023/07/26		105	%	80 - 120
B048928	VSC	Spiked Blank	Dissolved Magnesium (Mg)	2023/07/26		105	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/26		104	%	80 - 120
			Dissolved Potassium (K)	2023/07/26		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/26		101	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/26	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/26	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/26	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/26	<0.0040		mg/L	
B048928	VSC	Method Blank	Dissolved Potassium (K)	2023/07/26	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/26	<0.50		mg/L	
			Dissolved Calcium (Ca)	2023/07/26	2.2		%	20
			Dissolved Iron (Fe)	2023/07/26	NC		%	20
			Dissolved Magnesium (Mg)	2023/07/26	2.6		%	20
			Dissolved Manganese (Mn)	2023/07/26	4.9		%	20
			Dissolved Potassium (K)	2023/07/26	1.9		%	20
			Dissolved Sodium (Na)	2023/07/26	2.1		%	20
B049185	JVM	Spiked Blank	Alkalinity (Total as CaCO ₃)	2023/07/28		100	%	80 - 120
B049185	JVM	Method Blank	Alkalinity (PP as CaCO ₃)	2023/07/28	<1.0		mg/L	
			Alkalinity (Total as CaCO ₃)	2023/07/28	<1.0		mg/L	
			Bicarbonate (HCO ₃)	2023/07/28	<1.0		mg/L	
			Carbonate (CO ₃)	2023/07/28	<1.0		mg/L	
			Hydroxide (OH)	2023/07/28	<1.0		mg/L	
			Alkalinity (PP as CaCO ₃)	2023/07/28	NC		%	20
B049185	JVM	RPD	Alkalinity (Total as CaCO ₃)	2023/07/28	NC		%	20
			Bicarbonate (HCO ₃)	2023/07/28	NC		%	20
			Carbonate (CO ₃)	2023/07/28	NC		%	20
			Hydroxide (OH)	2023/07/28	NC		%	20
B049193	JVM	Spiked Blank	pH	2023/07/28		99	%	97 - 103
B049193	JVM	RPD	pH	2023/07/28	0.060		%	N/A
B049194	JVM	Spiked Blank	Conductivity	2023/07/28		103	%	90 - 110



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B049194	JVM	Method Blank	Conductivity	2023/07/28	<2.0		uS/cm	
B049194	JVM	RPD	Conductivity	2023/07/28	0.59		%	10
B049564	MKJ	Matrix Spike	Total Aluminum (Al)	2023/07/28		NC	%	80 - 120
			Total Antimony (Sb)	2023/07/28		109	%	80 - 120
			Total Arsenic (As)	2023/07/28		101	%	80 - 120
			Total Beryllium (Be)	2023/07/28		104	%	80 - 120
			Total Chromium (Cr)	2023/07/28		100	%	80 - 120
			Total Cobalt (Co)	2023/07/28		102	%	80 - 120
			Total Copper (Cu)	2023/07/28		97	%	80 - 120
			Total Lead (Pb)	2023/07/28		100	%	80 - 120
			Total Molybdenum (Mo)	2023/07/28		106	%	80 - 120
			Total Nickel (Ni)	2023/07/28		100	%	80 - 120
			Total Selenium (Se)	2023/07/28		106	%	80 - 120
			Total Silver (Ag)	2023/07/28		102	%	80 - 120
			Total Thallium (Tl)	2023/07/28		103	%	80 - 120
			Total Tin (Sn)	2023/07/28		104	%	80 - 120
			Total Titanium (Ti)	2023/07/28		102	%	80 - 120
			Total Uranium (U)	2023/07/28		101	%	80 - 120
			Total Vanadium (V)	2023/07/28		103	%	80 - 120
			Total Zinc (Zn)	2023/07/28		97	%	80 - 120
B049564	MKJ	Spiked Blank	Total Aluminum (Al)	2023/07/28		104	%	80 - 120
			Total Antimony (Sb)	2023/07/28		110	%	80 - 120
			Total Arsenic (As)	2023/07/28		101	%	80 - 120
			Total Beryllium (Be)	2023/07/28		101	%	80 - 120
			Total Chromium (Cr)	2023/07/28		101	%	80 - 120
			Total Cobalt (Co)	2023/07/28		102	%	80 - 120
			Total Copper (Cu)	2023/07/28		101	%	80 - 120
			Total Lead (Pb)	2023/07/28		101	%	80 - 120
			Total Molybdenum (Mo)	2023/07/28		102	%	80 - 120
			Total Nickel (Ni)	2023/07/28		101	%	80 - 120
			Total Selenium (Se)	2023/07/28		107	%	80 - 120
			Total Silver (Ag)	2023/07/28		101	%	80 - 120
			Total Thallium (Tl)	2023/07/28		101	%	80 - 120
			Total Tin (Sn)	2023/07/28		101	%	80 - 120
			Total Titanium (Ti)	2023/07/28		102	%	80 - 120
			Total Uranium (U)	2023/07/28		101	%	80 - 120
			Total Vanadium (V)	2023/07/28		101	%	80 - 120
			Total Zinc (Zn)	2023/07/28		103	%	80 - 120
B049564	MKJ	Method Blank	Total Aluminum (Al)	2023/07/28	<0.0030		mg/L	
			Total Antimony (Sb)	2023/07/28	<0.00060		mg/L	
			Total Arsenic (As)	2023/07/28	<0.00020		mg/L	
			Total Beryllium (Be)	2023/07/28	<0.0010		mg/L	
			Total Chromium (Cr)	2023/07/28	<0.0010		mg/L	
			Total Cobalt (Co)	2023/07/28	<0.00030		mg/L	
			Total Copper (Cu)	2023/07/28	<0.0010		mg/L	
			Total Lead (Pb)	2023/07/28	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/07/28	<0.00020		mg/L	
			Total Nickel (Ni)	2023/07/28	<0.00050		mg/L	
			Total Selenium (Se)	2023/07/28	<0.00020		mg/L	
			Total Silver (Ag)	2023/07/28	<0.00010		mg/L	
			Total Thallium (Tl)	2023/07/28	<0.00020		mg/L	
			Total Tin (Sn)	2023/07/28	<0.0010		mg/L	
			Total Titanium (Ti)	2023/07/28	<0.0010		mg/L	
			Total Uranium (U)	2023/07/28	<0.00010		mg/L	



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B049564	MKJ	RPD	Total Vanadium (V)	2023/07/28	<0.0010		mg/L	
			Total Zinc (Zn)	2023/07/28	<0.0030		mg/L	
			Total Aluminum (Al)	2023/07/28	15		%	20
			Total Antimony (Sb)	2023/07/28	NC		%	20
			Total Arsenic (As)	2023/07/28	7.1		%	20
			Total Beryllium (Be)	2023/07/28	NC		%	20
			Total Chromium (Cr)	2023/07/28	NC		%	20
			Total Cobalt (Co)	2023/07/28	5.2		%	20
			Total Copper (Cu)	2023/07/28	NC		%	20
			Total Lead (Pb)	2023/07/28	7.0		%	20
			Total Molybdenum (Mo)	2023/07/28	7.1		%	20
			Total Nickel (Ni)	2023/07/28	NC		%	20
			Total Selenium (Se)	2023/07/28	NC		%	20
			Total Silver (Ag)	2023/07/28	NC		%	20
			Total Thallium (Tl)	2023/07/28	NC		%	20
			Total Tin (Sn)	2023/07/28	NC		%	20
			Total Titanium (Ti)	2023/07/28	14		%	20
			Total Uranium (U)	2023/07/28	3.9		%	20
			Total Vanadium (V)	2023/07/28	9.1		%	20
			Total Zinc (Zn)	2023/07/28	16		%	20
B049569	VSC	Matrix Spike	Total Barium (Ba)	2023/07/27		97	%	80 - 120
			Total Boron (B)	2023/07/27		97	%	80 - 120
			Total Calcium (Ca)	2023/07/27		98	%	80 - 120
			Total Iron (Fe)	2023/07/27		107	%	80 - 120
			Total Lithium (Li)	2023/07/27		98	%	80 - 120
			Total Magnesium (Mg)	2023/07/27		99	%	80 - 120
			Total Manganese (Mn)	2023/07/27		105	%	80 - 120
			Total Phosphorus (P)	2023/07/27		100	%	80 - 120
			Total Potassium (K)	2023/07/27		100	%	80 - 120
			Total Silicon (Si)	2023/07/27		96	%	80 - 120
			Total Sodium (Na)	2023/07/27		99	%	80 - 120
			Total Strontium (Sr)	2023/07/27		97	%	80 - 120
			Total Sulphur (S)	2023/07/27		94	%	80 - 120
			Total Barium (Ba)	2023/07/27		98	%	80 - 120
			Total Boron (B)	2023/07/27		98	%	80 - 120
			Total Calcium (Ca)	2023/07/27		99	%	80 - 120
B049569	VSC	Spiked Blank	Total Iron (Fe)	2023/07/27		115	%	80 - 120
			Total Lithium (Li)	2023/07/27		100	%	80 - 120
			Total Magnesium (Mg)	2023/07/27		100	%	80 - 120
			Total Manganese (Mn)	2023/07/27		110	%	80 - 120
			Total Phosphorus (P)	2023/07/27		101	%	80 - 120
			Total Potassium (K)	2023/07/27		101	%	80 - 120
			Total Silicon (Si)	2023/07/27		98	%	80 - 120
			Total Sodium (Na)	2023/07/27		100	%	80 - 120
			Total Strontium (Sr)	2023/07/27		98	%	80 - 120
			Total Sulphur (S)	2023/07/27		102	%	80 - 120
			Total Barium (Ba)	2023/07/27	<0.010		mg/L	
			Total Boron (B)	2023/07/27	<0.020		mg/L	
B049569	VSC	Method Blank	Total Calcium (Ca)	2023/07/27	<0.30		mg/L	
			Total Iron (Fe)	2023/07/27	<0.060		mg/L	
			Total Lithium (Li)	2023/07/27	<0.020		mg/L	
			Total Magnesium (Mg)	2023/07/27	<0.20		mg/L	
			Total Manganese (Mn)	2023/07/27	<0.0040		mg/L	
			Total Phosphorus (P)	2023/07/27	<0.10		mg/L	



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B049569	VSC	RPD	Total Potassium (K)	2023/07/27	<0.30		mg/L	
			Total Silicon (Si)	2023/07/27	<0.50		mg/L	
			Total Sodium (Na)	2023/07/27	<0.50		mg/L	
			Total Strontium (Sr)	2023/07/27	<0.020		mg/L	
			Total Sulphur (S)	2023/07/27	<0.20		mg/L	
			Total Barium (Ba)	2023/07/27	2.1		%	20
			Total Boron (B)	2023/07/27	2.4		%	20
			Total Calcium (Ca)	2023/07/27	2.0		%	20
			Total Iron (Fe)	2023/07/27	0.18		%	20
			Total Lithium (Li)	2023/07/27	1.1		%	20
			Total Magnesium (Mg)	2023/07/27	1.8		%	20
			Total Manganese (Mn)	2023/07/27	2.7		%	20
			Total Phosphorus (P)	2023/07/27	6.8		%	20
			Total Potassium (K)	2023/07/27	1.8		%	20
			Total Silicon (Si)	2023/07/27	1.8		%	20
			Total Sodium (Na)	2023/07/27	1.8		%	20
			Total Strontium (Sr)	2023/07/27	2.9		%	20
			Total Sulphur (S)	2023/07/27	4.8		%	20
B049718	HE1	Matrix Spike	Total Suspended Solids	2023/07/28		NC	%	80 - 120
B049718	HE1	Spiked Blank	Total Suspended Solids	2023/07/28		107	%	80 - 120
B049718	HE1	Method Blank	Total Suspended Solids	2023/07/28	<1.0		mg/L	
B049718	HE1	RPD	Total Suspended Solids	2023/07/28	1.2		%	20
B049787	KKM	Matrix Spike	Total Mercury (Hg)	2023/07/27		87	%	80 - 120
B049787	KKM	Spiked Blank	Total Mercury (Hg)	2023/07/27		92	%	80 - 120
B049787	KKM	Method Blank	Total Mercury (Hg)	2023/07/27	<0.0019		ug/L	
B049787	KKM	RPD	Total Mercury (Hg)	2023/07/27	NC		%	20
B049850	KKM	Matrix Spike	Total Mercury (Hg)	2023/07/27		87	%	80 - 120
B049850	KKM	Spiked Blank	Total Mercury (Hg)	2023/07/27		94	%	80 - 120
B049850	KKM	Method Blank	Total Mercury (Hg)	2023/07/27	<0.0019		ug/L	
B049850	KKM	RPD	Total Mercury (Hg)	2023/07/27	NC		%	20
B049857	AZI	Matrix Spike [BVE350-01]	Total Dissolved Solids	2023/07/27		98	%	80 - 120
B049857	AZI	Spiked Blank	Total Dissolved Solids	2023/07/27		99	%	80 - 120
B049857	AZI	Method Blank	Total Dissolved Solids	2023/07/27	<10		mg/L	
B049857	AZI	RPD [BVE350-01]	Total Dissolved Solids	2023/07/27	0.90		%	20
B050160	YHK	Matrix Spike	Total Organic Carbon (C)	2023/07/28		90	%	80 - 120
B050160	YHK	Spiked Blank	Total Organic Carbon (C)	2023/07/28		99	%	80 - 120
B050160	YHK	Method Blank	Total Organic Carbon (C)	2023/07/28	<0.50		mg/L	
B050160	YHK	RPD	Total Organic Carbon (C)	2023/07/28	10		%	20
B050512	CTU	Matrix Spike	Total Phosphorus (P)	2023/07/31		123 (1)	%	80 - 120
B050512	CTU	QC Standard	Total Phosphorus (P)	2023/07/30		93	%	80 - 120
B050512	CTU	Spiked Blank	Total Phosphorus (P)	2023/07/30		101	%	80 - 120
B050512	CTU	Method Blank	Total Phosphorus (P)	2023/07/30	<0.0030		mg/L	
B050512	CTU	RPD	Total Phosphorus (P)	2023/07/31	3.4		%	20
B050542	MAP	Matrix Spike	Total Phosphorus (P)	2023/07/28		NC	%	80 - 120
B050542	MAP	QC Standard	Total Phosphorus (P)	2023/07/28		96	%	80 - 120
B050542	MAP	Spiked Blank	Total Phosphorus (P)	2023/07/28		100	%	80 - 120
B050542	MAP	Method Blank	Total Phosphorus (P)	2023/07/28	<0.0030		mg/L	
B050542	MAP	RPD	Total Phosphorus (P)	2023/07/28	0.091		%	20
B051016	SKM	Matrix Spike	Chloride (Cl)	2023/07/28		103	%	80 - 120
			Sulphate (SO4)	2023/07/28		117	%	80 - 120
B051016	SKM	Spiked Blank	Chloride (Cl)	2023/07/28		98	%	80 - 120
			Sulphate (SO4)	2023/07/28		103	%	80 - 120
B051016	SKM	Method Blank	Chloride (Cl)	2023/07/28	<1.0		mg/L	
			Sulphate (SO4)	2023/07/28	<1.0		mg/L	



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B051016	SKM	RPD	Chloride (Cl)	2023/07/28	2.8		%	20
			Sulphate (SO4)	2023/07/28	NC		%	20
B051017	SKM	Matrix Spike	Chloride (Cl)	2023/07/28		98	%	80 - 120
			Sulphate (SO4)	2023/07/28		104	%	80 - 120
B051017	SKM	Spiked Blank	Chloride (Cl)	2023/07/28		97	%	80 - 120
			Sulphate (SO4)	2023/07/28		102	%	80 - 120
B051017	SKM	Method Blank	Chloride (Cl)	2023/07/28	<1.0		mg/L	
			Sulphate (SO4)	2023/07/28	<1.0		mg/L	
B051017	SKM	RPD	Chloride (Cl)	2023/07/28	1.3		%	20
			Sulphate (SO4)	2023/07/28	0.93		%	20
B051461	MAP	Matrix Spike	Total Phosphorus (P)	2023/07/28		NC	%	80 - 120
B051461	MAP	QC Standard	Total Phosphorus (P)	2023/07/28		96	%	80 - 120
B051461	MAP	Spiked Blank	Total Phosphorus (P)	2023/07/28		107	%	80 - 120
B051461	MAP	Method Blank	Total Phosphorus (P)	2023/07/28	<0.0030		mg/L	
B051461	MAP	RPD	Total Phosphorus (P)	2023/07/28	0.65		%	20
B051833	ISW	Matrix Spike	Total Ammonia (N)	2023/07/29		99	%	80 - 120
B051833	ISW	Spiked Blank	Total Ammonia (N)	2023/07/29		102	%	80 - 120
B051833	ISW	Method Blank	Total Ammonia (N)	2023/07/29	<0.015		mg/L	
B051833	ISW	RPD	Total Ammonia (N)	2023/07/29	1.5		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C355732
Report Date: 2023/07/31

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics



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INVOICE TO:					Report Information					Project Information					Laboratory Use Only				
Company Name #6699 AECOM CANADA LTD.					Company Name <u>AECOM Canada Ltd.</u>					Quotation # C21789					Bureau Veritas Job #				
Contact Name BANE BROTSCHI					Contact Name JANINE MORRIS					P.O. #					C855732				
Address 18817 Stony Plain Road NW					Address					Project # 60710609					Chain Of Custody Record				
EDMONTON AB T5S 0C2										Project Name					Project Manager				
Phone (587) 337-4190 Fax: (780) 486-7070					Phone (867) 446-3953 Fax:					Site # Gordon Lake					Chain Of Custody Record				
Email bane.brotschi@aecom.com					Email janine.morris@aecom.com, bane.brotschi@aecom.com					Sampled By					Chain Of Custody Record				
Regulatory Criteria CCME					Special Instructions					Analysis Requested					Turnaround Time (TAT) Required				
					Regulated Drinking Water ? (Y/N)					Routine Water					Regular (Standard) TAT				
					Metals Field Filtered ? (Y/N)					Regulated Metals (CCME/AT1) - Total, Total Hg					(will be applied if Rush TAT is not specified)				
										Total Suspended Solids (NFR), TDS					Standard TAT = 5-7 Working days for most tests.				
										AT1 BTEX and F1-F4 in Water					Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.				
										Ammonia-N (Total)					Job Specific Rush TAT (if applies to entire submission)				
										Total Phosphorus					Date Required: Time Required:				
										Orthophosphate by KoneLab					Rush Confirmation Number				
										Carbon (Total Organic)					(call lab for #)				
										Total Metals - Bismuth, Cesium					# of Bottles				
															Comments				
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form																			
Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas																			
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Routine Water	Regulated Metals (CCME/AT1) - Total, Total Hg	Total Suspended Solids (NFR), TDS	AT1 BTEX and F1-F4 in Water	Ammonia-N (Total)	Total Phosphorus	Orthophosphate by KoneLab	Carbon (Total Organic)	Total Metals - Bismuth, Cesium				
1	GLG-2023-00001-023																		
2	GLG-2023-00001-024																		
3	GLG-2023-00001-025 GLG-2023-00001-026	23/07/20	14:30	GW	N	N	X	X	X	X	X	X	X	X	X		1 metals to be filtered for dissolved metals		
4	GLG-2023-00001-026	23/07/20	12:00	GW	N	N	X	X	X	X	X	X	X	X	X		1 metals to be filtered for dissolved metals		
5	GLG-2023-00001-027	23/07/20	15:50	SW	N	Y	X	X	X	X	X	X	X	X	X		1 metals to be filtered for dissolved metals		
6	GLG-2023-00001-028	23/07/20	16:30	SW	N	N	X	X	X	X	X	X	X	X	X		1 metals to be filtered for dissolved metals		
7	GLG-2023-00001-018-FIELD																		
8	GLG-2023-00001-019-TRIP																		
9	GLG-2023-00001-019-TRIP																		
10	GLG-2023-00001-019-TRIP																		
* RELINQUISHED BY: (Signature/Print)					Date: (YY/MM/DD)					Time					RECEIVED BY: (Signature/Print)				
Janine M. [Signature]					23/07/20					18:20					[Signature] Janine M.				
															Date: (YY/MM/DD)				
															Time				
															# jars used and not submitted				
															Time Sensitive				
															Temperature (°C) on Receipt				
															Custody Seal Intact on Cooler?				
															Yes No				

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVIA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COG-TERMS-AND-CONDITIONS.

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

White: Bureau Veritas Yellow: Client

ICB-4



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 700027-04-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/08/02
 Report #: R3375243
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C356052

Received: 2023/07/22, 08:30

Sample Matrix: Surface Water
 # Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	5	N/A	2023/07/29	AB SOP-00005	SM 23 2320 B m
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	3	N/A	2023/07/30	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	8	N/A	2023/07/27	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	7	N/A	2023/07/27		Auto Calc
F1-BTEX (1)	1	N/A	2023/07/28		Auto Calc
Cadmium - low level CCME (Total) (1)	8	N/A	2023/07/29		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	8	N/A	2023/07/31	AB SOP-00020	SM24-4500-Cl/SO4-E m
Conductivity @25C (1)	5	N/A	2023/07/29	AB SOP-00005	SM 23 2510 B m
Conductivity @25C (1)	3	N/A	2023/07/30	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	5	2023/07/26	2023/07/26	AB SOP-00037	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	3	2023/07/30	2023/07/31	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	2	N/A	2023/07/27		Auto Calc
Hardness (1)	5	N/A	2023/07/28		Auto Calc
Hardness (1)	1	N/A	2023/07/29		Auto Calc
Mercury (Total) by CV (1)	4	2023/07/27	2023/07/28	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV (1)	3	2023/07/29	2023/07/29	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV (1)	1	2023/07/29	2023/07/31	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	1	N/A	2023/07/27	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Dissolved (1, 3)	6	N/A	2023/07/28	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	1	N/A	2023/07/27	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	5	2023/07/27	2023/07/28	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	3	2023/07/27	2023/07/29	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Total (1)	8	2023/07/27	2023/07/29	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	4	N/A	2023/07/31		Auto Calc
Ion Balance (1)	4	N/A	2023/08/01		Auto Calc
Sum of cations, anions (1)	2	N/A	2023/07/27		Auto Calc
Sum of cations, anions (1)	5	N/A	2023/07/28		Auto Calc
Sum of cations, anions (1)	1	N/A	2023/07/29		Auto Calc
Elements by CRC ICPMS (total) (1)	8	2023/07/28	2023/07/30	CAL SOP-00265	EPA 6020 m



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 700027-04-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/08/02
 Report #: R3375243
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C356052

Received: 2023/07/22, 08:30

Sample Matrix: Surface Water
 # Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Ammonia-N (Total) (1)	7	N/A	2023/07/31	AB SOP-00007	SM 24 4500 NH3 A G m
Ammonia-N (Total) (1)	1	N/A	2023/08/01	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite (1)	1	N/A	2023/07/30		Auto Calc
Nitrate and Nitrite (1)	7	N/A	2023/08/01		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	7	N/A	2023/07/26	AB SOP-00091	SM 24 4500 NO3m
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	1	N/A	2023/08/01	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N) (1)	1	2023/07/24	2023/07/30		Auto Calc
Nitrate (as N) (1)	7	2023/07/24	2023/08/01		Auto Calc
pH @25°C (1, 4)	5	N/A	2023/07/29	AB SOP-00005	SM 23 4500-H+B m
pH @25°C (1, 4)	3	N/A	2023/07/30	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (1, 5)	8	N/A	2023/07/26	AB SOP-00025	SM 24 4500-P A,F m
Total Dissolved Solids (Filt. Residue) (1)	3	2023/07/27	2023/07/27	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Filt. Residue) (1)	5	2023/07/28	2023/07/28	AB SOP-00065	SM 23 2540 C m
Total Dissolved Solids (Calculated) (1)	4	N/A	2023/07/31		Auto Calc
Total Dissolved Solids (Calculated) (1)	4	N/A	2023/08/01		Auto Calc
Carbon (Total Organic) (1, 6)	8	N/A	2023/07/31	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	6	2023/07/29	2023/07/30	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	2	2023/07/29	2023/08/01	AB SOP-00024	SM 24 4500-P A,B,F m
Total Suspended Solids (NFR) (1)	8	2023/07/28	2023/07/28	AB SOP-00061	SM 24 2540 D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 700027-04-01

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/08/02
Report #: R3375243
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C356052

Received: 2023/07/22, 08:30

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

- (1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8
- (2) Silica gel clean up employed.
- (3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
- (4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
- (5) Orthophosphate > Total Phosphorus Imbalance: When applicable, Orthophosphate, Total Phosphorus and dissolved Phosphorus results were reviewed and data quality meets acceptable levels unless otherwise noted.
- (6) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235

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**RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER**

Bureau Veritas ID		BVG418		BVG419		BVG420		
Sampling Date		2023/07/21		2023/07/21 13:40		2023/07/21 13:55		
COC Number		700027-04-01		700027-04-01		700027-04-01		
	UNITS	GLG-2023-00001-006	QC Batch	GLG-2023-00001-015	QC Batch	GLG-2023-00001-024	RDL	QC Batch

Calculated Parameters

Anion Sum	meq/L	1.2	B045879	1.1	B045879	1.7	N/A	B045879
Cation Sum	meq/L	1.0	B045879	1.0	B045879	1.6	N/A	B045879
Hardness (CaCO ₃)	mg/L	44	B045874	43	B045874	68	0.50	B045874
Ion Balance (% Difference)	%	NC	B045876	NC	B045876	NC	N/A	B045876
Nitrate (N)	mg/L	<0.010	B045883	<0.010	B045883	<0.010	0.010	B045883
Nitrate (NO ₃)	mg/L	<0.044	B045881	<0.044	B045881	<0.044	0.044	B045881
Nitrite (NO ₂)	mg/L	<0.033	B045881	<0.033	B045881	<0.033	0.033	B045881
Calculated Total Dissolved Solids	mg/L	58	B045894	56	B045894	86	10	B045894

Elements

Total Cadmium (Cd)	ug/L	<0.020	B045872	<0.020	B045872	<0.020	0.020	B045872
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Misc. Inorganics

Conductivity	uS/cm	110	B051217	100	B051243	160	2.0	B051217
pH	pH	6.97	B051216	7.01	B051242	7.30	N/A	B051216
Total Organic Carbon (C)	mg/L	3.1	B052728	2.7	B052729	18	0.50	B052728
Total Dissolved Solids	mg/L	110	B049912	92	B049912	160	10	B049912
Total Suspended Solids	mg/L	1.0	B051429	<1.0	B051429	7.9	1.0	B051429

Anions

Alkalinity (PP as CaCO ₃)	mg/L	<1.0	B051196	<1.0	B051239	<1.0	1.0	B051196
Alkalinity (Total as CaCO ₃)	mg/L	48	B051196	47	B051239	69	1.0	B051196
Bicarbonate (HCO ₃)	mg/L	58	B051196	57	B051239	84	1.0	B051196
Carbonate (CO ₃)	mg/L	<1.0	B051196	<1.0	B051239	<1.0	1.0	B051196
Hydroxide (OH)	mg/L	<1.0	B051196	<1.0	B051239	<1.0	1.0	B051196
Chloride (Cl)	mg/L	1.3	B054171	1.2	B054195	<1.0	1.0	B054171
Sulphate (SO ₄)	mg/L	8.1	B054171	7.9	B054195	14	1.0	B054171

Nutrients

Total Ammonia (N)	mg/L	0.021	B054250	<0.015	B054250	0.021	0.015	B054250
Orthophosphate (P)	mg/L	<0.0030	B049183	<0.0030	B049183	<0.0030	0.0030	B049183
Total Phosphorus (P)	mg/L	<0.0030	B052612	0.0034	B052612	0.037	0.0030	B052612
Nitrite (N)	mg/L	<0.010	B048821	<0.010	B048821	<0.010	0.010	B048821
Nitrate plus Nitrite (N)	mg/L	<0.010	B048821	<0.010	B048821	<0.010	0.010	B048821

RDL = Reportable Detection Limit

N/A = Not Applicable

**RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER**

Bureau Veritas ID		BVG421		BVG422	BVG422		
Sampling Date		2023/07/21 13:30		2023/07/21 13:15	2023/07/21 13:15		
COC Number		700027-04-01		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-025	QC Batch	GLG-2023-00001-026	GLG-2023-00001-026 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	1.6	B045879	1.2	N/A	N/A	B045879
Cation Sum	meq/L	1.7	B045879	1.0	N/A	N/A	B045879
Hardness (CaCO ₃)	mg/L	70	B045874	43	N/A	0.50	B045874
Ion Balance (% Difference)	%	NC	B045876	NC	N/A	N/A	B045876
Nitrate (N)	mg/L	<0.010	B045883	<0.010	N/A	0.010	B045883
Nitrate (NO ₃)	mg/L	<0.044	B045881	<0.044	N/A	0.044	B045881
Nitrite (NO ₂)	mg/L	<0.033	B045881	<0.033	N/A	0.033	B045881
Calculated Total Dissolved Solids	mg/L	85	B045894	59	N/A	10	B045894
Elements							
Total Cadmium (Cd)	ug/L	<0.020	B045872	<0.020	N/A	0.020	B045872
Misc. Inorganics							
Conductivity	uS/cm	160	B051243	110	N/A	2.0	B051243
pH	pH	7.21	B051242	7.00	N/A	N/A	B051242
Total Organic Carbon (C)	mg/L	18	B052728	2.9	N/A	0.50	B052728
Total Dissolved Solids	mg/L	120	B051090	64	56	10	B051090
Total Suspended Solids	mg/L	28	B051429	39	N/A	1.0	B051429
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	B051239	<1.0	N/A	1.0	B051239
Alkalinity (Total as CaCO ₃)	mg/L	66	B051239	52	N/A	1.0	B051239
Bicarbonate (HCO ₃)	mg/L	81	B051239	63	N/A	1.0	B051239
Carbonate (CO ₃)	mg/L	<1.0	B051239	<1.0	N/A	1.0	B051239
Hydroxide (OH)	mg/L	<1.0	B051239	<1.0	N/A	1.0	B051239
Chloride (Cl)	mg/L	<1.0	B054171	<1.0	N/A	1.0	B054197
Sulphate (SO ₄)	mg/L	14	B054171	7.9	N/A	1.0	B054197
Nutrients							
Total Ammonia (N)	mg/L	0.019	B054250	<0.015	N/A	0.015	B054250
Orthophosphate (P)	mg/L	<0.0030	B049183	<0.0030	N/A	0.0030	B049183
Total Phosphorus (P)	mg/L	0.049	B052612	0.0071	N/A	0.0030	B052612
Nitrite (N)	mg/L	<0.010	B048821	<0.010	N/A	0.010	B048821
Nitrate plus Nitrite (N)	mg/L	<0.010	B048821	<0.010	N/A	0.010	B048821
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							

**RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER**

Bureau Veritas ID		BVG423	BVG423		BVG424		
Sampling Date		2023/07/21 13:00	2023/07/21 13:00		2023/07/21 13:00		
COC Number		700027-04-01	700027-04-01		700027-04-01		
	UNITS	GLG-2023-00001-027	GLG-2023-00001-027 Lab-Dup	QC Batch	GLG-2023-00001-028	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	1.1	N/A	B045879	1.1	N/A	B045879
Cation Sum	meq/L	0.97	N/A	B045879	1.0	N/A	B045879
Hardness (CaCO ₃)	mg/L	42	N/A	B045874	43	0.50	B045874
Ion Balance (% Difference)	%	NC	N/A	B045876	NC	N/A	B045922
Nitrate (N)	mg/L	<0.010	N/A	B045883	<0.010	0.010	B045883
Nitrate (NO ₃)	mg/L	<0.044	N/A	B045923	<0.044	0.044	B045923
Nitrite (NO ₂)	mg/L	<0.033	N/A	B045923	<0.033	0.033	B045923
Calculated Total Dissolved Solids	mg/L	54	N/A	B045894	57	10	B045894
Elements							
Total Cadmium (Cd)	ug/L	<0.020	N/A	B045872	<0.020	0.020	B045872
Misc. Inorganics							
Conductivity	uS/cm	100	100	B052635	100	2.0	B051243
pH	pH	6.84	6.89	B052633	6.99	N/A	B051242
Total Organic Carbon (C)	mg/L	2.8	N/A	B052728	2.6	0.50	B052729
Total Dissolved Solids	mg/L	68	68	B051094	68	10	B051094
Total Suspended Solids	mg/L	2.2	N/A	B051429	1.4	1.0	B051429
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	<1.0	B052627	<1.0	1.0	B051239
Alkalinity (Total as CaCO ₃)	mg/L	45	47	B052627	48	1.0	B051239
Bicarbonate (HCO ₃)	mg/L	55	58	B052627	58	1.0	B051239
Carbonate (CO ₃)	mg/L	<1.0	<1.0	B052627	<1.0	1.0	B051239
Hydroxide (OH)	mg/L	<1.0	<1.0	B052627	<1.0	1.0	B051239
Chloride (Cl)	mg/L	1.1	N/A	B054171	1.2	1.0	B054195
Sulphate (SO ₄)	mg/L	7.8	N/A	B054171	7.6	1.0	B054195
Nutrients							
Total Ammonia (N)	mg/L	<0.015	N/A	B054256	<0.015	0.015	B054256
Orthophosphate (P)	mg/L	<0.0030	N/A	B049183	<0.0030	0.0030	B049183
Total Phosphorus (P)	mg/L	0.0032	0.0054	B052612	0.0040	0.0030	B052616
Nitrite (N)	mg/L	<0.010	<0.010	B048821	<0.010	0.010	B048821
Nitrate plus Nitrite (N)	mg/L	<0.010	<0.010	B048821	<0.010	0.010	B048821
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							

**RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER**

Bureau Veritas ID		BVG424		BVG425	BVG425		
Sampling Date		2023/07/21 13:00		2023/07/21	2023/07/21		
COC Number		700027-04-01		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-028 Lab-Dup	QC Batch	GLG-2023-00001-019	GLG-2023-00001-019 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	N/A	B045879	0.024	N/A	N/A	B045879
Cation Sum	meq/L	N/A	B045879	0.0090	N/A	N/A	B045879
Hardness (CaCO ₃)	mg/L	N/A	B045874	<0.50	N/A	0.50	B045874
Ion Balance (% Difference)	%	N/A	B045922	NC	N/A	N/A	B045876
Nitrate (N)	mg/L	N/A	B045883	<0.010	N/A	0.010	B045883
Nitrate (NO ₃)	mg/L	N/A	B045923	<0.044	N/A	0.044	B045881
Nitrite (NO ₂)	mg/L	N/A	B045923	<0.033	N/A	0.033	B045881
Calculated Total Dissolved Solids	mg/L	N/A	B045894	<10	N/A	10	B045894
Elements							
Total Cadmium (Cd)	ug/L	N/A	B045872	<0.020	N/A	0.020	B045872
Misc. Inorganics							
Conductivity	uS/cm	N/A	B051243	<2.0	N/A	2.0	B052057
pH	pH	N/A	B051242	5.05	N/A	N/A	B052054
Total Organic Carbon (C)	mg/L	N/A	B052729	<0.50	N/A	0.50	B052728
Total Dissolved Solids	mg/L	N/A	B051094	12	N/A	10	B051094
Total Suspended Solids	mg/L	N/A	B051429	<1.0	N/A	1.0	B051429
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	N/A	B051239	<1.0	N/A	1.0	B052052
Alkalinity (Total as CaCO ₃)	mg/L	N/A	B051239	1.2	N/A	1.0	B052052
Bicarbonate (HCO ₃)	mg/L	N/A	B051239	1.5	N/A	1.0	B052052
Carbonate (CO ₃)	mg/L	N/A	B051239	<1.0	N/A	1.0	B052052
Hydroxide (OH)	mg/L	N/A	B051239	<1.0	N/A	1.0	B052052
Chloride (Cl)	mg/L	N/A	B054195	<1.0	N/A	1.0	B054197
Sulphate (SO ₄)	mg/L	N/A	B054195	<1.0	N/A	1.0	B054197
Nutrients							
Total Ammonia (N)	mg/L	<0.015	B054256	<0.015	<0.015	0.015	B054423
Orthophosphate (P)	mg/L	N/A	B049183	<0.0030	N/A	0.0030	B049183
Total Phosphorus (P)	mg/L	N/A	B052616	<0.0030	N/A	0.0030	B052612
Nitrite (N)	mg/L	N/A	B048821	<0.010	N/A	0.010	B048922
Nitrate plus Nitrite (N)	mg/L	N/A	B048821	<0.010	N/A	0.010	B048922
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		BVG418	BVG419	BVG420	BVG421		
Sampling Date		2023/07/21	2023/07/21 13:40	2023/07/21 13:55	2023/07/21 13:30		
COC Number		700027-04-01	700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-006	GLG-2023-00001-015	GLG-2023-00001-024	GLG-2023-00001-025	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B045203
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B045203
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B045203
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	96	98	100	93	N/A	B045203
RDL = Reportable Detection Limit N/A = Not Applicable							

Bureau Veritas ID		BVG422		BVG423	BVG424		
Sampling Date		2023/07/21 13:15		2023/07/21 13:00	2023/07/21 13:00		
COC Number		700027-04-01		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-026	QC Batch	GLG-2023-00001-027	GLG-2023-00001-028	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	B045203	<0.10	<0.10	0.10	B047451
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	B045203	<0.10	<0.10	0.10	B047451
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	B045203	<0.20	<0.20	0.20	B047451
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	97	B045203	101	99	N/A	B047451
RDL = Reportable Detection Limit N/A = Not Applicable							

Bureau Veritas ID		BVG425		
Sampling Date		2023/07/21		
COC Number		700027-04-01		
	UNITS	GLG-2023-00001-019	RDL	QC Batch

Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	B047451
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	0.10	B047451
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	0.20	B047451
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	99	N/A	B047451
RDL = Reportable Detection Limit N/A = Not Applicable				



MERCURY BY COLD VAPOR (SURFACE WATER)

Bureau Veritas ID		BVG418	BVG419	BVG420	BVG421		
Sampling Date		2023/07/21	2023/07/21 13:40	2023/07/21 13:55	2023/07/21 13:30		
COC Number		700027-04-01	700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-006	GLG-2023-00001-015	GLG-2023-00001-024	GLG-2023-00001-025	RDL	QC Batch

Elements							
Total Mercury (Hg)	ug/L	0.0024	0.0034	0.0042	0.0037	0.0019	B050605
RDL = Reportable Detection Limit							

Bureau Veritas ID		BVG422	BVG423	BVG424	BVG425		
Sampling Date		2023/07/21 13:15	2023/07/21 13:00	2023/07/21 13:00	2023/07/21		
COC Number		700027-04-01	700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-026	GLG-2023-00001-027	GLG-2023-00001-028	GLG-2023-00001-019	RDL	QC Batch

Elements							
Total Mercury (Hg)	ug/L	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	B052794
RDL = Reportable Detection Limit							



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG418	BVG419		BVG420		
Sampling Date		2023/07/21	2023/07/21 13:40		2023/07/21 13:55		
COC Number		700027-04-01	700027-04-01		700027-04-01		
	UNITS	GLG-2023-00001-006	GLG-2023-00001-015	QC Batch	GLG-2023-00001-024	RDL	QC Batch
Elements							
Total Aluminum (Al)	mg/L	0.031	0.014	B049577	0.035	0.0030	B049577
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	B049577	<0.00060	0.00060	B049577
Total Arsenic (As)	mg/L	0.00042	0.00029	B049577	0.00072	0.00020	B049577
Total Barium (Ba)	mg/L	<0.010	<0.010	B049580	<0.010	0.010	B049580
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	B049577	<0.0010	0.0010	B049577
Total Boron (B)	mg/L	<0.020	<0.020	B049580	<0.020	0.020	B049580
Dissolved Calcium (Ca)	mg/L	13	12	B051484	18	0.30	B048935
Total Calcium (Ca)	mg/L	13	13	B049580	19	0.30	B049580
Total Chromium (Cr)	mg/L	<0.0010	<0.0010	B049577	<0.0010	0.0010	B049577
Total Cobalt (Co)	mg/L	<0.00030	<0.00030	B049577	0.00032	0.00030	B049577
Total Copper (Cu)	mg/L	0.0022	0.0015	B049577	<0.0010	0.0010	B049577
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	B051484	0.14	0.060	B048935
Total Iron (Fe)	mg/L	<0.060	<0.060	B049580	0.28	0.060	B049580
Total Lead (Pb)	mg/L	0.00028	<0.00020	B049577	<0.00020	0.00020	B049577
Total Lithium (Li)	mg/L	<0.020	<0.020	B049580	<0.020	0.020	B049580
Dissolved Magnesium (Mg)	mg/L	3.0	3.0	B051484	5.6	0.20	B048935
Total Magnesium (Mg)	mg/L	3.1	3.1	B049580	5.6	0.20	B049580
Dissolved Manganese (Mn)	mg/L	<0.0040	<0.0040	B051484	0.014	0.0040	B048935
Total Manganese (Mn)	mg/L	<0.0040	<0.0040	B049580	0.021	0.0040	B049580
Total Molybdenum (Mo)	mg/L	0.00046	<0.00020	B049577	<0.00020	0.00020	B049577
Total Nickel (Ni)	mg/L	0.00056	0.00064	B049577	0.0014	0.00050	B049577
Total Phosphorus (P)	mg/L	<0.10	<0.10	B049580	<0.10	0.10	B049580
Dissolved Potassium (K)	mg/L	1.5	1.5	B051484	1.5	0.30	B048935
Total Potassium (K)	mg/L	1.5	1.5	B049580	1.6	0.30	B049580
Total Selenium (Se)	mg/L	<0.00020	<0.00020	B049577	<0.00020	0.00020	B049577
Total Silicon (Si)	mg/L	<0.50	<0.50	B049580	0.56	0.50	B049580
Total Silver (Ag)	mg/L	<0.00010	<0.00010	B049577	<0.00010	0.00010	B049577
Dissolved Sodium (Na)	mg/L	2.5	2.5	B051484	5.0	0.50	B048935
Total Sodium (Na)	mg/L	2.5	2.5	B049580	5.3	0.50	B049580
Total Strontium (Sr)	mg/L	0.043	0.042	B049580	0.054	0.020	B049580
Total Sulphur (S)	mg/L	2.6	2.7	B049580	4.9	0.20	B049580
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	B049577	<0.00020	0.00020	B049577
RDL = Reportable Detection Limit							



ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG418	BVG419		BVG420		
Sampling Date		2023/07/21	2023/07/21 13:40		2023/07/21 13:55		
COC Number		700027-04-01	700027-04-01		700027-04-01		
	UNITS	GLG-2023-00001-006	GLG-2023-00001-015	QC Batch	GLG-2023-00001-024	RDL	QC Batch
Total Tin (Sn)	mg/L	<0.0010	<0.0010	B049577	<0.0010	0.0010	B049577
Total Titanium (Ti)	mg/L	0.0015	<0.0010	B049577	0.0016	0.0010	B049577
Total Uranium (U)	mg/L	0.00014	0.00011	B049577	0.00020	0.00010	B049577
Total Vanadium (V)	mg/L	<0.0010	<0.0010	B049577	<0.0010	0.0010	B049577
Total Zinc (Zn)	mg/L	<0.0030	<0.0030	B049577	<0.0030	0.0030	B049577
Total Metals by ICPMS							
Total Bismuth (Bi)	mg/L	<0.0010	<0.0010	B051884	<0.0010	0.0010	B051884
Total Cesium (Cs)	mg/L	<0.00020	<0.00020	B051884	<0.00020	0.00020	B051884
RDL = Reportable Detection Limit							



BUREAU
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Bureau Veritas Job #: C356052

Report Date: 2023/08/02

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG421	BVG421	BVG422		
Sampling Date		2023/07/21 13:30	2023/07/21 13:30	2023/07/21 13:15		
COC Number		700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-025	GLG-2023-00001-025 Lab-Dup	GLG-2023-00001-026	RDL	QC Batch
Elements						
Total Aluminum (Al)	mg/L	0.053	N/A	0.038	0.0030	B049577
Total Antimony (Sb)	mg/L	<0.00060	N/A	<0.00060	0.00060	B049577
Total Arsenic (As)	mg/L	0.00086	N/A	0.00034	0.00020	B049577
Total Barium (Ba)	mg/L	<0.010	N/A	<0.010	0.010	B049580
Total Beryllium (Be)	mg/L	<0.0010	N/A	<0.0010	0.0010	B049577
Total Boron (B)	mg/L	<0.020	N/A	<0.020	0.020	B049580
Dissolved Calcium (Ca)	mg/L	19	19	12	0.30	B051484
Total Calcium (Ca)	mg/L	19	N/A	13	0.30	B049580
Total Chromium (Cr)	mg/L	<0.0010	N/A	<0.0010	0.0010	B049577
Total Cobalt (Co)	mg/L	0.00040	N/A	<0.00030	0.00030	B049577
Total Copper (Cu)	mg/L	<0.0010	N/A	<0.0010	0.0010	B049577
Dissolved Iron (Fe)	mg/L	0.22	0.21	<0.060	0.060	B051484
Total Iron (Fe)	mg/L	0.52	N/A	0.072	0.060	B049580
Total Lead (Pb)	mg/L	0.00066	N/A	<0.00020	0.00020	B049577
Total Lithium (Li)	mg/L	<0.020	N/A	<0.020	0.020	B049580
Dissolved Magnesium (Mg)	mg/L	5.6	5.7	3.0	0.20	B051484
Total Magnesium (Mg)	mg/L	5.6	N/A	3.1	0.20	B049580
Dissolved Manganese (Mn)	mg/L	0.019	0.018	<0.0040	0.0040	B051484
Total Manganese (Mn)	mg/L	0.049	N/A	0.0049	0.0040	B049580
Total Molybdenum (Mo)	mg/L	<0.00020	N/A	<0.00020	0.00020	B049577
Total Nickel (Ni)	mg/L	0.0015	N/A	0.00057	0.00050	B049577
Total Phosphorus (P)	mg/L	<0.10	N/A	<0.10	0.10	B049580
Dissolved Potassium (K)	mg/L	1.6	1.6	1.5	0.30	B051484
Total Potassium (K)	mg/L	1.6	N/A	1.5	0.30	B049580
Total Selenium (Se)	mg/L	<0.00020	N/A	<0.00020	0.00020	B049577
Total Silicon (Si)	mg/L	0.87	N/A	<0.50	0.50	B049580
Total Silver (Ag)	mg/L	<0.00010	N/A	<0.00010	0.00010	B049577
Dissolved Sodium (Na)	mg/L	5.4	5.4	2.5	0.50	B051484
Total Sodium (Na)	mg/L	5.3	N/A	2.5	0.50	B049580
Total Strontium (Sr)	mg/L	0.053	N/A	0.041	0.020	B049580
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						
N/A = Not Applicable						



BUREAU
VERITAS

Bureau Veritas Job #: C356052

Report Date: 2023/08/02

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG421	BVG421	BVG422		
Sampling Date		2023/07/21 13:30	2023/07/21 13:30	2023/07/21 13:15		
COC Number		700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-025	GLG-2023-00001-025 Lab-Dup	GLG-2023-00001-026	RDL	QC Batch
Total Sulphur (S)	mg/L	5.0	N/A	2.6	0.20	B049580
Total Thallium (Tl)	mg/L	<0.00020	N/A	<0.00020	0.00020	B049577
Total Tin (Sn)	mg/L	<0.0010	N/A	<0.0010	0.0010	B049577
Total Titanium (Ti)	mg/L	0.0021	N/A	0.0015	0.0010	B049577
Total Uranium (U)	mg/L	0.00020	N/A	0.00013	0.00010	B049577
Total Vanadium (V)	mg/L	<0.0010	N/A	<0.0010	0.0010	B049577
Total Zinc (Zn)	mg/L	<0.0030	N/A	<0.0030	0.0030	B049577
Total Metals by ICPMS						
Total Bismuth (Bi)	mg/L	<0.0010	N/A	<0.0010	0.0010	B051884
Total Cesium (Cs)	mg/L	<0.00020	N/A	<0.00020	0.00020	B051884
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable						



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG423		BVG424	BVG425		
Sampling Date		2023/07/21 13:00		2023/07/21 13:00	2023/07/21		
COC Number		700027-04-01		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-027	QC Batch	GLG-2023-00001-028	GLG-2023-00001-019	RDL	QC Batch

Elements							
Total Aluminum (Al)	mg/L	0.024	B049577	0.020	<0.0030	0.0030	B049577
Total Antimony (Sb)	mg/L	<0.00060	B049577	<0.00060	<0.00060	0.00060	B049577
Total Arsenic (As)	mg/L	0.00031	B049577	0.00028	<0.00020	0.00020	B049577
Total Barium (Ba)	mg/L	<0.010	B049580	<0.010	<0.010	0.010	B049580
Total Beryllium (Be)	mg/L	<0.0010	B049577	<0.0010	<0.0010	0.0010	B049577
Total Boron (B)	mg/L	<0.020	B049580	<0.020	<0.020	0.020	B049580
Dissolved Calcium (Ca)	mg/L	12	B052082	12	N/A	0.30	B051484
Total Calcium (Ca)	mg/L	12	B049580	13	<0.30	0.30	B049580
Total Chromium (Cr)	mg/L	<0.0010	B049577	<0.0010	<0.0010	0.0010	B049577
Total Cobalt (Co)	mg/L	<0.00030	B049577	<0.00030	<0.00030	0.00030	B049577
Total Copper (Cu)	mg/L	<0.0010	B049577	<0.0010	<0.0010	0.0010	B049577
Dissolved Iron (Fe)	mg/L	<0.060	B052082	<0.060	N/A	0.060	B051484
Total Iron (Fe)	mg/L	<0.060	B049580	<0.060	<0.060	0.060	B049580
Total Lead (Pb)	mg/L	<0.00020	B049577	<0.00020	<0.00020	0.00020	B049577
Total Lithium (Li)	mg/L	<0.020	B049580	<0.020	<0.020	0.020	B049580
Dissolved Magnesium (Mg)	mg/L	2.8	B052082	3.0	N/A	0.20	B051484
Total Magnesium (Mg)	mg/L	2.9	B049580	3.1	<0.20	0.20	B049580
Dissolved Manganese (Mn)	mg/L	<0.0040	B052082	<0.0040	N/A	0.0040	B051484
Total Manganese (Mn)	mg/L	0.0040	B049580	<0.0040	<0.0040	0.0040	B049580
Total Molybdenum (Mo)	mg/L	<0.00020	B049577	<0.00020	<0.00020	0.00020	B049577
Total Nickel (Ni)	mg/L	<0.00050	B049577	<0.00050	<0.00050	0.00050	B049577
Total Phosphorus (P)	mg/L	<0.10	B049580	<0.10	<0.10	0.10	B049580
Dissolved Potassium (K)	mg/L	1.3	B052082	1.4	N/A	0.30	B051484
Total Potassium (K)	mg/L	1.4	B049580	1.5	<0.30	0.30	B049580
Total Selenium (Se)	mg/L	<0.00020	B049577	<0.00020	<0.00020	0.00020	B049577
Total Silicon (Si)	mg/L	<0.50	B049580	<0.50	<0.50	0.50	B049580
Total Silver (Ag)	mg/L	<0.00010	B049577	<0.00010	<0.00010	0.00010	B049577
Dissolved Sodium (Na)	mg/L	2.3	B052082	2.5	N/A	0.50	B051484
Total Sodium (Na)	mg/L	2.4	B049580	2.5	<0.50	0.50	B049580
Total Strontium (Sr)	mg/L	0.040	B049580	0.041	<0.020	0.020	B049580
Total Sulphur (S)	mg/L	2.5	B049580	2.6	<0.20	0.20	B049580

RDL = Reportable Detection Limit

N/A = Not Applicable



ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		BVG423		BVG424	BVG425		
Sampling Date		2023/07/21 13:00		2023/07/21 13:00	2023/07/21		
COC Number		700027-04-01		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-027	QC Batch	GLG-2023-00001-028	GLG-2023-00001-019	RDL	QC Batch
Total Thallium (Tl)	mg/L	<0.00020	B049577	<0.00020	<0.00020	0.00020	B049577
Total Tin (Sn)	mg/L	<0.0010	B049577	<0.0010	<0.0010	0.0010	B049577
Total Titanium (Ti)	mg/L	0.0011	B049577	<0.0010	<0.0010	0.0010	B049577
Total Uranium (U)	mg/L	0.00012	B049577	0.00011	<0.00010	0.00010	B049577
Total Vanadium (V)	mg/L	<0.0010	B049577	<0.0010	<0.0010	0.0010	B049577
Total Zinc (Zn)	mg/L	<0.0030	B049577	<0.0030	<0.0030	0.0030	B049577
Lab Filtered Elements							
Dissolved Calcium (Ca)	mg/L	N/A	N/A	N/A	<0.30	0.30	B049737
Dissolved Iron (Fe)	mg/L	N/A	N/A	N/A	<0.060	0.060	B049737
Dissolved Magnesium (Mg)	mg/L	N/A	N/A	N/A	<0.20	0.20	B049737
Dissolved Manganese (Mn)	mg/L	N/A	N/A	N/A	<0.0040	0.0040	B049737
Dissolved Potassium (K)	mg/L	N/A	N/A	N/A	<0.30	0.30	B049737
Dissolved Sodium (Na)	mg/L	N/A	N/A	N/A	<0.50	0.50	B049737
Total Metals by ICPMS							
Total Bismuth (Bi)	mg/L	<0.0010	B051884	<0.0010	<0.0010	0.0010	B051884
Total Cesium (Cs)	mg/L	<0.00020	B051884	<0.00020	<0.00020	0.00020	B051884
RDL = Reportable Detection Limit							
N/A = Not Applicable							



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Bureau Veritas Job #: C356052

Report Date: 2023/08/02

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		BVG418	BVG419	BVG420	BVG421		
Sampling Date		2023/07/21	2023/07/21 13:40	2023/07/21 13:55	2023/07/21 13:30		
COC Number		700027-04-01	700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-006	GLG-2023-00001-015	GLG-2023-00001-024	GLG-2023-00001-025	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B046815
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B046815
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B046815
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B046815
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B046815
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	<0.89	0.89	B045866
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	B045866
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B046815

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	104	104	102	104	N/A	B046815
4-Bromofluorobenzene (sur.)	%	108	108	109	107	N/A	B046815
D4-1,2-Dichloroethane (sur.)	%	116	120	117	118	N/A	B046815

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID		BVG422	BVG423	BVG424		
Sampling Date		2023/07/21 13:15	2023/07/21 13:00	2023/07/21 13:00		
COC Number		700027-04-01	700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-026	GLG-2023-00001-027	GLG-2023-00001-028	RDL	QC Batch

Volatiles						
Benzene	ug/L	<0.40	<0.40	<0.40	0.40	B046815
Toluene	ug/L	<0.40	<0.40	<0.40	0.40	B046815
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	0.40	B046815
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	0.80	B046815
o-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	B046815
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	0.89	B045866
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	100	B045866
F1 (C6-C10)	ug/L	<100	<100	<100	100	B046815

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	105	104	104	N/A	B046815
4-Bromofluorobenzene (sur.)	%	108	106	107	N/A	B046815
D4-1,2-Dichloroethane (sur.)	%	117	117	118	N/A	B046815

RDL = Reportable Detection Limit

N/A = Not Applicable



VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		BVG425	BVG425		
Sampling Date		2023/07/21	2023/07/21		
COC Number		700027-04-01	700027-04-01		
	UNITS	GLG-2023-00001-019	GLG-2023-00001-019 Lab-Dup	RDL	QC Batch
Volatiles					
Benzene	ug/L	<0.40	<0.40	0.40	B048380
Toluene	ug/L	<0.40	<0.40	0.40	B048380
Ethylbenzene	ug/L	<0.40	<0.40	0.40	B048380
m & p-Xylene	ug/L	<0.80	<0.80	0.80	B048380
o-Xylene	ug/L	<0.40	<0.40	0.40	B048380
Xylenes (Total)	ug/L	<0.89	N/A	0.89	B045866
F1 (C6-C10) - BTEX	ug/L	<100	N/A	100	B045866
F1 (C6-C10)	ug/L	<100	<100	100	B048380
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	108	106	N/A	B048380
4-Bromofluorobenzene (sur.)	%	91	91	N/A	B048380
D4-1,2-Dichloroethane (sur.)	%	97	97	N/A	B048380
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



GENERAL COMMENTS

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

Package 1	7.7°C
Package 2	6.3°C

Sample BVG418 [GLG-2023-00001-006] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG419 [GLG-2023-00001-015] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG420 [GLG-2023-00001-024] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG421 [GLG-2023-00001-025] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG422 [GLG-2023-00001-026] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG423 [GLG-2023-00001-027] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample BVG424 [GLG-2023-00001-028] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BVG425 [GLG-2023-00001-019] : Orthophosphate by Konelab completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

RESULTS OF CHEMICAL ANALYSES OF SURFACE WATER Comments

Method Blank Alkalinity @25C (pp, total), CO₃, HCO₃, OH: CCB above criteria. Data inspected. All data < RDL or greater than 10x CCB.

Sample BVG423 [GLG-2023-00001-027] NO₂ (N); NO₂ (N) + NO₃ (N) in Water: Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.

Results relate only to the items tested.



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Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
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Site Location: Gordon Lake

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B045203	BQU	Matrix Spike	O-TERPHENYL (sur.)	2023/07/26		73	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26		68	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/26		76	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/26		73	%	60 - 140
B045203	BQU	Spiked Blank	O-TERPHENYL (sur.)	2023/07/26		83	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26		74	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/26		84	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/26		80	%	60 - 140
B045203	BQU	Method Blank	O-TERPHENYL (sur.)	2023/07/26		90	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/26	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/07/26	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/07/26	<0.20		mg/L	
B045203	BQU	RPD	F2 (C10-C16 Hydrocarbons)	2023/07/26	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2023/07/26	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2023/07/26	NC		%	30
B046815	WPK	Matrix Spike	1,4-Difluorobenzene (sur.)	2023/07/26		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/26		110	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/26		118	%	50 - 140
			Benzene	2023/07/26		121	%	50 - 140
			Toluene	2023/07/26		114	%	50 - 140
			Ethylbenzene	2023/07/26		120	%	50 - 140
			m & p-Xylene	2023/07/26		110	%	50 - 140
			o-Xylene	2023/07/26		109	%	50 - 140
			F1 (C6-C10)	2023/07/26		94	%	60 - 140
B046815	WPK	Spiked Blank	1,4-Difluorobenzene (sur.)	2023/07/26		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/26		109	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/26		119	%	50 - 140
			Benzene	2023/07/26		119	%	60 - 130
			Toluene	2023/07/26		112	%	60 - 130
			Ethylbenzene	2023/07/26		118	%	60 - 130
			m & p-Xylene	2023/07/26		107	%	60 - 130
			o-Xylene	2023/07/26		106	%	60 - 130
			F1 (C6-C10)	2023/07/26		104	%	60 - 140
B046815	WPK	Method Blank	1,4-Difluorobenzene (sur.)	2023/07/27		104	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		107	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/27		119	%	50 - 140
			Benzene	2023/07/27	<0.40		ug/L	
			Toluene	2023/07/27	<0.40		ug/L	
			Ethylbenzene	2023/07/27	<0.40		ug/L	
			m & p-Xylene	2023/07/27	<0.80		ug/L	
			o-Xylene	2023/07/27	<0.40		ug/L	
			F1 (C6-C10)	2023/07/27	<100		ug/L	
B046815	WPK	RPD	Benzene	2023/07/27	NC		%	30
			Toluene	2023/07/27	NC		%	30
			Ethylbenzene	2023/07/27	NC		%	30
			m & p-Xylene	2023/07/27	NC		%	30
			o-Xylene	2023/07/27	NC		%	30
			F1 (C6-C10)	2023/07/27	NC		%	30
B047451	CHA	Matrix Spike	O-TERPHENYL (sur.)	2023/07/31		105	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/31		106	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/07/31		102	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/31		98	%	60 - 140
B047451	CHA	Spiked Blank	O-TERPHENYL (sur.)	2023/07/30		105	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/30		106	%	60 - 140



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B047451	CHA	Method Blank	F3 (C16-C34 Hydrocarbons)	2023/07/30		103	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/07/30		101	%	60 - 140
			O-TERPHENYL (sur.)	2023/07/30		102	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/07/30	<0.10		mg/L	
B047451	CHA	RPD	F3 (C16-C34 Hydrocarbons)	2023/07/30	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/07/30	<0.20		mg/L	
			F2 (C10-C16 Hydrocarbons)	2023/07/31	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2023/07/31	NC		%	30
B048380	RIL	Matrix Spike	F4 (C34-C50 Hydrocarbons)	2023/07/31	NC		%	30
			1,4-Difluorobenzene (sur.)	2023/07/27		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		93	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/27		95	%	50 - 140
B048380	RIL	Spiked Blank	Benzene	2023/07/27		98	%	50 - 140
			Toluene	2023/07/27		95	%	50 - 140
			Ethylbenzene	2023/07/27		94	%	50 - 140
			m & p-Xylene	2023/07/27		93	%	50 - 140
B048380	RIL	Method Blank	o-Xylene	2023/07/27		95	%	50 - 140
			F1 (C6-C10)	2023/07/27		82	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/27		107	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/07/27		97	%	50 - 140
B048380	RIL	RPD [BVG425-06]	D4-1,2-Dichloroethane (sur.)	2023/07/27		95	%	50 - 140
			Benzene	2023/07/27		103	%	60 - 130
			Toluene	2023/07/27		99	%	60 - 130
			Ethylbenzene	2023/07/27		99	%	60 - 130
B048380	RIL	Method Blank	m & p-Xylene	2023/07/27		98	%	60 - 130
			o-Xylene	2023/07/27		100	%	60 - 130
			F1 (C6-C10)	2023/07/27		93	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/07/27		107	%	50 - 140
B048380	RIL	RPD [BVG425-06]	4-Bromofluorobenzene (sur.)	2023/07/27		92	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/07/27		96	%	50 - 140
			Benzene	2023/07/27	<0.40		ug/L	
			Toluene	2023/07/27	<0.40		ug/L	
B048380	RIL	RPD [BVG425-06]	Ethylbenzene	2023/07/27	<0.40		ug/L	
			m & p-Xylene	2023/07/27	<0.80		ug/L	
			o-Xylene	2023/07/27	<0.40		ug/L	
			F1 (C6-C10)	2023/07/27	<100		ug/L	
B048821	AFI	Matrix Spike [BVG423-09]	Benzene	2023/07/27	NC		%	30
			Toluene	2023/07/27	NC		%	30
			Ethylbenzene	2023/07/27	NC		%	30
			m & p-Xylene	2023/07/27	NC		%	30
B048821	AFI	Spiked Blank	o-Xylene	2023/07/27	NC		%	30
			F1 (C6-C10)	2023/07/27	NC		%	30
			Nitrite (N)	2023/07/26		103	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/26		114	%	80 - 120
B048821	AFI	Method Blank	Nitrite (N)	2023/07/26		100	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/26		107	%	80 - 120
			Nitrite (N)	2023/07/26	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/07/26	<0.010		mg/L	
B048821	AFI	RPD [BVG423-09]	Nitrite (N)	2023/07/26	NC		%	20
			Nitrate plus Nitrite (N)	2023/07/26	NC		%	20
			Nitrite (N)	2023/07/26		98	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/26		126 (1)	%	80 - 120
B048922	AFI	Matrix Spike	Nitrite (N)	2023/07/26		100	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/26		108	%	80 - 120
			Nitrite (N)	2023/07/26		100	%	80 - 120
			Nitrate plus Nitrite (N)	2023/07/26		108	%	80 - 120



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B048922	AFI	Method Blank		Nitrite (N)	2023/07/26	<0.010		mg/L	
				Nitrate plus Nitrite (N)	2023/07/26	<0.010		mg/L	
B048922	AFI	RPD		Nitrite (N)	2023/07/26	NC		%	20
				Nitrate plus Nitrite (N)	2023/07/26	1.8		%	20
B048935	VSC	Matrix Spike		Dissolved Calcium (Ca)	2023/07/26		97	%	80 - 120
				Dissolved Iron (Fe)	2023/07/26		93	%	80 - 120
				Dissolved Magnesium (Mg)	2023/07/26		99	%	80 - 120
				Dissolved Manganese (Mn)	2023/07/26		93	%	80 - 120
				Dissolved Potassium (K)	2023/07/26		99	%	80 - 120
				Dissolved Sodium (Na)	2023/07/26		97	%	80 - 120
B048935	VSC	Spiked Blank		Dissolved Calcium (Ca)	2023/07/26		102	%	80 - 120
				Dissolved Iron (Fe)	2023/07/26		105	%	80 - 120
				Dissolved Magnesium (Mg)	2023/07/26		107	%	80 - 120
				Dissolved Manganese (Mn)	2023/07/26		103	%	80 - 120
				Dissolved Potassium (K)	2023/07/26		104	%	80 - 120
				Dissolved Sodium (Na)	2023/07/26		101	%	80 - 120
B048935	VSC	Method Blank		Dissolved Calcium (Ca)	2023/07/27	<0.30		mg/L	
				Dissolved Iron (Fe)	2023/07/27	<0.060		mg/L	
				Dissolved Magnesium (Mg)	2023/07/27	<0.20		mg/L	
				Dissolved Manganese (Mn)	2023/07/27	<0.0040		mg/L	
				Dissolved Potassium (K)	2023/07/27	<0.30		mg/L	
				Dissolved Sodium (Na)	2023/07/27	<0.50		mg/L	
B048935	VSC	RPD		Dissolved Calcium (Ca)	2023/07/27	2.1		%	20
				Dissolved Iron (Fe)	2023/07/27	NC		%	20
				Dissolved Magnesium (Mg)	2023/07/27	2.6		%	20
				Dissolved Manganese (Mn)	2023/07/27	NC		%	20
				Dissolved Potassium (K)	2023/07/27	14		%	20
				Dissolved Sodium (Na)	2023/07/27	3.3		%	20
B049183	MAP	Matrix Spike		Orthophosphate (P)	2023/07/26		99	%	80 - 120
B049183	MAP	Spiked Blank		Orthophosphate (P)	2023/07/26		99	%	80 - 120
B049183	MAP	Method Blank		Orthophosphate (P)	2023/07/26	<0.0030		mg/L	
B049183	MAP	RPD		Orthophosphate (P)	2023/07/26	3.0		%	20
B049577	MKJ	Matrix Spike		Total Aluminum (Al)	2023/07/29		121 (1)	%	80 - 120
				Total Antimony (Sb)	2023/07/29		111	%	80 - 120
				Total Arsenic (As)	2023/07/29		99	%	80 - 120
				Total Beryllium (Be)	2023/07/29		106	%	80 - 120
				Total Chromium (Cr)	2023/07/29		108	%	80 - 120
				Total Cobalt (Co)	2023/07/29		110	%	80 - 120
				Total Copper (Cu)	2023/07/29		106	%	80 - 120
				Total Lead (Pb)	2023/07/29		107	%	80 - 120
				Total Molybdenum (Mo)	2023/07/29		113	%	80 - 120
				Total Nickel (Ni)	2023/07/29		107	%	80 - 120
				Total Selenium (Se)	2023/07/29		95	%	80 - 120
				Total Silver (Ag)	2023/07/29		107	%	80 - 120
				Total Thallium (Tl)	2023/07/29		107	%	80 - 120
				Total Tin (Sn)	2023/07/29		110	%	80 - 120
				Total Titanium (Ti)	2023/07/29		110	%	80 - 120
				Total Uranium (U)	2023/07/29		108	%	80 - 120
				Total Vanadium (V)	2023/07/29		109	%	80 - 120
				Total Zinc (Zn)	2023/07/29		97	%	80 - 120
				Total Aluminum (Al)	2023/07/29		115	%	80 - 120
				Total Antimony (Sb)	2023/07/29		108	%	80 - 120
B049577	MKJ	Spiked Blank		Total Arsenic (As)	2023/07/29		96	%	80 - 120
				Total Beryllium (Be)	2023/07/29		102	%	80 - 120



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B049577	MKJ	Method Blank	Total Chromium (Cr)	2023/07/29		106	%	80 - 120
			Total Cobalt (Co)	2023/07/29		108	%	80 - 120
			Total Copper (Cu)	2023/07/29		105	%	80 - 120
			Total Lead (Pb)	2023/07/29		104	%	80 - 120
			Total Molybdenum (Mo)	2023/07/29		106	%	80 - 120
			Total Nickel (Ni)	2023/07/29		105	%	80 - 120
			Total Selenium (Se)	2023/07/29		94	%	80 - 120
			Total Silver (Ag)	2023/07/29		103	%	80 - 120
			Total Thallium (Tl)	2023/07/29		104	%	80 - 120
			Total Tin (Sn)	2023/07/29		104	%	80 - 120
			Total Titanium (Ti)	2023/07/29		108	%	80 - 120
			Total Uranium (U)	2023/07/29		103	%	80 - 120
			Total Vanadium (V)	2023/07/29		106	%	80 - 120
			Total Zinc (Zn)	2023/07/29		94	%	80 - 120
			Total Aluminum (Al)	2023/07/29	<0.0030		mg/L	
			Total Antimony (Sb)	2023/07/29	<0.00060		mg/L	
			Total Arsenic (As)	2023/07/29	<0.00020		mg/L	
			Total Beryllium (Be)	2023/07/29	<0.0010		mg/L	
			Total Chromium (Cr)	2023/07/29	<0.0010		mg/L	
			Total Cobalt (Co)	2023/07/29	<0.00030		mg/L	
			Total Copper (Cu)	2023/07/29	<0.0010		mg/L	
			Total Lead (Pb)	2023/07/29	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/07/29	<0.00020		mg/L	
			Total Nickel (Ni)	2023/07/29	<0.00050		mg/L	
			Total Selenium (Se)	2023/07/29	<0.00020		mg/L	
			Total Silver (Ag)	2023/07/29	<0.00010		mg/L	
			Total Thallium (Tl)	2023/07/29	<0.00020		mg/L	
			Total Tin (Sn)	2023/07/29	<0.0010		mg/L	
			Total Titanium (Ti)	2023/07/29	<0.0010		mg/L	
			Total Uranium (U)	2023/07/29	<0.00010		mg/L	
			Total Vanadium (V)	2023/07/29	<0.0010		mg/L	
			Total Zinc (Zn)	2023/07/29	<0.0030		mg/L	
B049577	MKJ	RPD	Total Aluminum (Al)	2023/07/29	16		%	20
			Total Antimony (Sb)	2023/07/29	NC		%	20
			Total Arsenic (As)	2023/07/29	4.0		%	20
			Total Beryllium (Be)	2023/07/29	NC		%	20
			Total Chromium (Cr)	2023/07/29	NC		%	20
			Total Cobalt (Co)	2023/07/29	NC		%	20
			Total Copper (Cu)	2023/07/29	11		%	20
			Total Lead (Pb)	2023/07/29	NC		%	20
			Total Molybdenum (Mo)	2023/07/29	2.0		%	20
			Total Nickel (Ni)	2023/07/29	6.2		%	20
			Total Selenium (Se)	2023/07/29	6.2		%	20
			Total Silver (Ag)	2023/07/29	NC		%	20
			Total Thallium (Tl)	2023/07/29	NC		%	20
			Total Tin (Sn)	2023/07/29	NC		%	20
			Total Titanium (Ti)	2023/07/29	NC		%	20
			Total Uranium (U)	2023/07/29	7.0		%	20
			Total Vanadium (V)	2023/07/29	NC		%	20
			Total Zinc (Zn)	2023/07/29	NC		%	20
B049580	MPU	Matrix Spike	Total Barium (Ba)	2023/07/28		98	%	80 - 120
			Total Boron (B)	2023/07/28		NC	%	80 - 120
			Total Calcium (Ca)	2023/07/28		NC	%	80 - 120
			Total Iron (Fe)	2023/07/28		109	%	80 - 120



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B049580	MPU	Spiked Blank	Total Lithium (Li)	2023/07/28		101	%	80 - 120
			Total Magnesium (Mg)	2023/07/28		NC	%	80 - 120
			Total Manganese (Mn)	2023/07/28		97	%	80 - 120
			Total Phosphorus (P)	2023/07/28		102	%	80 - 120
			Total Potassium (K)	2023/07/28		102	%	80 - 120
			Total Silicon (Si)	2023/07/28		92	%	80 - 120
			Total Sodium (Na)	2023/07/28		NC	%	80 - 120
			Total Strontium (Sr)	2023/07/28		91	%	80 - 120
			Total Sulphur (S)	2023/07/28		NC	%	80 - 120
			Total Barium (Ba)	2023/07/28		101	%	80 - 120
			Total Boron (B)	2023/07/28		94	%	80 - 120
			Total Calcium (Ca)	2023/07/28		102	%	80 - 120
			Total Iron (Fe)	2023/07/28		110	%	80 - 120
			Total Lithium (Li)	2023/07/28		100	%	80 - 120
			Total Magnesium (Mg)	2023/07/28		105	%	80 - 120
			Total Manganese (Mn)	2023/07/28		97	%	80 - 120
			Total Phosphorus (P)	2023/07/28		102	%	80 - 120
			Total Potassium (K)	2023/07/28		101	%	80 - 120
			Total Silicon (Si)	2023/07/28		98	%	80 - 120
			Total Sodium (Na)	2023/07/28		101	%	80 - 120
B049580	MPU	Method Blank	Total Strontium (Sr)	2023/07/28		97	%	80 - 120
			Total Sulphur (S)	2023/07/28		94	%	80 - 120
			Total Barium (Ba)	2023/07/29	<0.010		mg/L	
			Total Boron (B)	2023/07/29	<0.020		mg/L	
			Total Calcium (Ca)	2023/07/29	<0.30		mg/L	
			Total Iron (Fe)	2023/07/29	<0.060		mg/L	
			Total Lithium (Li)	2023/07/29	<0.020		mg/L	
			Total Magnesium (Mg)	2023/07/29	<0.20		mg/L	
			Total Manganese (Mn)	2023/07/29	<0.0040		mg/L	
			Total Phosphorus (P)	2023/07/29	<0.10		mg/L	
			Total Potassium (K)	2023/07/29	<0.30		mg/L	
			Total Silicon (Si)	2023/07/29	<0.50		mg/L	
			Total Sodium (Na)	2023/07/29	<0.50		mg/L	
			Total Strontium (Sr)	2023/07/29	<0.020		mg/L	
B049580	MPU	RPD	Total Sulphur (S)	2023/07/29	<0.20		mg/L	
			Total Barium (Ba)	2023/07/29	2.3		%	20
			Total Boron (B)	2023/07/29	5.1		%	20
			Total Calcium (Ca)	2023/07/29	2.3		%	20
			Total Iron (Fe)	2023/07/29	6.6		%	20
			Total Lithium (Li)	2023/07/29	2.7		%	20
			Total Magnesium (Mg)	2023/07/29	2.4		%	20
			Total Manganese (Mn)	2023/07/29	0.69		%	20
			Total Phosphorus (P)	2023/07/29	3.7		%	20
			Total Potassium (K)	2023/07/29	1.3		%	20
			Total Silicon (Si)	2023/07/29	0.59		%	20
			Total Sodium (Na)	2023/07/29	2.2		%	20
			Total Strontium (Sr)	2023/07/29	2.0		%	20
			Total Sulphur (S)	2023/07/29	0.58		%	20
B049737	VSC	Matrix Spike	Dissolved Calcium (Ca)	2023/07/27		101	%	80 - 120
			Dissolved Iron (Fe)	2023/07/27		109	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/27		102	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/27		107	%	80 - 120
			Dissolved Potassium (K)	2023/07/27		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/27		NC	%	80 - 120



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B049737	VSC	Spiked Blank	Dissolved Calcium (Ca)	2023/07/27		100	%	80 - 120
			Dissolved Iron (Fe)	2023/07/27		107	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/27		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/27		104	%	80 - 120
			Dissolved Potassium (K)	2023/07/27		103	%	80 - 120
			Dissolved Sodium (Na)	2023/07/27		101	%	80 - 120
B049737	VSC	Method Blank	Dissolved Calcium (Ca)	2023/07/27	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/27	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/27	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/27	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/27	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/27	<0.50		mg/L	
B049737	VSC	RPD	Dissolved Calcium (Ca)	2023/07/27	0.40		%	20
			Dissolved Iron (Fe)	2023/07/27	8.5		%	20
			Dissolved Magnesium (Mg)	2023/07/27	0.043		%	20
			Dissolved Manganese (Mn)	2023/07/27	2.3		%	20
			Dissolved Potassium (K)	2023/07/27	0.16		%	20
			Dissolved Sodium (Na)	2023/07/27	0.47		%	20
B049912	AZI	Matrix Spike	Total Dissolved Solids	2023/07/27		100	%	80 - 120
B049912	AZI	Spiked Blank	Total Dissolved Solids	2023/07/27		96	%	80 - 120
B049912	AZI	Method Blank	Total Dissolved Solids	2023/07/27	<10		mg/L	
B049912	AZI	RPD	Total Dissolved Solids	2023/07/27	0		%	20
B050605	KKM	Matrix Spike	Total Mercury (Hg)	2023/07/28		85	%	80 - 120
B050605	KKM	Spiked Blank	Total Mercury (Hg)	2023/07/28		105	%	80 - 120
B050605	KKM	Method Blank	Total Mercury (Hg)	2023/07/28	<0.0019		ug/L	
B050605	KKM	RPD	Total Mercury (Hg)	2023/07/28	NC		%	20
B051090	HE1	Matrix Spike [BVG422-01]	Total Dissolved Solids	2023/07/28		98	%	80 - 120
B051090	HE1	Spiked Blank	Total Dissolved Solids	2023/07/28		98	%	80 - 120
B051090	HE1	Method Blank	Total Dissolved Solids	2023/07/28	<10		mg/L	
B051090	HE1	RPD [BVG422-01]	Total Dissolved Solids	2023/07/28	13		%	20
B051094	AZI	Matrix Spike [BVG423-01]	Total Dissolved Solids	2023/07/28		97	%	80 - 120
B051094	AZI	Spiked Blank	Total Dissolved Solids	2023/07/28		96	%	80 - 120
B051094	AZI	Method Blank	Total Dissolved Solids	2023/07/28	<10		mg/L	
B051094	AZI	RPD [BVG423-01]	Total Dissolved Solids	2023/07/28	0		%	20
B051196	JVM	Spiked Blank	Alkalinity (Total as CaCO3)	2023/07/29		102	%	80 - 120
B051196	JVM	Method Blank	Alkalinity (PP as CaCO3)	2023/07/29	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/07/29	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/07/29	<1.0		mg/L	
			Carbonate (CO3)	2023/07/29	<1.0		mg/L	
			Hydroxide (OH)	2023/07/29	<1.0		mg/L	
B051196	JVM	RPD	Alkalinity (PP as CaCO3)	2023/07/29	NC		%	20
			Alkalinity (Total as CaCO3)	2023/07/29	1.9		%	20
			Bicarbonate (HCO3)	2023/07/29	1.9		%	20
			Carbonate (CO3)	2023/07/29	NC		%	20
			Hydroxide (OH)	2023/07/29	NC		%	20
B051216	JVM	Spiked Blank	pH	2023/07/29		100	%	97 - 103
B051216	JVM	RPD	pH	2023/07/29	1.3		%	N/A
B051217	JVM	Spiked Blank	Conductivity	2023/07/29		104	%	90 - 110
B051217	JVM	Method Blank	Conductivity	2023/07/29	<2.0		uS/cm	
B051217	JVM	RPD	Conductivity	2023/07/29	0.30		%	10
B051239	JVM	Spiked Blank	Alkalinity (Total as CaCO3)	2023/07/29		104	%	80 - 120
B051239	JVM	Method Blank	Alkalinity (PP as CaCO3)	2023/07/29	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/07/29	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/07/29	<1.0		mg/L	



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B051239	JVM	RPD	Carbonate (CO ₃)	2023/07/29	<1.0		mg/L	
			Hydroxide (OH)	2023/07/29	<1.0		mg/L	
			Alkalinity (PP as CaCO ₃)	2023/07/29	NC		%	20
			Alkalinity (Total as CaCO ₃)	2023/07/29	1.5		%	20
			Bicarbonate (HCO ₃)	2023/07/29	1.5		%	20
			Carbonate (CO ₃)	2023/07/29	NC		%	20
			Hydroxide (OH)	2023/07/29	NC		%	20
B051242	JVM	Spiked Blank	pH	2023/07/29		100	%	97 - 103
B051242	JVM	RPD	pH	2023/07/29	1.2		%	N/A
B051243	JVM	Spiked Blank	Conductivity	2023/07/29		102	%	90 - 110
B051243	JVM	Method Blank	Conductivity	2023/07/29	<2.0		uS/cm	
B051243	JVM	RPD	Conductivity	2023/07/29	0.23		%	10
B051429	HE1	Matrix Spike	Total Suspended Solids	2023/07/28		99	%	80 - 120
B051429	HE1	Spiked Blank	Total Suspended Solids	2023/07/28		98	%	80 - 120
B051429	HE1	Method Blank	Total Suspended Solids	2023/07/28	<1.0		mg/L	
B051429	HE1	RPD	Total Suspended Solids	2023/07/28	0		%	20
B051484	MPU	Matrix Spike [BVG421-04]	Dissolved Calcium (Ca)	2023/07/28		107	%	80 - 120
			Dissolved Iron (Fe)	2023/07/28		117	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/28		109	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/28		106	%	80 - 120
			Dissolved Potassium (K)	2023/07/28		107	%	80 - 120
			Dissolved Sodium (Na)	2023/07/28		105	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/28		99	%	80 - 120
B051484	MPU	Spiked Blank	Dissolved Iron (Fe)	2023/07/28		104	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/28		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/28		94	%	80 - 120
			Dissolved Potassium (K)	2023/07/28		99	%	80 - 120
			Dissolved Sodium (Na)	2023/07/28		99	%	80 - 120
			Dissolved Calcium (Ca)	2023/07/28	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/28	<0.060		mg/L	
B051484	MPU	Method Blank	Dissolved Magnesium (Mg)	2023/07/28	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/28	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/28	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/28	<0.50		mg/L	
			Dissolved Calcium (Ca)	2023/07/28	1.5		%	20
			Dissolved Iron (Fe)	2023/07/28	3.0		%	20
			Dissolved Magnesium (Mg)	2023/07/28	2.2		%	20
B051884	RY3	Matrix Spike	Dissolved Manganese (Mn)	2023/07/28	4.3		%	20
			Dissolved Potassium (K)	2023/07/28	0.68		%	20
			Dissolved Sodium (Na)	2023/07/28	0.24		%	20
			Total Bismuth (Bi)	2023/07/29		106	%	80 - 120
			Total Cesium (Cs)	2023/07/29		111	%	80 - 120
			Total Bismuth (Bi)	2023/07/29		102	%	80 - 120
			Total Cesium (Cs)	2023/07/29		103	%	80 - 120
B051884	RY3	Method Blank	Total Bismuth (Bi)	2023/07/29	<0.0010		mg/L	
			Total Cesium (Cs)	2023/07/29	<0.00020		mg/L	
B051884	RY3	RPD	Total Bismuth (Bi)	2023/07/29	NC		%	20
B052052	JVM	Spiked Blank	Alkalinity (Total as CaCO ₃)	2023/07/29		101	%	80 - 120
B052052	JVM	Method Blank	Alkalinity (PP as CaCO ₃)	2023/07/29	<1.0		mg/L	
			Alkalinity (Total as CaCO ₃)	2023/07/29	<1.0		mg/L	
			Bicarbonate (HCO ₃)	2023/07/29	<1.0		mg/L	
			Carbonate (CO ₃)	2023/07/29	<1.0		mg/L	
			Hydroxide (OH)	2023/07/29	<1.0		mg/L	
			Alkalinity (PP as CaCO ₃)	2023/07/29	16		%	20



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Alkalinity (Total as CaCO ₃)	2023/07/29	0.39		%	20
			Bicarbonate (HCO ₃)	2023/07/29	0.86		%	20
			Carbonate (CO ₃)	2023/07/29	16		%	20
			Hydroxide (OH)	2023/07/29	NC		%	20
B052054	JVM	Spiked Blank	pH	2023/07/29		100	%	97 - 103
B052054	JVM	RPD	pH	2023/07/29	0.0012		%	N/A
B052057	JVM	Spiked Blank	Conductivity	2023/07/29		101	%	90 - 110
B052057	JVM	Method Blank	Conductivity	2023/07/29	<2.0		uS/cm	
B052057	JVM	RPD	Conductivity	2023/07/29	0.66		%	10
B052082	MPU	Matrix Spike	Dissolved Calcium (Ca)	2023/07/28		NC	%	80 - 120
			Dissolved Iron (Fe)	2023/07/28		111	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/28		NC	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/28		NC	%	80 - 120
			Dissolved Potassium (K)	2023/07/28		101	%	80 - 120
			Dissolved Sodium (Na)	2023/07/28		NC	%	80 - 120
B052082	MPU	Spiked Blank	Dissolved Calcium (Ca)	2023/07/28		100	%	80 - 120
			Dissolved Iron (Fe)	2023/07/28		111	%	80 - 120
			Dissolved Magnesium (Mg)	2023/07/28		99	%	80 - 120
			Dissolved Manganese (Mn)	2023/07/28		108	%	80 - 120
			Dissolved Potassium (K)	2023/07/28		102	%	80 - 120
			Dissolved Sodium (Na)	2023/07/28		101	%	80 - 120
B052082	MPU	Method Blank	Dissolved Calcium (Ca)	2023/07/28	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/07/28	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/07/28	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/07/28	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/07/28	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/07/28	<0.50		mg/L	
B052082	MPU	RPD	Dissolved Calcium (Ca)	2023/07/29	1.3		%	20
			Dissolved Iron (Fe)	2023/07/29	10		%	20
			Dissolved Magnesium (Mg)	2023/07/29	1.2		%	20
			Dissolved Manganese (Mn)	2023/07/29	1.9		%	20
			Dissolved Potassium (K)	2023/07/29	1.7		%	20
			Dissolved Sodium (Na)	2023/07/29	0.96		%	20
B052612	CTU	Matrix Spike [BVG423-03]	Total Phosphorus (P)	2023/07/30		114	%	80 - 120
B052612	CTU	QC Standard	Total Phosphorus (P)	2023/07/30		91	%	80 - 120
B052612	CTU	Spiked Blank	Total Phosphorus (P)	2023/07/30		103	%	80 - 120
B052612	CTU	Method Blank	Total Phosphorus (P)	2023/07/30	<0.0030		mg/L	
B052612	CTU	RPD [BVG423-03]	Total Phosphorus (P)	2023/07/30	NC		%	20
B052616	MAP	Matrix Spike	Total Phosphorus (P)	2023/08/01		NC	%	80 - 120
B052616	MAP	QC Standard	Total Phosphorus (P)	2023/08/01		95	%	80 - 120
B052616	MAP	Spiked Blank	Total Phosphorus (P)	2023/08/01		104	%	80 - 120
B052616	MAP	Method Blank	Total Phosphorus (P)	2023/08/01	<0.0030		mg/L	
B052616	MAP	RPD	Total Phosphorus (P)	2023/08/01	2.3		%	20
B052627	JVM	Spiked Blank	Alkalinity (Total as CaCO ₃)	2023/07/30		103	%	80 - 120
B052627	JVM	Method Blank	Alkalinity (PP as CaCO ₃)	2023/07/30	<1.0		mg/L	
			Alkalinity (Total as CaCO ₃)	2023/07/30	<1.0		mg/L	
			Bicarbonate (HCO ₃)	2023/07/30	<1.0		mg/L	
			Carbonate (CO ₃)	2023/07/30	<1.0		mg/L	
			Hydroxide (OH)	2023/07/30	<1.0		mg/L	
B052627	JVM	RPD [BVG423-09]	Alkalinity (PP as CaCO ₃)	2023/07/30	NC		%	20
			Alkalinity (Total as CaCO ₃)	2023/07/30	5.3		%	20
			Bicarbonate (HCO ₃)	2023/07/30	5.3		%	20
			Carbonate (CO ₃)	2023/07/30	NC		%	20
			Hydroxide (OH)	2023/07/30	NC		%	20



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B052633	JVM	Spiked Blank	pH	2023/07/30		100	%	97 - 103
B052633	JVM	RPD [BVG423-09]	pH	2023/07/30	0.76		%	N/A
B052635	JVM	Spiked Blank	Conductivity	2023/07/30		104	%	90 - 110
B052635	JVM	Method Blank	Conductivity	2023/07/30	<2.0		uS/cm	
B052635	JVM	RPD [BVG423-09]	Conductivity	2023/07/30	0.49		%	10
B052728	MDO	Matrix Spike	Total Organic Carbon (C)	2023/07/31		92	%	80 - 120
B052728	MDO	Spiked Blank	Total Organic Carbon (C)	2023/07/31		112	%	80 - 120
B052728	MDO	Method Blank	Total Organic Carbon (C)	2023/07/31	<0.50		mg/L	
B052728	MDO	RPD	Total Organic Carbon (C)	2023/07/31	3.2		%	20
B052729	MDO	Matrix Spike	Total Organic Carbon (C)	2023/07/31		100	%	80 - 120
B052729	MDO	Spiked Blank	Total Organic Carbon (C)	2023/07/31		108	%	80 - 120
B052729	MDO	Method Blank	Total Organic Carbon (C)	2023/07/31	<0.50		mg/L	
B052729	MDO	RPD	Total Organic Carbon (C)	2023/07/31	NC		%	20
B052794	KKM	Matrix Spike	Total Mercury (Hg)	2023/07/29		97	%	80 - 120
B052794	KKM	Spiked Blank	Total Mercury (Hg)	2023/07/29		96	%	80 - 120
B052794	KKM	Method Blank	Total Mercury (Hg)	2023/07/29	<0.0019		ug/L	
B052794	KKM	RPD	Total Mercury (Hg)	2023/07/29	NC		%	20
B054171	SKM	Matrix Spike	Chloride (Cl)	2023/07/31		99	%	80 - 120
			Sulphate (SO4)	2023/07/31		95	%	80 - 120
B054171	SKM	Spiked Blank	Chloride (Cl)	2023/07/31		98	%	80 - 120
			Sulphate (SO4)	2023/07/31		98	%	80 - 120
B054171	SKM	Method Blank	Chloride (Cl)	2023/07/31	<1.0		mg/L	
			Sulphate (SO4)	2023/07/31	<1.0		mg/L	
B054171	SKM	RPD	Chloride (Cl)	2023/07/31	5.2		%	20
			Sulphate (SO4)	2023/07/31	0.79		%	20
B054195	SKM	Matrix Spike	Chloride (Cl)	2023/07/31		93	%	80 - 120
			Sulphate (SO4)	2023/07/31		96	%	80 - 120
B054195	SKM	Spiked Blank	Chloride (Cl)	2023/07/31		100	%	80 - 120
			Sulphate (SO4)	2023/07/31		97	%	80 - 120
B054195	SKM	Method Blank	Chloride (Cl)	2023/07/31	<1.0		mg/L	
			Sulphate (SO4)	2023/07/31	<1.0		mg/L	
B054195	SKM	RPD	Chloride (Cl)	2023/07/31	0.52		%	20
			Sulphate (SO4)	2023/07/31	0.68		%	20
B054197	SKM	Matrix Spike	Chloride (Cl)	2023/07/31		105	%	80 - 120
			Sulphate (SO4)	2023/07/31		113	%	80 - 120
B054197	SKM	Spiked Blank	Chloride (Cl)	2023/07/31		100	%	80 - 120
			Sulphate (SO4)	2023/07/31		97	%	80 - 120
B054197	SKM	Method Blank	Chloride (Cl)	2023/07/31	<1.0		mg/L	
			Sulphate (SO4)	2023/07/31	<1.0		mg/L	
B054197	SKM	RPD	Chloride (Cl)	2023/07/31	9.5		%	20
			Sulphate (SO4)	2023/07/31	NC (2)		%	20
B054250	AFI	Matrix Spike	Total Ammonia (N)	2023/07/31		90	%	80 - 120
B054250	AFI	Spiked Blank	Total Ammonia (N)	2023/08/01		96	%	80 - 120
B054250	AFI	Method Blank	Total Ammonia (N)	2023/07/31	<0.015		mg/L	
B054250	AFI	RPD	Total Ammonia (N)	2023/07/31	3.4		%	20
B054256	AFI	Matrix Spike [BVG424-08]	Total Ammonia (N)	2023/08/01		99	%	80 - 120
B054256	AFI	Spiked Blank	Total Ammonia (N)	2023/08/01		96	%	80 - 120
B054256	AFI	Method Blank	Total Ammonia (N)	2023/07/31	<0.015		mg/L	
B054256	AFI	RPD [BVG424-08]	Total Ammonia (N)	2023/08/01	NC		%	20
B054423	AFI	Matrix Spike [BVG425-08]	Total Ammonia (N)	2023/07/31		100	%	80 - 120
B054423	AFI	Spiked Blank	Total Ammonia (N)	2023/07/31		103	%	80 - 120
B054423	AFI	Method Blank	Total Ammonia (N)	2023/07/31	<0.015		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C356052
Report Date: 2023/08/02

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B054423	AFI	RPD [BVG425-08]	Total Ammonia (N)	2023/07/31	NC		%	20
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration) NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL). (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria. (2) Detection limits raised due to matrix interference.								



BUREAU
VERITAS

Bureau Veritas Job #: C356052

Report Date: 2023/08/02

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Rahul Suryawanshi, Senior Analyst

Jingyuan Song, QP, Organics – Senior Analyst

Sandy Yuan, M.Sc., QP, Scientific Specialist



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Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

22-Jul-23 08:30

Page 1 of 1

Parminder Virk



C356052

Bottle Order #: 700027

INVOICE TO:
Company Name #6699 AECOM CANADA LTD.
Contact Name BANE BROTSCHI
Address 18817 Stony Plain Road NW
EDMONTON AB T5S 0C2
Phone (587) 337-4190 Fax: (780) 486-7070
Email bane.brotschi@aecom.com

Report Information
Company Name AECOM Canada Ltd.
Contact Name JANINE MORRIS
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Phone (867) 446-3953 Fax:
Email janine.morris@aecom.com, bane.brotschi@aecom.com

Project Information
Quotation # C21789
P.O. #
Project # 60710609
Project Name
Site # Gordon Lake
Sampled By

S1C INS-0002



Chain Of Custody Record
C#700027-04-01

Project Manager
Parminder Virk

Regulatory Criteria

CCME

Special Instructions

Analysis Requested

Turnaround Time (TAT) Required

Please provide advance notice for rush projects

Regular (Standard) TAT

(will be applied if Rush TAT is not specified)

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

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

Job Specific Rush TAT (if applies to entire submission)

Date Required: Time Required:

Rush Confirmation Number

(call lab for #)

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

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

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Routine Water	Regulated Metals (CCME/AT1) - Total, Total Hg	Total Suspended Solids (NFR), TDS	AT1 BTEX and F1-F4 in Water	Ammonia-N (Total)	Total Phosphorus	Orthophosphate by Konelab	Carbon (Total Organic)	Total Metals - Bismuth, Cesium	# of Bottles	Comments
1	GLG-2023-00001-006	23/07/21		SW	N	Y	X	X	X	X	X	X	X	X	X	10	
2	GLG-2023-00001-015		1340				X	X	X	X	X	X	X	X	X	10	Received in Yellowknife
3	GLG-2023-00001-024		1355				X	X	X	X	X	X	X	X	X	10	By: J.M. Laff
4	GLG-2023-00001-025		1330				X	X	X	X	X	X	X	X	X	10	08:30 JUL 22 2023
5	GLG-2023-00001-026		1315				X	X	X	X	X	X	X	X	X	10	10-yr 10-nd
6	GLG-2023-00001-027		1300				X	X	X	X	X	X	X	X	X	10	Temp: 9/10/4
7	GLG-2023-00001-028		1300				X	X	X	X	X	X	X	X	X	10	9/7/3
8	GLG-2023-00001-019	23/07/21		SW	N	N	X	X	X	X	X	X	X	X	X	10	dissolved metals to be filtered
9																	
10																	

* RELINQUISHED BY: (Signature/Print)

Date: (YY/MM/DD)

Time

RECEIVED BY: (Signature/Print)

Date: (YY/MM/DD)

Time

Jars used and not submitted

Lab Use Only

Time Sensitive

Temperature (°C) on Receipt

Custody Seal Intact on Cooler?

☐

7.88

☒ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COOC-TERMS-AND-CONDITIONS.

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



mcal-07-1080

Bureau Veritas Canada (



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 706140-01-01, 706140-02-01

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/10/24
 Report #: R3415340
 Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379188

Received: 2023/09/30, 09:00

Sample Matrix: Water
 # Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	10	N/A	2023/10/13	AB SOP-00005	SM 24 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	10	N/A	2023/10/13	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	10	N/A	2023/10/14		Auto Calc
Cadmium - low level CCME - Dissolved (1)	3	N/A	2023/10/06		Auto Calc
Cadmium - low level CCME (Total) (1)	10	N/A	2023/10/06		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	5	N/A	2023/10/05	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Chloride/Sulphate by Auto Colourimetry (1)	5	N/A	2023/10/06	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Conductivity @25C (1)	10	N/A	2023/10/13	AB SOP-00005	SM 24 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	3	2023/10/08	2023/10/08	AB SOP-00037	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	7	2023/10/08	2023/10/09	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	7	N/A	2023/10/04		Auto Calc
Hardness (1)	1	N/A	2023/10/09		Auto Calc
Hardness (1)	1	N/A	2023/10/10		Auto Calc
Hardness (1)	1	N/A	2023/10/11		Auto Calc
Mercury (Total) by CV (1)	1	2023/10/04	2023/10/06	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV (1)	9	2023/10/04	2023/10/09	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	2	N/A	2023/10/09	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Dissolved (1, 3)	1	N/A	2023/10/11	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	7	N/A	2023/10/04	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	10	2023/10/05	2023/10/05	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Dissolved (1, 3)	2	N/A	2023/10/05	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Dissolved (1, 3)	1	N/A	2023/10/06	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Total (1)	10	2023/10/05	2023/10/05	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	10	N/A	2023/10/17		Auto Calc
Sum of cations, anions (1)	7	N/A	2023/10/04		Auto Calc
Sum of cations, anions (1)	1	N/A	2023/10/09		Auto Calc
Sum of cations, anions (1)	1	N/A	2023/10/10		Auto Calc
Sum of cations, anions (1)	1	N/A	2023/10/11		Auto Calc
Elements by CRC ICPMS (total) (1)	10	2023/10/04	2023/10/04	CAL SOP-00265	EPA 6020 m
Ammonia-N (Total) (1)	1	N/A	2023/10/05	AB SOP-00007	SM 24 4500 NH ₃ A G m



Your Project #: 60710609
 Site#: Gordon Lake
 Site Location: Gordon Lake
 Your C.O.C. #: 706140-01-01, 706140-02-01

AECOM CANADA LTD.
 18817 Stony Plain Road NW
 EDMONTON, AB
 CANADA T5S 0C2

Report Date: 2023/10/24
 Report #: R3415340
 Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379188

Received: 2023/09/30, 09:00

Sample Matrix: Water
 # Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Ammonia-N (Total) (1)	9	N/A	2023/10/06	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite (1)	10	N/A	2023/10/05		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	9	N/A	2023/10/04	AB SOP-00091	SM 24 4500 NO3m
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	1	N/A	2023/10/05	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N) (1)	10	2023/10/03	2023/10/05		Auto Calc
pH @25°C (1, 4)	10	N/A	2023/10/13	AB SOP-00005	SM 24 4500-H+B m
Orthophosphate by Automated Analyzer (1, 5)	9	N/A	2023/10/04	AB SOP-00025	SM 24 4500-P A,F m
Orthophosphate by Automated Analyzer (1, 5)	1	N/A	2023/10/10	AB SOP-00025	SM 24 4500-P A,F m
Total Dissolved Solids (Filt. Residue) (1)	5	2023/10/05	2023/10/06	AB SOP-00065	SM 24 2540 C m
Total Dissolved Solids (Filt. Residue) (1)	5	2023/10/18	2023/10/18	AB SOP-00065	SM 24 2540 C m
Total Dissolved Solids (Calculated) (1)	10	N/A	2023/10/13		Auto Calc
Carbon (Total Organic) (1, 6)	7	N/A	2023/10/08	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (1, 6)	3	N/A	2023/10/09	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	1	2023/10/05	2023/10/06	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	8	2023/10/05	2023/10/07	AB SOP-00024	SM 24 4500-P A,B,F m
Total Phosphorus (1)	1	2023/10/06	2023/10/07	AB SOP-00024	SM 24 4500-P A,B,F m
Total Suspended Solids (NFR) (1)	10	2023/10/23	2023/10/24	AB SOP-00061	SM 24 2540 D m
Turbidity (1)	10	N/A	2023/10/04	CAL SOP-00081	SM 24 2130 B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.



Your Project #: 60710609
Site#: Gordon Lake
Site Location: Gordon Lake
Your C.O.C. #: 706140-01-01, 706140-02-01

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Report Date: 2023/10/24
Report #: R3415340
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379188

Received: 2023/09/30, 09:00

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

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

- (1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8
- (2) Silica gel clean up employed.
- (3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
- (4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
- (5) Orthophosphate > Total Phosphorus Imbalance: When applicable, Orthophosphate, Total Phosphorus and dissolved Phosphorus results were reviewed and data quality meets acceptable levels unless otherwise noted.
- (6) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS502		CAS502		
Sampling Date		2023/09/29 17:35		2023/09/29 17:35		
COC Number		706140-01-01		706140-01-01		
	UNITS	GLG-2023-00002-006	RDL	GLG-2023-00002-006 Lab-Dup	RDL	QC Batch
Calculated Parameters						
Anion Sum	meq/L	1.2	N/A	N/A	N/A	B136207
Cation Sum	meq/L	1.1	N/A	N/A	N/A	B136207
Hardness (CaCO ₃)	mg/L	49	0.50	N/A	0.50	B136206
Ion Balance (% Difference)	%	NC	N/A	N/A	N/A	B136421
Nitrate (N)	mg/L	0.016	0.010	N/A	0.010	B136213
Nitrate (NO ₃)	mg/L	0.072	0.044	N/A	0.044	B136210
Nitrite (NO ₂)	mg/L	<0.033	0.033	N/A	0.033	B136210
Calculated Total Dissolved Solids	mg/L	63	10	N/A	10	B136216
Elements						
Total Cadmium (Cd)	ug/L	<0.020	0.020	N/A	0.020	B135916
Misc. Inorganics						
Conductivity	uS/cm	110	2.0	N/A	2.0	B148136
pH	pH	6.48	N/A	N/A	N/A	B148134
Total Organic Carbon (C)	mg/L	3.1	0.50	N/A	0.50	B144953
Total Dissolved Solids	mg/L	56 (1)	10	40	10	B158414
Total Suspended Solids	mg/L	<0.96	0.96	<0.99	0.99	B166325
Anions						
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	N/A	N/A	B148117
Alkalinity (Total as CaCO ₃)	mg/L	50	1.0	N/A	N/A	B148117
Bicarbonate (HCO ₃)	mg/L	62	1.0	N/A	N/A	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	N/A	N/A	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	N/A	N/A	B148117
Chloride (Cl)	mg/L	1.2	1.0	N/A	N/A	B141985
Sulphate (SO ₄)	mg/L	9.5	1.0	N/A	N/A	B141985
Nutrients						
Total Ammonia (N)	mg/L	0.022	0.015	N/A	N/A	B142353
Orthophosphate (P)	mg/L	<0.0030	0.0030	N/A	N/A	B139163
Total Phosphorus (P)	mg/L	0.0047	0.0030	N/A	N/A	B140970
Nitrite (N)	mg/L	<0.010	0.010	N/A	N/A	B138354
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						
N/A = Not Applicable						
(1) Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.						



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS502		CAS502		
Sampling Date		2023/09/29 17:35		2023/09/29 17:35		
COC Number		706140-01-01		706140-01-01		
	UNITS	GLG-2023-00002-006	RDL	GLG-2023-00002-006 Lab-Dup	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	0.016	0.010	N/A	N/A	B138354
Physical Properties						
Turbidity	NTU	<0.10	0.10	N/A	N/A	B137618
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable						



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS503			CAS504	CAS504		
Sampling Date		2023/09/29 14:20			2023/09/29 15:05	2023/09/29 15:05		
COC Number		706140-01-01			706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-007	RDL	QC Batch	GLG-2023-00002-008	GLG-2023-00002-008 Lab-Dup	RDL	QC Batch

Calculated Parameters

Anion Sum	meq/L	1.1	N/A	B136207	1.1	N/A	N/A	B136207
Cation Sum	meq/L	1.1	N/A	B136207	1.1	N/A	N/A	B136207
Hardness (CaCO ₃)	mg/L	47	0.50	B136206	47	N/A	0.50	B136206
Ion Balance (% Difference)	%	NC	N/A	B136421	NC	N/A	N/A	B136421
Nitrate (N)	mg/L	<0.010	0.010	B136213	<0.010	N/A	0.010	B136213
Nitrate (NO ₃)	mg/L	<0.044	0.044	B136210	<0.044	N/A	0.044	B136210
Nitrite (NO ₂)	mg/L	<0.033	0.033	B136210	<0.033	N/A	0.033	B136210
Calculated Total Dissolved Solids	mg/L	56	10	B136216	56	N/A	10	B136216

Elements

Total Cadmium (Cd)	ug/L	<0.020	0.020	B135916	<0.020	N/A	0.020	B135916
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Misc. Inorganics

Conductivity	uS/cm	100	2.0	B148136	100	N/A	2.0	B148136
pH	pH	6.47	N/A	B148134	6.47	N/A	N/A	B148134
Total Organic Carbon (C)	mg/L	3.0	0.50	B144953	2.5	N/A	0.50	B144953
Total Dissolved Solids	mg/L	52 (1)	10	B158414	48 (1)	N/A	10	B158414
Total Suspended Solids	mg/L	<1.0	1.0	B166325	<0.99	N/A	0.99	B166325

Anions

Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Alkalinity (Total as CaCO ₃)	mg/L	44	1.0	B148117	45	N/A	1.0	B148117
Bicarbonate (HCO ₃)	mg/L	54	1.0	B148117	54	N/A	1.0	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Chloride (Cl)	mg/L	1.2	1.0	B142582	1.3	1.2	1.0	B139528
Sulphate (SO ₄)	mg/L	7.7	1.0	B142582	7.7	7.8	1.0	B139528

Nutrients

Total Ammonia (N)	mg/L	<0.015	0.015	B142353	<0.015	N/A	0.015	B140287
Orthophosphate (P)	mg/L	<0.0030	0.0030	B139163	<0.0030	N/A	0.0030	B139163
Total Phosphorus (P)	mg/L	<0.0030	0.0030	B140970	<0.0030	N/A	0.0030	B140970
Nitrite (N)	mg/L	<0.010	0.010	B138354	<0.010	<0.010	0.010	B138314

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.



**BUREAU
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Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS503			CAS504	CAS504		
Sampling Date		2023/09/29 14:20			2023/09/29 15:05	2023/09/29 15:05		
COC Number		706140-01-01			706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-007	RDL	QC Batch	GLG-2023-00002-008	GLG-2023-00002-008 Lab-Dup	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	<0.010	0.010	B138354	<0.010	<0.010	0.010	B138314
Physical Properties								
Turbidity	NTU	<0.10	0.10	B137618	<0.10	N/A	0.10	B137618
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								

BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS505			CAS506		
Sampling Date		2023/09/29 13:45			2023/09/29 12:00		
COC Number		706140-01-01			706140-01-01		
	UNITS	GLG-2023-00002-009	RDL	QC Batch	GLG-2023-00002-010	RDL	QC Batch

Calculated Parameters

Anion Sum	meq/L	1.2	N/A	B136207	1.2	N/A	B136207
Cation Sum	meq/L	1.2	N/A	B136207	1.2	N/A	B136207
Hardness (CaCO ₃)	mg/L	52	0.50	B136206	52	0.50	B136206
Ion Balance (% Difference)	%	NC	N/A	B136421	NC	N/A	B136421
Nitrate (N)	mg/L	<0.010	0.010	B136213	<0.050	0.050	B136213
Nitrate (NO ₃)	mg/L	<0.044	0.044	B136210	<0.22	0.22	B136210
Nitrite (NO ₂)	mg/L	<0.033	0.033	B136210	<0.033	0.033	B136210
Calculated Total Dissolved Solids	mg/L	66	10	B136216	65	10	B136216

Elements

Total Cadmium (Cd)	ug/L	<0.020	0.020	B135916	<0.020	0.020	B135916
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Misc. Inorganics

Conductivity	uS/cm	120	2.0	B148136	110	2.0	B148136
pH	pH	6.47	N/A	B148134	6.44	N/A	B148134
Total Organic Carbon (C)	mg/L	3.6	0.50	B144953	3.3	0.50	B144953
Total Dissolved Solids	mg/L	56 (1)	10	B158414	52 (1)	10	B158414
Total Suspended Solids	mg/L	5.9	1.0	B166325	3.1	1.0	B166325

Anions

Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B148117	<1.0	1.0	B148117
Alkalinity (Total as CaCO ₃)	mg/L	47	1.0	B148117	45	1.0	B148117
Bicarbonate (HCO ₃)	mg/L	57	1.0	B148117	55	1.0	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	B148117	<1.0	1.0	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	B148117	<1.0	1.0	B148117
Chloride (Cl)	mg/L	1.4	1.0	B141985	1.1	1.0	B141986
Sulphate (SO ₄)	mg/L	13	1.0	B141985	14	1.0	B141986

Nutrients

Total Ammonia (N)	mg/L	<0.015	0.015	B142353	<0.015	0.015	B142353
Orthophosphate (P)	mg/L	<0.0030	0.0030	B139163	<0.0030	0.0030	B139163
Total Phosphorus (P)	mg/L	0.051	0.0030	B140970	0.019	0.0030	B140970
Nitrite (N)	mg/L	<0.010	0.010	B138354	<0.010	0.010	B138738

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS505			CAS506		
Sampling Date		2023/09/29 13:45			2023/09/29 12:00		
COC Number		706140-01-01			706140-01-01		
	UNITS	GLG-2023-00002-009	RDL	QC Batch	GLG-2023-00002-010	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	<0.010	0.010	B138354	<0.050 (1)	0.050	B138738
Physical Properties							
Turbidity	NTU	8.7	0.10	B137618	3.5	0.10	B137618
RDL = Reportable Detection Limit							
(1) Detection limits raised due to matrix interference.							



BUREAU
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Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS507			CAS508	CAS508		
Sampling Date		2023/09/29 14:40			2023/09/29 17:55	2023/09/29 17:55		
COC Number		706140-01-01			706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-011	RDL	QC Batch	GLG-2023-00002-012	GLG-2023-00002-012 Lab-Dup	RDL	QC Batch

Calculated Parameters								
Anion Sum	meq/L	1.1	N/A	B136207	1.0	N/A	N/A	B136207
Cation Sum	meq/L	1.1	N/A	B136207	1.1	N/A	N/A	B136207
Hardness (CaCO ₃)	mg/L	47	0.50	B136206	47	N/A	0.50	B136206
Ion Balance (% Difference)	%	NC	N/A	B136421	NC	N/A	N/A	B136421
Nitrate (N)	mg/L	0.012	0.010	B136213	0.011	N/A	0.010	B136213
Nitrate (NO ₃)	mg/L	0.053	0.044	B136210	0.048	N/A	0.044	B136210
Nitrite (NO ₂)	mg/L	<0.033	0.033	B136210	<0.033	N/A	0.033	B136210
Calculated Total Dissolved Solids	mg/L	57	10	B136216	54	N/A	10	B136433
Elements								
Total Cadmium (Cd)	ug/L	<0.020	0.020	B135916	<0.020	N/A	0.020	B135916
Misc. Inorganics								
Conductivity	uS/cm	100	2.0	B148136	100	N/A	2.0	B148136
pH	pH	6.45	N/A	B148134	6.46	N/A	N/A	B148134
Total Organic Carbon (C)	mg/L	2.8	0.50	B145363	3.0	N/A	0.50	B145363
Total Dissolved Solids	mg/L	72	10	B139708	88	N/A	10	B139708
Total Suspended Solids	mg/L	<0.99	0.99	B166325	<1.0	N/A	1.0	B166325
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Alkalinity (Total as CaCO ₃)	mg/L	46	1.0	B148117	45	N/A	1.0	B148117
Bicarbonate (HCO ₃)	mg/L	56	1.0	B148117	54	N/A	1.0	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Chloride (Cl)	mg/L	1.2	1.0	B141985	<1.0	N/A	1.0	B141985
Sulphate (SO ₄)	mg/L	7.7	1.0	B141985	7.3	N/A	1.0	B141985
Nutrients								
Total Ammonia (N)	mg/L	<0.015	0.015	B142353	<0.015	N/A	0.015	B142353
Orthophosphate (P)	mg/L	<0.0030	0.0030	B139163	<0.0030	<0.0030	0.0030	B146148
Total Phosphorus (P)	mg/L	<0.0030	0.0030	B142123	<0.0030	N/A	0.0030	B140078
Nitrite (N)	mg/L	<0.010	0.010	B138354	<0.010	N/A	0.010	B138354
Nitrate plus Nitrite (N)	mg/L	0.012	0.010	B138354	0.011	N/A	0.010	B138354
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								
N/A = Not Applicable								



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS507			CAS508	CAS508		
Sampling Date		2023/09/29 14:40			2023/09/29 17:55	2023/09/29 17:55		
COC Number		706140-01-01			706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-011	RDL	QC Batch	GLG-2023-00002-012	GLG-2023-00002-012 Lab-Dup	RDL	QC Batch

Physical Properties

Turbidity	NTU	<0.10	0.10	B138163	<0.10	N/A	0.10	B138163
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS509			CAS510	CAS510		
Sampling Date		2023/09/29 12:30			2023/09/29 14:30	2023/09/29 14:30		
COC Number		706140-01-01			706140-02-01	706140-02-01		
	UNITS	GLG-2023-00002-020	RDL	QC Batch	GLG-2023-00002-001	GLG-2023-00002-001 Lab-Dup	RDL	QC Batch

Calculated Parameters

Anion Sum	meq/L	39	N/A	B136207	31	N/A	N/A	B136207
Cation Sum	meq/L	43	N/A	B136207	35	N/A	N/A	B136207
Hardness (CaCO ₃)	mg/L	1800	0.50	B136206	1400	N/A	0.50	B136206
Ion Balance (% Difference)	%	5.9	N/A	B136184	5.5	N/A	N/A	B136184
Nitrate (N)	mg/L	<0.050	0.050	B136213	<0.050	N/A	0.050	B136213
Nitrate (NO ₃)	mg/L	<0.22	0.22	B136210	<0.22	N/A	0.22	B136210
Nitrite (NO ₂)	mg/L	<0.16	0.16	B136210	<0.033	N/A	0.033	B136210
Calculated Total Dissolved Solids	mg/L	2600	25	B136216	1900	N/A	10	B136216

Elements

Dissolved Cadmium (Cd)	ug/L	0.033	0.020	B136412	<0.020	N/A	0.020	B136414
Total Cadmium (Cd)	ug/L	0.86	0.020	B135916	<0.020	N/A	0.020	B135916

Misc. Inorganics

Conductivity	uS/cm	2900	2.0	B148136	2400	N/A	2.0	B148136
pH	pH	7.68	N/A	B148134	8.02	N/A	N/A	B148134
Total Organic Carbon (C)	mg/L	6.1	0.50	B145363	18	N/A	0.50	B144953
Total Dissolved Solids	mg/L	2700	10	B139708	1900	1800	10	B139700
Total Suspended Solids	mg/L	65	1.0	B166325	60	N/A	0.97	B166325

Anions

Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Alkalinity (Total as CaCO ₃)	mg/L	310	1.0	B148117	760	N/A	1.0	B148117
Bicarbonate (HCO ₃)	mg/L	380	1.0	B148117	930	N/A	1.0	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	B148117	<1.0	N/A	1.0	B148117
Chloride (Cl)	mg/L	17	1.0	B141986	38	N/A	1.0	B141985
Sulphate (SO ₄)	mg/L	1500	25	B141986	710	N/A	10	B141985

Nutrients

Total Ammonia (N)	mg/L	0.98	0.015	B142353	1.5	N/A	0.015	B142353
Orthophosphate (P)	mg/L	<0.0030	0.0030	B139163	<0.0030	N/A	0.0030	B139163
Total Phosphorus (P)	mg/L	0.0071	0.0030	B140970	0.013	N/A	0.0030	B140970

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



**BUREAU
VERITAS**

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS509			CAS510	CAS510		
Sampling Date		2023/09/29 12:30			2023/09/29 14:30	2023/09/29 14:30		
COC Number		706140-01-01			706140-02-01	706140-02-01		
	UNITS	GLG-2023-00002-020	RDL	QC Batch	GLG-2023-00002-001	GLG-2023-00002-001 Lab-Dup	RDL	QC Batch
Nitrite (N)	mg/L	<0.050 (1)	0.050	B138354	<0.010	N/A	0.010	B138354
Nitrate plus Nitrite (N)	mg/L	<0.050 (1)	0.050	B138354	<0.050 (1)	N/A	0.050	B138354
Physical Properties								
Turbidity	NTU	280	0.10	B138163	320	N/A	0.10	B138163
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference.								

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch
Calculated Parameters				
Anion Sum	meq/L	9.3	N/A	B136207
Cation Sum	meq/L	9.5	N/A	B136207
Hardness (CaCO ₃)	mg/L	410	0.50	B136206
Ion Balance (% Difference)	%	1.0	N/A	B136184
Nitrate (N)	mg/L	0.013	0.010	B136213
Nitrate (NO ₃)	mg/L	0.059	0.044	B136210
Nitrite (NO ₂)	mg/L	<0.033	0.033	B136210
Calculated Total Dissolved Solids	mg/L	530	10	B136216
Elements				
Dissolved Cadmium (Cd)	ug/L	0.025	0.020	B136412
Total Cadmium (Cd)	ug/L	0.091	0.020	B135916
Misc. Inorganics				
Conductivity	uS/cm	810	2.0	B148136
pH	pH	8.14	N/A	B148134
Total Organic Carbon (C)	mg/L	13	0.50	B144953
Total Dissolved Solids	mg/L	530	10	B139700
Total Suspended Solids	mg/L	19	1.0	B166325
Anions				
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B148117
Alkalinity (Total as CaCO ₃)	mg/L	310	1.0	B148117
Bicarbonate (HCO ₃)	mg/L	370	1.0	B148117
Carbonate (CO ₃)	mg/L	<1.0	1.0	B148117
Hydroxide (OH)	mg/L	<1.0	1.0	B148117
Chloride (Cl)	mg/L	4.1	1.0	B141986
Sulphate (SO ₄)	mg/L	150	5.0	B141986
Nutrients				
Total Ammonia (N)	mg/L	0.42	0.015	B142353
Orthophosphate (P)	mg/L	<0.0030	0.0030	B139163
Total Phosphorus (P)	mg/L	0.0052	0.0030	B140970
Nitrite (N)	mg/L	<0.010	0.010	B138354
Nitrate plus Nitrite (N)	mg/L	0.013	0.010	B138354
RDL = Reportable Detection Limit				
N/A = Not Applicable				



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch
Physical Properties				
Turbidity	NTU	97 (1)	0.20	B138163
RDL = Reportable Detection Limit				
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.				



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		CAS502	CAS503	CAS504	CAS505		
Sampling Date		2023/09/29 17:35	2023/09/29 14:20	2023/09/29 15:05	2023/09/29 13:45		
COC Number		706140-01-01	706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-006	GLG-2023-00002-007	GLG-2023-00002-008	GLG-2023-00002-009	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136732
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136732
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B136732
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	97	96	96	94	N/A	B136732
RDL = Reportable Detection Limit							
N/A = Not Applicable							

Bureau Veritas ID		CAS506	CAS507	CAS508	CAS509		
Sampling Date		2023/09/29 12:00	2023/09/29 14:40	2023/09/29 17:55	2023/09/29 12:30		
COC Number		706140-01-01	706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-010	GLG-2023-00002-011	GLG-2023-00002-012	GLG-2023-00002-020	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.10	0.10	B136732
F3 (C16-C34 Hydrocarbons)	mg/L	0.11	<0.10	<0.10	<0.10	0.10	B136732
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B136732
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	98	99	101	100	N/A	B136732
RDL = Reportable Detection Limit							
N/A = Not Applicable							

Bureau Veritas ID		CAS510	CAS511		
Sampling Date		2023/09/29 14:30	2023/09/29 12:50		
COC Number		706140-02-01	706140-02-01		
	UNITS	GLG-2023-00002-001	GLG-2023-00002-002	RDL	QC Batch

Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	1.0	0.10	B136732
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	0.11	0.10	B136732
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	0.20	B136732
Surrogate Recovery (%)					
O-TERPHENYL (sur.)	%	99	100	N/A	B136732
RDL = Reportable Detection Limit					
N/A = Not Applicable					



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Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

MERCURY BY COLD VAPOR (WATER)

Bureau Veritas ID		CAS502		CAS503		CAS504		
Sampling Date		2023/09/29 17:35		2023/09/29 14:20		2023/09/29 15:05		
COC Number		706140-01-01		706140-01-01		706140-01-01		
	UNITS	GLG-2023-00002-006	QC Batch	GLG-2023-00002-007	QC Batch	GLG-2023-00002-008	RDL	QC Batch

Elements								
Total Mercury (Hg)	ug/L	<0.0019	B142675	<0.0019	B142806	<0.0019	0.0019	B142675
RDL = Reportable Detection Limit								

Bureau Veritas ID		CAS505		CAS506		CAS507		
Sampling Date		2023/09/29 13:45		2023/09/29 12:00		2023/09/29 14:40		
COC Number		706140-01-01		706140-01-01		706140-01-01		
	UNITS	GLG-2023-00002-009	QC Batch	GLG-2023-00002-010	GLG-2023-00002-011	RDL	QC Batch	

Elements								
Total Mercury (Hg)	ug/L	<0.0019	B142675	<0.0019	<0.0019	0.0019	B142804	
RDL = Reportable Detection Limit								

Bureau Veritas ID		CAS508		CAS509		CAS510		
Sampling Date		2023/09/29 17:55		2023/09/29 12:30		2023/09/29 14:30		
COC Number		706140-01-01		706140-01-01		706140-02-01		
	UNITS	GLG-2023-00002-012	QC Batch	GLG-2023-00002-020	QC Batch	GLG-2023-00002-001	RDL	QC Batch

Elements								
Total Mercury (Hg)	ug/L	<0.0019	B142804	<0.0019	B142678	<0.0019	0.0019	B142806
RDL = Reportable Detection Limit								

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch

Elements				
Total Mercury (Hg)	ug/L	0.0027	0.0019	B142806
RDL = Reportable Detection Limit				



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Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS502	CAS503	CAS504	CAS505		
Sampling Date		2023/09/29 17:35	2023/09/29 14:20	2023/09/29 15:05	2023/09/29 13:45		
COC Number		706140-01-01	706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-006	GLG-2023-00002-007	GLG-2023-00002-008	GLG-2023-00002-009	RDL	QC Batch

Elements							
Total Aluminum (Al)	mg/L	0.012	0.014	0.018	0.062	0.0030	B139980
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	<0.00060	0.0011	0.00060	B139980
Total Arsenic (As)	mg/L	0.00063	0.00029	0.00029	0.00027	0.00020	B139980
Total Barium (Ba)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	B139981
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Boron (B)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	B139981
Total Calcium (Ca)	mg/L	14	13	13	15	0.30	B139981
Total Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Cobalt (Co)	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	0.00030	B139980
Total Copper (Cu)	mg/L	<0.0010	<0.0010	<0.0010	0.0016	0.0010	B139980
Total Iron (Fe)	mg/L	<0.060	<0.060	<0.060	0.12	0.060	B139981
Total Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Lithium (Li)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	B139981
Total Magnesium (Mg)	mg/L	3.4	3.3	3.3	3.7	0.20	B139981
Total Manganese (Mn)	mg/L	0.0041	<0.0040	<0.0040	0.0075	0.0040	B139981
Total Molybdenum (Mo)	mg/L	0.00021	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Nickel (Ni)	mg/L	<0.00050	<0.00050	0.00053	0.0011	0.00050	B139980
Total Phosphorus (P)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B139981
Total Potassium (K)	mg/L	1.5	1.5	1.6	1.8	0.30	B139981
Total Selenium (Se)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Silicon (Si)	mg/L	<0.50	<0.50	<0.50	<0.50	0.50	B139981
Total Silver (Ag)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	B139980
Total Sodium (Na)	mg/L	2.5	2.4	2.5	2.8	0.50	B139981
Total Strontium (Sr)	mg/L	0.046	0.042	0.044	0.049	0.020	B139981
Total Sulphur (S)	mg/L	2.9	2.7	2.9	4.7	0.20	B139981
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Tin (Sn)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Titanium (Ti)	mg/L	<0.0010	<0.0010	<0.0010	0.0026	0.0010	B139980
Total Uranium (U)	mg/L	0.00017	0.00011	0.00014	0.00014	0.00010	B139980
Total Vanadium (V)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Zinc (Zn)	mg/L	<0.0030	<0.0030	<0.0030	0.0031	0.0030	B139980

RDL = Reportable Detection Limit



**BUREAU
VERITAS**

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS502	CAS503	CAS504	CAS505		
Sampling Date		2023/09/29 17:35	2023/09/29 14:20	2023/09/29 15:05	2023/09/29 13:45		
COC Number		706140-01-01	706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-006	GLG-2023-00002-007	GLG-2023-00002-008	GLG-2023-00002-009	RDL	QC Batch

Lab Filtered Elements

Dissolved Calcium (Ca)	mg/L	14	13	13	15	0.30	B138022
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	<0.060	<0.060	0.060	B138022
Dissolved Magnesium (Mg)	mg/L	3.6	3.5	3.5	3.8	0.20	B138022
Dissolved Manganese (Mn)	mg/L	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	B138022
Dissolved Potassium (K)	mg/L	1.5	1.5	1.5	1.7	0.30	B138022
Dissolved Sodium (Na)	mg/L	2.5	2.4	2.5	2.7	0.50	B138022

Total Metals by ICPMS

Total Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B138381
Total Cesium (Cs)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	B138381

RDL = Reportable Detection Limit

BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS506	CAS507	CAS508		
Sampling Date		2023/09/29 12:00	2023/09/29 14:40	2023/09/29 17:55		
COC Number		706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-010	GLG-2023-00002-011	GLG-2023-00002-012	RDL	QC Batch
Elements						
Total Aluminum (Al)	mg/L	0.053	0.015	0.012	0.0030	B139980
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	<0.00060	0.00060	B139980
Total Arsenic (As)	mg/L	0.00039	0.00037	0.00030	0.00020	B139980
Total Barium (Ba)	mg/L	<0.010	<0.010	<0.010	0.010	B139981
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Boron (B)	mg/L	<0.020	<0.020	<0.020	0.020	B139981
Total Calcium (Ca)	mg/L	14	13	13	0.30	B139981
Total Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Cobalt (Co)	mg/L	<0.00030	<0.00030	<0.00030	0.00030	B139980
Total Copper (Cu)	mg/L	0.0036	<0.0010	<0.0010	0.0010	B139980
Total Iron (Fe)	mg/L	0.066	<0.060	<0.060	0.060	B139981
Total Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Lithium (Li)	mg/L	<0.020	<0.020	<0.020	0.020	B139981
Total Magnesium (Mg)	mg/L	3.6	3.3	3.2	0.20	B139981
Total Manganese (Mn)	mg/L	0.0064	<0.0040	<0.0040	0.0040	B139981
Total Molybdenum (Mo)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Nickel (Ni)	mg/L	0.0011	<0.00050	<0.00050	0.00050	B139980
Total Phosphorus (P)	mg/L	<0.10	<0.10	<0.10	0.10	B139981
Total Potassium (K)	mg/L	1.7	1.5	1.5	0.30	B139981
Total Selenium (Se)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Silicon (Si)	mg/L	<0.50	<0.50	<0.50	0.50	B139981
Total Silver (Ag)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	B139980
Total Sodium (Na)	mg/L	2.7	2.4	2.4	0.50	B139981
Total Strontium (Sr)	mg/L	0.047	0.042	0.042	0.020	B139981
Total Sulphur (S)	mg/L	4.3	2.7	2.7	0.20	B139981
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B139980
Total Tin (Sn)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Titanium (Ti)	mg/L	0.0015	<0.0010	<0.0010	0.0010	B139980
Total Uranium (U)	mg/L	0.00015	0.00011	0.00012	0.00010	B139980
Total Vanadium (V)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B139980
Total Zinc (Zn)	mg/L	<0.0030	<0.0030	<0.0030	0.0030	B139980
RDL = Reportable Detection Limit						



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS506	CAS507	CAS508		
Sampling Date		2023/09/29 12:00	2023/09/29 14:40	2023/09/29 17:55		
COC Number		706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-010	GLG-2023-00002-011	GLG-2023-00002-012	RDL	QC Batch

Lab Filtered Elements						
Dissolved Calcium (Ca)	mg/L	14	13	13	0.30	B138022
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	<0.060	0.060	B138022
Dissolved Magnesium (Mg)	mg/L	3.8	3.5	3.4	0.20	B138022
Dissolved Manganese (Mn)	mg/L	<0.0040	<0.0040	<0.0040	0.0040	B138022
Dissolved Potassium (K)	mg/L	1.7	1.5	1.5	0.30	B138022
Dissolved Sodium (Na)	mg/L	2.7	2.5	2.4	0.50	B138022
Total Metals by ICPMS						
Total Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B138381
Total Cesium (Cs)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B138381

RDL = Reportable Detection Limit



BUREAU
VERITAS

Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS509	CAS509			CAS510		
Sampling Date		2023/09/29 12:30	2023/09/29 12:30			2023/09/29 14:30		
COC Number		706140-01-01	706140-01-01			706140-02-01		
	UNITS	GLG-2023-00002-020	GLG-2023-00002-020 Lab-Dup	RDL	QC Batch	GLG-2023-00002-001	RDL	QC Batch

Elements								
Dissolved Aluminum (Al)	mg/L	0.0052	0.0051	0.0030	B142634	0.011	0.0030	B139399
Total Aluminum (Al)	mg/L	0.16	N/A	0.0030	B139980	0.026	0.0030	B139980
Dissolved Antimony (Sb)	mg/L	<0.00060	<0.00060	0.00060	B142634	<0.00060	0.00060	B139399
Total Antimony (Sb)	mg/L	<0.00060	N/A	0.00060	B139980	<0.00060	0.00060	B139980
Dissolved Arsenic (As)	mg/L	0.014	0.014	0.00020	B142634	0.015	0.00020	B139399
Total Arsenic (As)	mg/L	0.024	N/A	0.00020	B139980	0.018	0.00020	B139980
Dissolved Barium (Ba)	mg/L	0.020	N/A	0.010	B148419	0.33	0.010	B141807
Total Barium (Ba)	mg/L	0.022	N/A	0.010	B139981	0.32	0.010	B139981
Dissolved Beryllium (Be)	mg/L	<0.0010	<0.0010	0.0010	B142634	<0.0010	0.0010	B139399
Total Beryllium (Be)	mg/L	<0.0010	N/A	0.0010	B139980	<0.0010	0.0010	B139980
Dissolved Boron (B)	mg/L	0.13	N/A	0.020	B148419	0.12	0.020	B141807
Total Boron (B)	mg/L	0.14	N/A	0.020	B139981	0.11	0.020	B139981
Dissolved Calcium (Ca)	mg/L	500	N/A	0.30	B148419	380	0.30	B141807
Total Calcium (Ca)	mg/L	500	N/A	1.5	B139981	370	0.30	B139981
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	0.0010	B142634	<0.0010	0.0010	B139399
Total Chromium (Cr)	mg/L	<0.0010	N/A	0.0010	B139980	<0.0010	0.0010	B139980
Dissolved Cobalt (Co)	mg/L	0.023	0.024	0.00030	B142634	0.020	0.00030	B139399
Total Cobalt (Co)	mg/L	0.033	N/A	0.00030	B139980	0.021	0.00030	B139980
Dissolved Copper (Cu)	mg/L	<0.0010	<0.0010	0.0010	B142634	<0.0010	0.0010	B139399
Total Copper (Cu)	mg/L	0.0031	N/A	0.0010	B139980	<0.0010	0.0010	B139980
Dissolved Iron (Fe)	mg/L	44	N/A	0.060	B148419	30	0.060	B141807
Total Iron (Fe)	mg/L	55	N/A	0.060	B139981	31	0.060	B139981
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	0.00020	B142634	<0.00020	0.00020	B139399
Total Lead (Pb)	mg/L	0.00073	N/A	0.00020	B139980	<0.00020	0.00020	B139980
Dissolved Lithium (Li)	mg/L	0.040	N/A	0.020	B148419	0.035	0.020	B141807
Total Lithium (Li)	mg/L	0.048	N/A	0.020	B139981	0.036	0.020	B139981
Dissolved Magnesium (Mg)	mg/L	140	N/A	0.20	B148419	110	0.20	B141807
Total Magnesium (Mg)	mg/L	150	N/A	0.20	B139981	110	0.20	B139981
Dissolved Manganese (Mn)	mg/L	4.4	N/A	0.0040	B148419	4.8	0.0040	B141807
Total Manganese (Mn)	mg/L	4.8	N/A	0.0040	B139981	4.9	0.0040	B139981

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS509	CAS509			CAS510		
Sampling Date		2023/09/29 12:30	2023/09/29 12:30			2023/09/29 14:30		
COC Number		706140-01-01	706140-01-01			706140-02-01		
	UNITS	GLG-2023-00002-020	GLG-2023-00002-020 Lab-Dup	RDL	QC Batch	GLG-2023-00002-001	RDL	QC Batch
Dissolved Molybdenum (Mo)	mg/L	0.0015	0.0016	0.00020	B142634	0.00025	0.00020	B139399
Total Molybdenum (Mo)	mg/L	0.0020	N/A	0.00020	B139980	0.00085	0.00020	B139980
Dissolved Nickel (Ni)	mg/L	0.040	0.041	0.00050	B142634	0.00079	0.00050	B139399
Total Nickel (Ni)	mg/L	0.042	N/A	0.00050	B139980	0.0017	0.00050	B139980
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	0.10	B148419	<0.10	0.10	B141807
Total Phosphorus (P)	mg/L	<0.10	N/A	0.10	B139981	0.10	0.10	B139981
Dissolved Potassium (K)	mg/L	46	N/A	0.30	B148419	27	0.30	B141807
Total Potassium (K)	mg/L	50	N/A	0.30	B139981	26	0.30	B139981
Dissolved Selenium (Se)	mg/L	<0.00020	0.00023	0.00020	B142634	<0.00020	0.00020	B139399
Total Selenium (Se)	mg/L	0.00030	N/A	0.00020	B139980	<0.00020	0.00020	B139980
Dissolved Silicon (Si)	mg/L	9.7	N/A	0.50	B148419	10	0.50	B141807
Total Silicon (Si)	mg/L	11	N/A	0.50	B139981	11	0.50	B139981
Dissolved Silver (Ag)	mg/L	<0.00010	<0.00010	0.00010	B142634	<0.00010	0.00010	B139399
Total Silver (Ag)	mg/L	<0.00010	N/A	0.00010	B139980	<0.00010	0.00010	B139980
Dissolved Sodium (Na)	mg/L	87	N/A	0.50	B148419	120	0.50	B141807
Total Sodium (Na)	mg/L	84	N/A	0.50	B139981	110	0.50	B139981
Dissolved Strontium (Sr)	mg/L	4.0	N/A	0.020	B148419	2.2	0.020	B141807
Total Strontium (Sr)	mg/L	4.1	N/A	0.020	B139981	2.1	0.020	B139981
Dissolved Sulphur (S)	mg/L	510	N/A	1.0	B148419	270	0.20	B141807
Total Sulphur (S)	mg/L	570	N/A	1.0	B139981	260	0.20	B139981
Dissolved Thallium (Tl)	mg/L	<0.00020	<0.00020	0.00020	B142634	<0.00020	0.00020	B139399
Total Thallium (Tl)	mg/L	<0.00020	N/A	0.00020	B139980	<0.00020	0.00020	B139980
Dissolved Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	B142634	<0.0010	0.0010	B139399
Total Tin (Sn)	mg/L	<0.0010	N/A	0.0010	B139980	<0.0010	0.0010	B139980
Dissolved Titanium (Ti)	mg/L	<0.0010	<0.0010	0.0010	B142634	0.0012	0.0010	B139399
Total Titanium (Ti)	mg/L	<0.0010	N/A	0.0010	B139980	0.0014	0.0010	B139980
Dissolved Uranium (U)	mg/L	0.0014	0.0014	0.00010	B142634	0.011	0.00010	B139399
Total Uranium (U)	mg/L	0.0017	N/A	0.00010	B139980	0.012	0.00010	B139980
Dissolved Vanadium (V)	mg/L	<0.0010	<0.0010	0.0010	B142634	0.0012	0.0010	B139399
Total Vanadium (V)	mg/L	<0.0010	N/A	0.0010	B139980	0.0013	0.0010	B139980
Dissolved Zinc (Zn)	mg/L	0.073	0.073	0.0030	B142634	<0.0030	0.0030	B139399

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



**BUREAU
VERITAS**

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS509	CAS509			CAS510		
Sampling Date		2023/09/29 12:30	2023/09/29 12:30			2023/09/29 14:30		
COC Number		706140-01-01	706140-01-01			706140-02-01		
	UNITS	GLG-2023-00002-020	GLG-2023-00002-020 Lab-Dup	RDL	QC Batch	GLG-2023-00002-001	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.13	N/A	0.0030	B139980	<0.0030	0.0030	B139980
Total Metals by ICPMS								
Total Bismuth (Bi)	mg/L	<0.0010	N/A	0.0010	B138381	<0.0010	0.0010	B138381
Total Cesium (Cs)	mg/L	<0.00020	N/A	0.00020	B138381	<0.00020	0.00020	B138381
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch
Elements				
Dissolved Aluminum (Al)	mg/L	0.040	0.0030	B139399
Total Aluminum (Al)	mg/L	0.055	0.0030	B139980
Dissolved Antimony (Sb)	mg/L	<0.00060	0.00060	B139399
Total Antimony (Sb)	mg/L	0.00086	0.00060	B139980
Dissolved Arsenic (As)	mg/L	0.014	0.00020	B139399
Total Arsenic (As)	mg/L	0.017	0.00020	B139980
Dissolved Barium (Ba)	mg/L	0.058	0.010	B145453
Total Barium (Ba)	mg/L	0.067	0.010	B139981
Dissolved Beryllium (Be)	mg/L	<0.0010	0.0010	B139399
Total Beryllium (Be)	mg/L	<0.0010	0.0010	B139980
Dissolved Boron (B)	mg/L	0.053	0.020	B145453
Total Boron (B)	mg/L	0.049	0.020	B139981
Dissolved Calcium (Ca)	mg/L	140	0.30	B145453
Total Calcium (Ca)	mg/L	150	0.30	B139981
Dissolved Chromium (Cr)	mg/L	<0.0010	0.0010	B139399
Total Chromium (Cr)	mg/L	<0.0010	0.0010	B139980
Dissolved Cobalt (Co)	mg/L	0.0045	0.00030	B139399
Total Cobalt (Co)	mg/L	0.0051	0.00030	B139980
Dissolved Copper (Cu)	mg/L	0.0011	0.0010	B139399
Total Copper (Cu)	mg/L	0.0041	0.0010	B139980
Dissolved Iron (Fe)	mg/L	10	0.060	B145453
Total Iron (Fe)	mg/L	11	0.060	B139981
Dissolved Lead (Pb)	mg/L	0.00028	0.00020	B139399
Total Lead (Pb)	mg/L	0.0011	0.00020	B139980
Dissolved Lithium (Li)	mg/L	0.027	0.023	B145453
Total Lithium (Li)	mg/L	<0.020	0.020	B139981
Dissolved Magnesium (Mg)	mg/L	15	0.20	B145453
Total Magnesium (Mg)	mg/L	17	0.20	B139981
Dissolved Manganese (Mn)	mg/L	4.3	0.0040	B145453
Total Manganese (Mn)	mg/L	4.8	0.0040	B139981
Dissolved Molybdenum (Mo)	mg/L	0.0016	0.00020	B139399
Total Molybdenum (Mo)	mg/L	0.0020	0.00020	B139980
RDL = Reportable Detection Limit				



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch
Dissolved Nickel (Ni)	mg/L	0.010	0.00050	B139399
Total Nickel (Ni)	mg/L	0.012	0.00050	B139980
Dissolved Phosphorus (P)	mg/L	<0.10	0.10	B145453
Total Phosphorus (P)	mg/L	<0.10	0.10	B139981
Dissolved Potassium (K)	mg/L	4.5	0.30	B145453
Total Potassium (K)	mg/L	4.7	0.30	B139981
Dissolved Selenium (Se)	mg/L	<0.00020	0.00020	B139399
Total Selenium (Se)	mg/L	<0.00020	0.00020	B139980
Dissolved Silicon (Si)	mg/L	7.5	0.50	B145453
Total Silicon (Si)	mg/L	8.1	0.50	B139981
Dissolved Silver (Ag)	mg/L	<0.00010	0.00010	B139399
Total Silver (Ag)	mg/L	<0.00010	0.00010	B139980
Dissolved Sodium (Na)	mg/L	14	0.50	B145453
Total Sodium (Na)	mg/L	14	0.50	B139981
Dissolved Strontium (Sr)	mg/L	0.34	0.020	B145453
Total Strontium (Sr)	mg/L	0.40	0.020	B139981
Dissolved Sulphur (S)	mg/L	50	0.20	B145453
Total Sulphur (S)	mg/L	51	0.20	B139981
Dissolved Thallium (Tl)	mg/L	<0.00020	0.00020	B139399
Total Thallium (Tl)	mg/L	<0.00020	0.00020	B139980
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	B139399
Total Tin (Sn)	mg/L	<0.0010	0.0010	B139980
Dissolved Titanium (Ti)	mg/L	<0.0010	0.0010	B139399
Total Titanium (Ti)	mg/L	<0.0010	0.0010	B139980
Dissolved Uranium (U)	mg/L	0.0014	0.00010	B139399
Total Uranium (U)	mg/L	0.0015	0.00010	B139980
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	B139399
Total Vanadium (V)	mg/L	<0.0010	0.0010	B139980
Dissolved Zinc (Zn)	mg/L	0.0042	0.0030	B139399
Total Zinc (Zn)	mg/L	0.0042	0.0030	B139980
Total Metals by ICPMS				
Total Bismuth (Bi)	mg/L	<0.0010	0.0010	B138381
RDL = Reportable Detection Limit				



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAS511		
Sampling Date		2023/09/29 12:50		
COC Number		706140-02-01		
	UNITS	GLG-2023-00002-002	RDL	QC Batch
Total Cesium (Cs)	mg/L	<0.00020	0.00020	B138381
RDL = Reportable Detection Limit				



BUREAU
VERITAS

Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CAS502	CAS503	CAS504	CAS505		
Sampling Date		2023/09/29 17:35	2023/09/29 14:20	2023/09/29 15:05	2023/09/29 13:45		
COC Number		706140-01-01	706140-01-01	706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-006	GLG-2023-00002-007	GLG-2023-00002-008	GLG-2023-00002-009	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140801
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140801
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140801
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B140801
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140801
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	<0.89	0.89	B136296
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	B136296
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B140801
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	107	105	105	105	N/A	B140801
4-Bromofluorobenzene (sur.)	%	95	94	95	94	N/A	B140801
D4-1,2-Dichloroethane (sur.)	%	100	99	100	100	N/A	B140801

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID		CAS506		CAS507	CAS508		
Sampling Date		2023/09/29 12:00		2023/09/29 14:40	2023/09/29 17:55		
COC Number		706140-01-01		706140-01-01	706140-01-01		
	UNITS	GLG-2023-00002-010	QC Batch	GLG-2023-00002-011	GLG-2023-00002-012	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	B140801	<0.40	<0.40	0.40	B140801
Toluene	ug/L	<0.40	B140801	<0.40	<0.40	0.40	B140801
Ethylbenzene	ug/L	<0.40	B140801	<0.40	<0.40	0.40	B140801
m & p-Xylene	ug/L	<0.80	B140801	<0.80	<0.80	0.80	B140801
o-Xylene	ug/L	<0.40	B140801	<0.40	<0.40	0.40	B140801
Xylenes (Total)	ug/L	<0.89	B136296	<0.89	<0.89	0.89	B136408
F1 (C6-C10) - BTEX	ug/L	<100	B136296	<100	<100	100	B136408
F1 (C6-C10)	ug/L	<100	B140801	<100	<100	100	B140801
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	105	B140801	105	105	N/A	B140801
4-Bromofluorobenzene (sur.)	%	95	B140801	95	95	N/A	B140801
D4-1,2-Dichloroethane (sur.)	%	101	B140801	101	100	N/A	B140801

RDL = Reportable Detection Limit

N/A = Not Applicable



VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CAS509	CAS510	CAS511		
Sampling Date		2023/09/29 12:30	2023/09/29 14:30	2023/09/29 12:50		
COC Number		706140-01-01	706140-02-01	706140-02-01		
	UNITS	GLG-2023-00002-020	GLG-2023-00002-001	GLG-2023-00002-002	RDL	QC Batch
Volatiles						
Benzene	ug/L	3.4	<0.40	<0.40	0.40	B140801
Toluene	ug/L	2.2	<0.40	<0.40	0.40	B140801
Ethylbenzene	ug/L	<0.40	<0.40	2.1	0.40	B140801
m & p-Xylene	ug/L	1.0	<0.80	3.2	0.80	B140801
o-Xylene	ug/L	0.51	<0.40	<0.40	0.40	B140801
Xylenes (Total)	ug/L	1.5	<0.89	3.2	0.89	B136296
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	100	B136296
F1 (C6-C10)	ug/L	<100	<100	<100	100	B140801
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	105	105	106	N/A	B140801
4-Bromofluorobenzene (sur.)	%	96	95	96	N/A	B140801
D4-1,2-Dichloroethane (sur.)	%	100	102	101	N/A	B140801
RDL = Reportable Detection Limit						
N/A = Not Applicable						



GENERAL COMMENTS

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

Package 1	7.0°C
Package 2	6.0°C

Version 2: Report re-issued to provide results for parameters requested on the original Chain of custody. Results for TSS on all samples have been added. Analyzed past hold time as per client request on 23/10/23.

Sample CAS502 [GLG-2023-00002-006] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS503 [GLG-2023-00002-007] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS504 [GLG-2023-00002-008] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS505 [GLG-2023-00002-009] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS506 [GLG-2023-00002-010] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS507 [GLG-2023-00002-011] : Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAS508 [GLG-2023-00002-012] : Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Orthophosphate by Automated Analyzer. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAS509 [GLG-2023-00002-020] : Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.



Sample CAS510 [GLG-2023-00002-001] : Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAS511 [GLG-2023-00002-002] : Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

RESULTS OF CHEMICAL ANALYSES OF WATER Comments

Sample CAS506 [GLG-2023-00002-010] NO₂ (N); NO₂ (N) + NO₃ (N) in Water: Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.

Results relate only to the items tested.



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B136732	BQU	Spiked Blank	O-TERPHENYL (sur.)	2023/10/08		102	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/10/08		72	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/10/08		112	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/10/08		101	%	60 - 140
B136732	BQU	Method Blank	O-TERPHENYL (sur.)	2023/10/09		100	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/10/09	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/10/09	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/10/09	<0.20		mg/L	
B137618	RTM	Spiked Blank	Turbidity	2023/10/04		102	%	80 - 120
B137618	RTM	Method Blank	Turbidity	2023/10/04	<0.10		NTU	
B137618	RTM	RPD	Turbidity	2023/10/04	14		%	20
B138022	VSC	Matrix Spike	Dissolved Calcium (Ca)	2023/10/04		97	%	80 - 120
			Dissolved Iron (Fe)	2023/10/04		101	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/04		110	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/04		99	%	80 - 120
			Dissolved Potassium (K)	2023/10/04		99	%	80 - 120
			Dissolved Sodium (Na)	2023/10/04		89	%	80 - 120
B138022	VSC	Spiked Blank	Dissolved Calcium (Ca)	2023/10/04		98	%	80 - 120
			Dissolved Iron (Fe)	2023/10/04		104	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/04		110	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/04		100	%	80 - 120
			Dissolved Potassium (K)	2023/10/04		99	%	80 - 120
			Dissolved Sodium (Na)	2023/10/04		95	%	80 - 120
B138022	VSC	Method Blank	Dissolved Calcium (Ca)	2023/10/04	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/10/04	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/10/04	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/10/04	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/10/04	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/10/04	<0.50		mg/L	
B138022	VSC	RPD	Dissolved Calcium (Ca)	2023/10/04	0.37		%	20
			Dissolved Magnesium (Mg)	2023/10/04	1.2		%	20
B138163	RTM	Spiked Blank	Turbidity	2023/10/04		102	%	80 - 120
B138163	RTM	Method Blank	Turbidity	2023/10/04	<0.10		NTU	
B138163	RTM	RPD	Turbidity	2023/10/04	12		%	20
B138314	AFI	Matrix Spike [CAS504-01]	Nitrite (N)	2023/10/04		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		113	%	80 - 120
B138314	AFI	Spiked Blank	Nitrite (N)	2023/10/04		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		108	%	80 - 120
B138314	AFI	Method Blank	Nitrite (N)	2023/10/04	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/04	<0.010		mg/L	
B138314	AFI	RPD [CAS504-01]	Nitrite (N)	2023/10/04	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/04	NC		%	20
B138354	AFI	Matrix Spike	Nitrite (N)	2023/10/04		100	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		102	%	80 - 120
B138354	AFI	Spiked Blank	Nitrite (N)	2023/10/04		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		102	%	80 - 120
B138354	AFI	Method Blank	Nitrite (N)	2023/10/04	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/04	<0.010		mg/L	
B138354	AFI	RPD	Nitrite (N)	2023/10/04	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/04	NC		%	20
B138381	MKJ	Matrix Spike	Total Bismuth (Bi)	2023/10/04		97	%	80 - 120
			Total Cesium (Cs)	2023/10/04		105	%	80 - 120
B138381	MKJ	Spiked Blank	Total Bismuth (Bi)	2023/10/04		101	%	80 - 120
			Total Cesium (Cs)	2023/10/04		101	%	80 - 120



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B138381	MKJ	Method Blank	Total Bismuth (Bi)	2023/10/04	<0.0010		mg/L	
			Total Cesium (Cs)	2023/10/04	<0.00020		mg/L	
B138381	MKJ	RPD	Total Bismuth (Bi)	2023/10/04	NC		%	20
B138738	AFI	Matrix Spike	Nitrite (N)	2023/10/04		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		108	%	80 - 120
B138738	AFI	Spiked Blank	Nitrite (N)	2023/10/04		101	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/04		97	%	80 - 120
B138738	AFI	Method Blank	Nitrite (N)	2023/10/04	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/04	<0.010		mg/L	
B138738	AFI	RPD	Nitrite (N)	2023/10/04	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/04	NC		%	20
B139163	CTU	Matrix Spike [CAS508-01]	Orthophosphate (P)	2023/10/04		101	%	80 - 120
B139163	CTU	Spiked Blank	Orthophosphate (P)	2023/10/04		103	%	80 - 120
B139163	CTU	Method Blank	Orthophosphate (P)	2023/10/04	<0.0030		mg/L	
B139399	JAB	Matrix Spike	Dissolved Aluminum (Al)	2023/10/05		95	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/05		91	%	80 - 120
			Dissolved Arsenic (As)	2023/10/05		90	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/05		87	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/05		88	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/05		87	%	80 - 120
			Dissolved Copper (Cu)	2023/10/05		86	%	80 - 120
			Dissolved Lead (Pb)	2023/10/05		84	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/05		93	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/05		84	%	80 - 120
			Dissolved Selenium (Se)	2023/10/05		86	%	80 - 120
			Dissolved Silver (Ag)	2023/10/05		85	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/05		85	%	80 - 120
			Dissolved Tin (Sn)	2023/10/05		91	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/05		89	%	80 - 120
			Dissolved Uranium (U)	2023/10/05		85	%	80 - 120
			Dissolved Vanadium (V)	2023/10/05		90	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/05		85	%	80 - 120
B139399	JAB	Spiked Blank	Dissolved Aluminum (Al)	2023/10/05		106	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/05		100	%	80 - 120
			Dissolved Arsenic (As)	2023/10/05		98	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/05		92	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/05		95	%	80 - 120
			Dissolved Copper (Cu)	2023/10/05		94	%	80 - 120
			Dissolved Lead (Pb)	2023/10/05		93	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/05		99	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/05		95	%	80 - 120
			Dissolved Selenium (Se)	2023/10/05		96	%	80 - 120
			Dissolved Silver (Ag)	2023/10/05		93	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/05		93	%	80 - 120
			Dissolved Tin (Sn)	2023/10/05		97	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/05		98	%	80 - 120
			Dissolved Uranium (U)	2023/10/05		94	%	80 - 120
			Dissolved Vanadium (V)	2023/10/05		95	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/05		94	%	80 - 120
B139399	JAB	Method Blank	Dissolved Aluminum (Al)	2023/10/05	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2023/10/05	<0.00060		mg/L	
			Dissolved Arsenic (As)	2023/10/05	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2023/10/05	<0.0010		mg/L	



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B139399	JAB	RPD	Dissolved Chromium (Cr)	2023/10/05	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2023/10/05	<0.00030		mg/L	
			Dissolved Copper (Cu)	2023/10/05	<0.0010		mg/L	
			Dissolved Lead (Pb)	2023/10/05	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2023/10/05	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2023/10/05	<0.00050		mg/L	
			Dissolved Selenium (Se)	2023/10/05	<0.00020		mg/L	
			Dissolved Silver (Ag)	2023/10/05	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2023/10/05	<0.00020		mg/L	
			Dissolved Tin (Sn)	2023/10/05	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2023/10/05	<0.0010		mg/L	
			Dissolved Uranium (U)	2023/10/05	<0.00010		mg/L	
			Dissolved Vanadium (V)	2023/10/05	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2023/10/05	<0.0030		mg/L	
			Dissolved Aluminum (Al)	2023/10/05	0.38		%	20
			Dissolved Antimony (Sb)	2023/10/05	NC		%	20
			Dissolved Arsenic (As)	2023/10/05	2.4		%	20
			Dissolved Beryllium (Be)	2023/10/05	NC		%	20
			Dissolved Chromium (Cr)	2023/10/05	NC		%	20
			Dissolved Cobalt (Co)	2023/10/05	NC		%	20
			Dissolved Copper (Cu)	2023/10/05	8.1		%	20
			Dissolved Lead (Pb)	2023/10/05	NC		%	20
			Dissolved Molybdenum (Mo)	2023/10/05	5.4		%	20
			Dissolved Nickel (Ni)	2023/10/05	3.3		%	20
			Dissolved Selenium (Se)	2023/10/05	6.7		%	20
			Dissolved Silver (Ag)	2023/10/05	NC		%	20
			Dissolved Thallium (Tl)	2023/10/05	NC		%	20
			Dissolved Tin (Sn)	2023/10/05	NC		%	20
			Dissolved Titanium (Ti)	2023/10/05	NC		%	20
			Dissolved Uranium (U)	2023/10/05	2.4		%	20
			Dissolved Vanadium (V)	2023/10/05	0.79		%	20
			Dissolved Zinc (Zn)	2023/10/05	NC		%	20
B139528	TOR	Matrix Spike [CAS504-01]	Chloride (Cl)	2023/10/05		103	%	80 - 120
B139528	TOR	Spiked Blank	Sulphate (SO4)	2023/10/05		101	%	80 - 120
			Chloride (Cl)	2023/10/05		100	%	80 - 120
B139528	TOR	Method Blank	Sulphate (SO4)	2023/10/05		101	%	80 - 120
			Chloride (Cl)	2023/10/05	<1.0		mg/L	
B139528	TOR	RPD [CAS504-01]	Sulphate (SO4)	2023/10/05	<1.0		mg/L	
			Chloride (Cl)	2023/10/05	4.0		%	20
B139700	RTM	Matrix Spike [CAS510-05]	Sulphate (SO4)	2023/10/05	1.1		%	20
			Total Dissolved Solids	2023/10/06		97	%	80 - 120
B139700	RTM	Spiked Blank	Total Dissolved Solids	2023/10/06		96	%	80 - 120
B139700	RTM	Method Blank	Total Dissolved Solids	2023/10/06	<10		mg/L	
B139700	RTM	RPD [CAS510-05]	Total Dissolved Solids	2023/10/06	0.87		%	20
B139708	AZI	Matrix Spike	Total Dissolved Solids	2023/10/06		106	%	80 - 120
B139708	AZI	Spiked Blank	Total Dissolved Solids	2023/10/06		96	%	80 - 120
B139708	AZI	Method Blank	Total Dissolved Solids	2023/10/06	<10		mg/L	
B139708	AZI	RPD	Total Dissolved Solids	2023/10/06	1.6		%	20
B139980	JAB	Matrix Spike	Total Aluminum (Al)	2023/10/06		122 (1)	%	80 - 120
			Total Antimony (Sb)	2023/10/06		118	%	80 - 120
			Total Arsenic (As)	2023/10/06		119	%	80 - 120
			Total Beryllium (Be)	2023/10/06		118	%	80 - 120
			Total Chromium (Cr)	2023/10/06		117	%	80 - 120
			Total Cobalt (Co)	2023/10/06		115	%	80 - 120



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B139980	JAB	Spiked Blank	Total Copper (Cu)	2023/10/06		111	%	80 - 120	
			Total Lead (Pb)	2023/10/06		113	%	80 - 120	
			Total Molybdenum (Mo)	2023/10/06		109	%	80 - 120	
			Total Nickel (Ni)	2023/10/06		113	%	80 - 120	
			Total Selenium (Se)	2023/10/06		93	%	80 - 120	
			Total Silver (Ag)	2023/10/06		113	%	80 - 120	
			Total Thallium (Tl)	2023/10/06		112	%	80 - 120	
			Total Tin (Sn)	2023/10/06		120	%	80 - 120	
			Total Titanium (Ti)	2023/10/06		94	%	80 - 120	
			Total Uranium (U)	2023/10/06		115	%	80 - 120	
			Total Vanadium (V)	2023/10/06		120	%	80 - 120	
			Total Zinc (Zn)	2023/10/06		113	%	80 - 120	
			Total Aluminum (Al)	2023/10/05		99	%	80 - 120	
			Total Antimony (Sb)	2023/10/05		113	%	80 - 120	
			Total Arsenic (As)	2023/10/05		99	%	80 - 120	
			Total Beryllium (Be)	2023/10/05		97	%	80 - 120	
			Total Chromium (Cr)	2023/10/05		97	%	80 - 120	
			Total Cobalt (Co)	2023/10/05		97	%	80 - 120	
			Total Copper (Cu)	2023/10/05		96	%	80 - 120	
			Total Lead (Pb)	2023/10/05		95	%	80 - 120	
			Total Molybdenum (Mo)	2023/10/05		97	%	80 - 120	
			Total Nickel (Ni)	2023/10/05		96	%	80 - 120	
			Total Selenium (Se)	2023/10/05		100	%	80 - 120	
			Total Silver (Ag)	2023/10/05		94	%	80 - 120	
			Total Thallium (Tl)	2023/10/05		94	%	80 - 120	
			Total Tin (Sn)	2023/10/05		96	%	80 - 120	
			Total Titanium (Ti)	2023/10/05		98	%	80 - 120	
			Total Uranium (U)	2023/10/05		95	%	80 - 120	
			Total Vanadium (V)	2023/10/05		99	%	80 - 120	
			Total Zinc (Zn)	2023/10/05		97	%	80 - 120	
B139980	JAB	Method Blank	Total Aluminum (Al)	2023/10/05	<0.0030		mg/L		
			Total Antimony (Sb)	2023/10/05	<0.00060		mg/L		
			Total Arsenic (As)	2023/10/05	<0.00020		mg/L		
			Total Beryllium (Be)	2023/10/05	<0.0010		mg/L		
			Total Chromium (Cr)	2023/10/05	<0.0010		mg/L		
			Total Cobalt (Co)	2023/10/05	<0.00030		mg/L		
			Total Copper (Cu)	2023/10/05	<0.0010		mg/L		
			Total Lead (Pb)	2023/10/05	<0.00020		mg/L		
			Total Molybdenum (Mo)	2023/10/05	<0.00020		mg/L		
			Total Nickel (Ni)	2023/10/05	<0.00050		mg/L		
			Total Selenium (Se)	2023/10/05	<0.00020		mg/L		
			Total Silver (Ag)	2023/10/05	<0.00010		mg/L		
			Total Thallium (Tl)	2023/10/05	<0.00020		mg/L		
			Total Tin (Sn)	2023/10/05	<0.0010		mg/L		
			Total Titanium (Ti)	2023/10/05	<0.0010		mg/L		
			Total Uranium (U)	2023/10/05	<0.00010		mg/L		
			Total Vanadium (V)	2023/10/05	<0.0010		mg/L		
			Total Zinc (Zn)	2023/10/05	<0.0030		mg/L		
B139980	JAB	RPD	Total Aluminum (Al)	2023/10/05	6.1		%	20	
			Total Antimony (Sb)	2023/10/05	NC		%	20	
			Total Arsenic (As)	2023/10/05	1.0		%	20	
			Total Beryllium (Be)	2023/10/05	NC		%	20	
			Total Chromium (Cr)	2023/10/05	NC		%	20	
			Total Cobalt (Co)	2023/10/05	NC		%	20	



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				Total Copper (Cu)	2023/10/05	NC		%	20
				Total Lead (Pb)	2023/10/05	NC		%	20
				Total Molybdenum (Mo)	2023/10/05	14		%	20
				Total Nickel (Ni)	2023/10/05	NC		%	20
				Total Selenium (Se)	2023/10/05	NC		%	20
				Total Silver (Ag)	2023/10/05	NC		%	20
				Total Thallium (Tl)	2023/10/05	NC		%	20
				Total Tin (Sn)	2023/10/05	NC		%	20
				Total Titanium (Ti)	2023/10/05	NC		%	20
				Total Uranium (U)	2023/10/05	2.0		%	20
				Total Vanadium (V)	2023/10/05	11		%	20
				Total Zinc (Zn)	2023/10/05	NC		%	20
B139981	MPU		Matrix Spike	Total Barium (Ba)	2023/10/05		103	%	80 - 120
				Total Boron (B)	2023/10/05		100	%	80 - 120
				Total Calcium (Ca)	2023/10/05		NC	%	80 - 120
				Total Iron (Fe)	2023/10/05		115	%	80 - 120
				Total Lithium (Li)	2023/10/05		104	%	80 - 120
				Total Magnesium (Mg)	2023/10/05		110	%	80 - 120
				Total Manganese (Mn)	2023/10/05		113	%	80 - 120
				Total Phosphorus (P)	2023/10/05		112	%	80 - 120
				Total Potassium (K)	2023/10/05		104	%	80 - 120
				Total Silicon (Si)	2023/10/05		104	%	80 - 120
				Total Sodium (Na)	2023/10/05		99	%	80 - 120
				Total Strontium (Sr)	2023/10/05		99	%	80 - 120
				Total Sulphur (S)	2023/10/05		104	%	80 - 120
B139981	MPU		Spiked Blank	Total Barium (Ba)	2023/10/05		99	%	80 - 120
				Total Boron (B)	2023/10/05		96	%	80 - 120
				Total Calcium (Ca)	2023/10/05		101	%	80 - 120
				Total Iron (Fe)	2023/10/05		109	%	80 - 120
				Total Lithium (Li)	2023/10/05		100	%	80 - 120
				Total Magnesium (Mg)	2023/10/05		107	%	80 - 120
				Total Manganese (Mn)	2023/10/05		107	%	80 - 120
				Total Phosphorus (P)	2023/10/05		107	%	80 - 120
				Total Potassium (K)	2023/10/05		99	%	80 - 120
				Total Silicon (Si)	2023/10/05		101	%	80 - 120
				Total Sodium (Na)	2023/10/05		95	%	80 - 120
				Total Strontium (Sr)	2023/10/05		95	%	80 - 120
				Total Sulphur (S)	2023/10/05		99	%	80 - 120
B139981	MPU		Method Blank	Total Barium (Ba)	2023/10/05	<0.010		mg/L	
				Total Boron (B)	2023/10/05	<0.020		mg/L	
				Total Calcium (Ca)	2023/10/05	<0.30		mg/L	
				Total Iron (Fe)	2023/10/05	<0.060		mg/L	
				Total Lithium (Li)	2023/10/05	<0.020		mg/L	
				Total Magnesium (Mg)	2023/10/05	<0.20		mg/L	
				Total Manganese (Mn)	2023/10/05	<0.0040		mg/L	
				Total Phosphorus (P)	2023/10/05	<0.10		mg/L	
				Total Potassium (K)	2023/10/05	<0.30		mg/L	
				Total Silicon (Si)	2023/10/05	<0.50		mg/L	
				Total Sodium (Na)	2023/10/05	<0.50		mg/L	
				Total Strontium (Sr)	2023/10/05	<0.020		mg/L	
				Total Sulphur (S)	2023/10/05	<0.20		mg/L	
B139981	MPU		RPD	Total Barium (Ba)	2023/10/05	1.1		%	20
				Total Boron (B)	2023/10/05	2.0		%	20
				Total Calcium (Ca)	2023/10/05	0.75		%	20



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			Total Iron (Fe)	2023/10/05	1.9		%	20
			Total Lithium (Li)	2023/10/05	1.0		%	20
			Total Magnesium (Mg)	2023/10/05	1.5		%	20
			Total Manganese (Mn)	2023/10/05	1.9		%	20
			Total Phosphorus (P)	2023/10/05	NC		%	20
			Total Potassium (K)	2023/10/05	1.2		%	20
			Total Silicon (Si)	2023/10/05	1.3		%	20
			Total Sodium (Na)	2023/10/05	0.59		%	20
			Total Strontium (Sr)	2023/10/05	0.52		%	20
			Total Sulphur (S)	2023/10/05	4.8		%	20
B140078	CTU	Matrix Spike	Total Phosphorus (P)	2023/10/06		115	%	80 - 120
B140078	CTU	QC Standard	Total Phosphorus (P)	2023/10/06		88	%	80 - 120
B140078	CTU	Spiked Blank	Total Phosphorus (P)	2023/10/06		98	%	80 - 120
B140078	CTU	Method Blank	Total Phosphorus (P)	2023/10/06	<0.0030		mg/L	
B140078	CTU	RPD	Total Phosphorus (P)	2023/10/06	5.2		%	20
B140287	AFI	Matrix Spike	Total Ammonia (N)	2023/10/05		100	%	80 - 120
B140287	AFI	Spiked Blank	Total Ammonia (N)	2023/10/05		105	%	80 - 120
B140287	AFI	Method Blank	Total Ammonia (N)	2023/10/05	<0.015		mg/L	
B140287	AFI	RPD	Total Ammonia (N)	2023/10/05	0.75		%	20
B140801	SNA	Matrix Spike	1,4-Difluorobenzene (sur.)	2023/10/14		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/14		102	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/14		100	%	50 - 140
			Benzene	2023/10/14		97	%	50 - 140
			Toluene	2023/10/14		97	%	50 - 140
			Ethylbenzene	2023/10/14		100	%	50 - 140
			m & p-Xylene	2023/10/14		101	%	50 - 140
			o-Xylene	2023/10/14		99	%	50 - 140
			F1 (C6-C10)	2023/10/14		114	%	60 - 140
B140801	SNA	Spiked Blank	1,4-Difluorobenzene (sur.)	2023/10/14		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/14		101	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/14		98	%	50 - 140
			Benzene	2023/10/14		95	%	60 - 130
			Toluene	2023/10/14		96	%	60 - 130
			Ethylbenzene	2023/10/14		100	%	60 - 130
			m & p-Xylene	2023/10/14		100	%	60 - 130
			o-Xylene	2023/10/14		98	%	60 - 130
			F1 (C6-C10)	2023/10/14		99	%	60 - 140
B140801	SNA	Method Blank	1,4-Difluorobenzene (sur.)	2023/10/13		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/13		98	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/13		102	%	50 - 140
			Benzene	2023/10/13	<0.40		ug/L	
			Toluene	2023/10/13	<0.40		ug/L	
			Ethylbenzene	2023/10/13	<0.40		ug/L	
			m & p-Xylene	2023/10/13	<0.80		ug/L	
			o-Xylene	2023/10/13	<0.40		ug/L	
			F1 (C6-C10)	2023/10/13	<100		ug/L	
B140801	SNA	RPD	Benzene	2023/10/13	NC		%	30
			Toluene	2023/10/13	NC		%	30
			Ethylbenzene	2023/10/13	NC		%	30
			m & p-Xylene	2023/10/13	NC		%	30
			o-Xylene	2023/10/13	NC		%	30
			F1 (C6-C10)	2023/10/13	NC		%	30
B140970	CTU	Matrix Spike	Total Phosphorus (P)	2023/10/07		97	%	80 - 120
B140970	CTU	QC Standard	Total Phosphorus (P)	2023/10/07		87	%	80 - 120



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	B140970	CTU	Spiked Blank	Total Phosphorus (P)	2023/10/07		89	%	80 - 120
	B140970	CTU	Method Blank	Total Phosphorus (P)	2023/10/07	<0.0030		mg/L	
	B140970	CTU	RPD	Total Phosphorus (P)	2023/10/07	NC		%	20
	B141807	MPU	Matrix Spike	Dissolved Barium (Ba)	2023/10/09		100	%	80 - 120
				Dissolved Boron (B)	2023/10/09		102	%	80 - 120
				Dissolved Calcium (Ca)	2023/10/09		101	%	80 - 120
				Dissolved Iron (Fe)	2023/10/09		102	%	80 - 120
				Dissolved Lithium (Li)	2023/10/09		98	%	80 - 120
				Dissolved Magnesium (Mg)	2023/10/09		107	%	80 - 120
				Dissolved Manganese (Mn)	2023/10/09		103	%	80 - 120
				Dissolved Phosphorus (P)	2023/10/09		101	%	80 - 120
				Dissolved Potassium (K)	2023/10/09		106	%	80 - 120
				Dissolved Silicon (Si)	2023/10/09		NC	%	80 - 120
				Dissolved Sodium (Na)	2023/10/09		103	%	80 - 120
				Dissolved Strontium (Sr)	2023/10/09		96	%	80 - 120
				Dissolved Sulphur (S)	2023/10/09		103	%	80 - 120
	B141807	MPU	Spiked Blank	Dissolved Barium (Ba)	2023/10/09		100	%	80 - 120
				Dissolved Boron (B)	2023/10/09		101	%	80 - 120
				Dissolved Calcium (Ca)	2023/10/09		102	%	80 - 120
				Dissolved Iron (Fe)	2023/10/09		109	%	80 - 120
				Dissolved Lithium (Li)	2023/10/09		98	%	80 - 120
				Dissolved Magnesium (Mg)	2023/10/09		107	%	80 - 120
				Dissolved Manganese (Mn)	2023/10/09		108	%	80 - 120
				Dissolved Phosphorus (P)	2023/10/09		103	%	80 - 120
				Dissolved Potassium (K)	2023/10/09		105	%	80 - 120
				Dissolved Silicon (Si)	2023/10/09		100	%	80 - 120
				Dissolved Sodium (Na)	2023/10/09		102	%	80 - 120
				Dissolved Strontium (Sr)	2023/10/09		98	%	80 - 120
				Dissolved Sulphur (S)	2023/10/09		101	%	80 - 120
	B141807	MPU	Method Blank	Dissolved Barium (Ba)	2023/10/09	<0.010		mg/L	
				Dissolved Boron (B)	2023/10/09	<0.020		mg/L	
				Dissolved Calcium (Ca)	2023/10/09	<0.30		mg/L	
				Dissolved Iron (Fe)	2023/10/09	<0.060		mg/L	
				Dissolved Lithium (Li)	2023/10/09	<0.020		mg/L	
				Dissolved Magnesium (Mg)	2023/10/09	<0.20		mg/L	
				Dissolved Manganese (Mn)	2023/10/09	<0.0040		mg/L	
				Dissolved Phosphorus (P)	2023/10/09	<0.10		mg/L	
				Dissolved Potassium (K)	2023/10/09	<0.30		mg/L	
				Dissolved Silicon (Si)	2023/10/09	<0.50		mg/L	
				Dissolved Sodium (Na)	2023/10/09	<0.50		mg/L	
				Dissolved Strontium (Sr)	2023/10/09	<0.020		mg/L	
				Dissolved Sulphur (S)	2023/10/09	<0.20		mg/L	
	B141807	MPU	RPD	Dissolved Barium (Ba)	2023/10/09	1.2		%	20
				Dissolved Boron (B)	2023/10/09	14		%	20
				Dissolved Calcium (Ca)	2023/10/09	0.086		%	20
				Dissolved Iron (Fe)	2023/10/09	0.12		%	20
				Dissolved Lithium (Li)	2023/10/09	NC		%	20
				Dissolved Magnesium (Mg)	2023/10/09	0.65		%	20
				Dissolved Manganese (Mn)	2023/10/09	0.043		%	20
				Dissolved Phosphorus (P)	2023/10/09	NC		%	20
				Dissolved Potassium (K)	2023/10/09	NC		%	20
				Dissolved Silicon (Si)	2023/10/09	0.47		%	20
				Dissolved Sodium (Na)	2023/10/09	0.13		%	20
				Dissolved Strontium (Sr)	2023/10/09	0.33		%	20



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B141985	TOR	Matrix Spike	Dissolved Sulphur (S)	2023/10/09	1.5		%	20
			Chloride (Cl)	2023/10/05		100	%	80 - 120
			Sulphate (SO4)	2023/10/05		NC	%	80 - 120
B141985	TOR	Spiked Blank	Chloride (Cl)	2023/10/06		99	%	80 - 120
			Sulphate (SO4)	2023/10/06		100	%	80 - 120
B141985	TOR	Method Blank	Chloride (Cl)	2023/10/06	<1.0		mg/L	
			Sulphate (SO4)	2023/10/06	<1.0		mg/L	
B141985	TOR	RPD	Chloride (Cl)	2023/10/06	0.023		%	20
			Sulphate (SO4)	2023/10/06	1.3		%	20
B141986	TOR	Matrix Spike	Chloride (Cl)	2023/10/05		111	%	80 - 120
			Sulphate (SO4)	2023/10/05		NC	%	80 - 120
B141986	TOR	Spiked Blank	Chloride (Cl)	2023/10/05		99	%	80 - 120
			Sulphate (SO4)	2023/10/05		99	%	80 - 120
B141986	TOR	Method Blank	Chloride (Cl)	2023/10/05	<1.0		mg/L	
			Sulphate (SO4)	2023/10/05	<1.0		mg/L	
B141986	TOR	RPD	Chloride (Cl)	2023/10/05	0.030		%	20
			Sulphate (SO4)	2023/10/05	2.3		%	20
B142123	CTU	Matrix Spike	Total Phosphorus (P)	2023/10/07		NC	%	80 - 120
B142123	CTU	QC Standard	Total Phosphorus (P)	2023/10/07		86	%	80 - 120
B142123	CTU	Spiked Blank	Total Phosphorus (P)	2023/10/07		99	%	80 - 120
B142123	CTU	Method Blank	Total Phosphorus (P)	2023/10/07	<0.0030		mg/L	
B142123	CTU	RPD	Total Phosphorus (P)	2023/10/07	2.0		%	20
B142353	NVO	Matrix Spike	Total Ammonia (N)	2023/10/06		94	%	80 - 120
B142353	NVO	Spiked Blank	Total Ammonia (N)	2023/10/06		102	%	80 - 120
B142353	NVO	Method Blank	Total Ammonia (N)	2023/10/06	<0.015		mg/L	
B142353	NVO	RPD	Total Ammonia (N)	2023/10/06	1.8		%	20
B142582	MB5	Matrix Spike	Chloride (Cl)	2023/10/06		100	%	80 - 120
			Sulphate (SO4)	2023/10/06		100	%	80 - 120
B142582	MB5	Spiked Blank	Chloride (Cl)	2023/10/06		98	%	80 - 120
			Sulphate (SO4)	2023/10/06		99	%	80 - 120
B142582	MB5	Method Blank	Chloride (Cl)	2023/10/06	<1.0		mg/L	
			Sulphate (SO4)	2023/10/06	<1.0		mg/L	
B142582	MB5	RPD	Chloride (Cl)	2023/10/06	NC		%	20
			Sulphate (SO4)	2023/10/06	NC		%	20
B142634	JAB	Matrix Spike [CAS509-02]	Dissolved Aluminum (Al)	2023/10/06		107	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/06		121 (1)	%	80 - 120
			Dissolved Arsenic (As)	2023/10/06		112	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/06		106	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/06		106	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/06		111	%	80 - 120
			Dissolved Copper (Cu)	2023/10/06		102	%	80 - 120
			Dissolved Lead (Pb)	2023/10/06		103	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/06		115	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/06		104	%	80 - 120
			Dissolved Selenium (Se)	2023/10/06		112	%	80 - 120
			Dissolved Silver (Ag)	2023/10/06		105	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/06		105	%	80 - 120
			Dissolved Tin (Sn)	2023/10/06		113	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/06		105	%	80 - 120
			Dissolved Uranium (U)	2023/10/06		104	%	80 - 120
			Dissolved Vanadium (V)	2023/10/06		108	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/06		NC	%	80 - 120
			Dissolved Aluminum (Al)	2023/10/06		105	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/06		114	%	80 - 120



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B142634	JAB	Method Blank	Dissolved Arsenic (As)	2023/10/06		100	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/06		98	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/06		97	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/06		96	%	80 - 120
			Dissolved Copper (Cu)	2023/10/06		96	%	80 - 120
			Dissolved Lead (Pb)	2023/10/06		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/06		102	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/06		94	%	80 - 120
			Dissolved Selenium (Se)	2023/10/06		106	%	80 - 120
			Dissolved Silver (Ag)	2023/10/06		99	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/06		102	%	80 - 120
			Dissolved Tin (Sn)	2023/10/06		101	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/06		95	%	80 - 120
			Dissolved Uranium (U)	2023/10/06		98	%	80 - 120
			Dissolved Vanadium (V)	2023/10/06		95	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/06		102	%	80 - 120
			Dissolved Aluminum (Al)	2023/10/06	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2023/10/06	<0.00060		mg/L	
			Dissolved Arsenic (As)	2023/10/06	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2023/10/06	<0.0010		mg/L	
B142634	JAB	RPD [CAS509-02]	Dissolved Chromium (Cr)	2023/10/06	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2023/10/06	<0.00030		mg/L	
			Dissolved Copper (Cu)	2023/10/06	<0.0010		mg/L	
			Dissolved Lead (Pb)	2023/10/06	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2023/10/06	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2023/10/06	<0.00050		mg/L	
			Dissolved Selenium (Se)	2023/10/06	<0.00020		mg/L	
			Dissolved Silver (Ag)	2023/10/06	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2023/10/06	<0.00020		mg/L	
			Dissolved Tin (Sn)	2023/10/06	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2023/10/06	<0.0010		mg/L	
			Dissolved Uranium (U)	2023/10/06	<0.00010		mg/L	
			Dissolved Vanadium (V)	2023/10/06	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2023/10/06	<0.0030		mg/L	
			Dissolved Aluminum (Al)	2023/10/06	0.54		%	20
			Dissolved Antimony (Sb)	2023/10/06	NC		%	20
			Dissolved Arsenic (As)	2023/10/06	1.9		%	20
			Dissolved Beryllium (Be)	2023/10/06	NC		%	20
			Dissolved Chromium (Cr)	2023/10/06	NC		%	20
B142675	KKM	Matrix Spike	Dissolved Cobalt (Co)	2023/10/06	3.6		%	20
			Dissolved Copper (Cu)	2023/10/06	NC		%	20
			Dissolved Lead (Pb)	2023/10/06	NC		%	20
			Dissolved Molybdenum (Mo)	2023/10/06	3.9		%	20
			Dissolved Nickel (Ni)	2023/10/06	0.52		%	20
			Dissolved Selenium (Se)	2023/10/06	14		%	20
			Dissolved Silver (Ag)	2023/10/06	NC		%	20
			Dissolved Thallium (Tl)	2023/10/06	NC		%	20
			Dissolved Tin (Sn)	2023/10/06	NC		%	20
			Dissolved Titanium (Ti)	2023/10/06	NC		%	20
			Dissolved Uranium (U)	2023/10/06	0.49		%	20
			Dissolved Vanadium (V)	2023/10/06	NC		%	20
			Dissolved Zinc (Zn)	2023/10/06	0.38		%	20
			Total Mercury (Hg)	2023/10/09		90	%	80 - 120
B142675	KKM	Spiked Blank	Total Mercury (Hg)	2023/10/09		103	%	80 - 120



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B142675	KKM	Method Blank	Total Mercury (Hg)	2023/10/09	<0.0019		ug/L	
B142675	KKM	RPD	Total Mercury (Hg)	2023/10/09	NC		%	20
B142678	KKM	Matrix Spike [CAS509-03]	Total Mercury (Hg)	2023/10/06		95	%	80 - 120
B142678	KKM	Spiked Blank	Total Mercury (Hg)	2023/10/06		107	%	80 - 120
B142678	KKM	Method Blank	Total Mercury (Hg)	2023/10/06	<0.0019		ug/L	
B142678	KKM	RPD	Total Mercury (Hg)	2023/10/06	NC		%	20
B142804	KKM	Matrix Spike	Total Mercury (Hg)	2023/10/09		95	%	80 - 120
B142804	KKM	Spiked Blank	Total Mercury (Hg)	2023/10/09		108	%	80 - 120
B142804	KKM	Method Blank	Total Mercury (Hg)	2023/10/09	<0.0019		ug/L	
B142804	KKM	RPD	Total Mercury (Hg)	2023/10/09	NC		%	20
B142806	KKM	Matrix Spike [CAS503-02]	Total Mercury (Hg)	2023/10/09		96	%	80 - 120
B142806	KKM	Spiked Blank	Total Mercury (Hg)	2023/10/09		104	%	80 - 120
B142806	KKM	Method Blank	Total Mercury (Hg)	2023/10/09	<0.0019		ug/L	
B142806	KKM	RPD	Total Mercury (Hg)	2023/10/09	NC		%	20
B144953	MDO	Matrix Spike	Total Organic Carbon (C)	2023/10/08		104	%	80 - 120
B144953	MDO	Spiked Blank	Total Organic Carbon (C)	2023/10/08		103	%	80 - 120
B144953	MDO	Method Blank	Total Organic Carbon (C)	2023/10/08	<0.50		mg/L	
B144953	MDO	RPD	Total Organic Carbon (C)	2023/10/08	1.7		%	20
B145363	YHK	Matrix Spike	Total Organic Carbon (C)	2023/10/09		101	%	80 - 120
B145363	YHK	Spiked Blank	Total Organic Carbon (C)	2023/10/09		116	%	80 - 120
B145363	YHK	Method Blank	Total Organic Carbon (C)	2023/10/09	<0.50		mg/L	
B145363	YHK	RPD	Total Organic Carbon (C)	2023/10/09	NC		%	20
B145453	MPU	Matrix Spike	Dissolved Barium (Ba)	2023/10/09		85	%	80 - 120
			Dissolved Boron (B)	2023/10/09		89	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/09		93	%	80 - 120
			Dissolved Iron (Fe)	2023/10/09		103	%	80 - 120
			Dissolved Lithium (Li)	2023/10/09		90	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/09		102	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/09		103	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/09		105	%	80 - 120
			Dissolved Potassium (K)	2023/10/09		96	%	80 - 120
			Dissolved Silicon (Si)	2023/10/09		84	%	80 - 120
			Dissolved Sodium (Na)	2023/10/09		95	%	80 - 120
			Dissolved Strontium (Sr)	2023/10/09		82	%	80 - 120
			Dissolved Sulphur (S)	2023/10/09		99	%	80 - 120
B145453	MPU	Spiked Blank	Dissolved Barium (Ba)	2023/10/09		84	%	80 - 120
			Dissolved Boron (B)	2023/10/09		86	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/09		93	%	80 - 120
			Dissolved Iron (Fe)	2023/10/09		102	%	80 - 120
			Dissolved Lithium (Li)	2023/10/09		91	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/09		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/09		100	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/09		101	%	80 - 120
			Dissolved Potassium (K)	2023/10/09		95	%	80 - 120
			Dissolved Silicon (Si)	2023/10/09		96	%	80 - 120
			Dissolved Sodium (Na)	2023/10/09		93	%	80 - 120
			Dissolved Strontium (Sr)	2023/10/09		81	%	80 - 120
			Dissolved Sulphur (S)	2023/10/09		94	%	80 - 120
B145453	MPU	Method Blank	Dissolved Barium (Ba)	2023/10/09	<0.010		mg/L	
			Dissolved Boron (B)	2023/10/09	<0.020		mg/L	
			Dissolved Calcium (Ca)	2023/10/09	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/10/09	<0.060		mg/L	
			Dissolved Lithium (Li)	2023/10/09	<0.023		mg/L	
			Dissolved Magnesium (Mg)	2023/10/09	<0.20		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B145453	MPU	RPD	Dissolved Manganese (Mn)	2023/10/09	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2023/10/09	<0.10		mg/L	
			Dissolved Potassium (K)	2023/10/09	<0.30		mg/L	
			Dissolved Silicon (Si)	2023/10/09	<0.50		mg/L	
			Dissolved Sodium (Na)	2023/10/09	<0.50		mg/L	
			Dissolved Strontium (Sr)	2023/10/09	<0.020		mg/L	
			Dissolved Sulphur (S)	2023/10/09	<0.20		mg/L	
			Dissolved Barium (Ba)	2023/10/09	6.3		%	20
			Dissolved Boron (B)	2023/10/09	NC		%	20
			Dissolved Calcium (Ca)	2023/10/09	0.081		%	20
			Dissolved Iron (Fe)	2023/10/09	6.6		%	20
			Dissolved Lithium (Li)	2023/10/09	14		%	20
			Dissolved Magnesium (Mg)	2023/10/09	1.5		%	20
			Dissolved Manganese (Mn)	2023/10/09	1.3		%	20
			Dissolved Phosphorus (P)	2023/10/09	NC		%	20
			Dissolved Potassium (K)	2023/10/09	1.2		%	20
			Dissolved Silicon (Si)	2023/10/09	1.8		%	20
			Dissolved Sodium (Na)	2023/10/09	1.6		%	20
			Dissolved Strontium (Sr)	2023/10/09	1.3		%	20
			Dissolved Sulphur (S)	2023/10/09	0.022		%	20
B146148	MAP	Matrix Spike [CAS508-01]	Orthophosphate (P)	2023/10/10		106	%	80 - 120
B146148	MAP	Spiked Blank	Orthophosphate (P)	2023/10/10		100	%	80 - 120
B146148	MAP	Method Blank	Orthophosphate (P)	2023/10/10	<0.0030		mg/L	
B146148	MAP	RPD [CAS508-01]	Orthophosphate (P)	2023/10/10	NC		%	20
B148117	LQ1	Spiked Blank	Alkalinity (Total as CaCO3)	2023/10/13		99	%	80 - 120
B148117	LQ1	RPD	Alkalinity (PP as CaCO3)	2023/10/13	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/10/13	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/10/13	<1.0		mg/L	
			Carbonate (CO3)	2023/10/13	<1.0		mg/L	
			Hydroxide (OH)	2023/10/13	<1.0		mg/L	
			Alkalinity (PP as CaCO3)	2023/10/13	NC		%	20
			Alkalinity (Total as CaCO3)	2023/10/13	17		%	20
			Bicarbonate (HCO3)	2023/10/13	17		%	20
			Carbonate (CO3)	2023/10/13	NC		%	20
			Hydroxide (OH)	2023/10/13	NC		%	20
B148134	LQ1	Spiked Blank	pH	2023/10/13		100	%	97 - 103
B148134	LQ1	RPD	pH	2023/10/13	1.3		%	N/A
B148136	LQ1	Spiked Blank	Conductivity	2023/10/13		100	%	90 - 110
B148136	LQ1	Method Blank	Conductivity	2023/10/13	<2.0		uS/cm	
B148136	LQ1	RPD	Conductivity	2023/10/13	4.2		%	10
B148419	IKO	Matrix Spike	Dissolved Barium (Ba)	2023/10/11		99	%	80 - 120
			Dissolved Boron (B)	2023/10/11		104	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/11		NC	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		102	%	80 - 120
			Dissolved Lithium (Li)	2023/10/11		101	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		101	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/11		104	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/11		104	%	80 - 120
			Dissolved Potassium (K)	2023/10/11		104	%	80 - 120
			Dissolved Silicon (Si)	2023/10/11		86	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		107	%	80 - 120
			Dissolved Strontium (Sr)	2023/10/11		93	%	80 - 120
			Dissolved Sulphur (S)	2023/10/11		102	%	80 - 120
			Dissolved Barium (Ba)	2023/10/11		99	%	80 - 120
B148419	IKO	Spiked Blank	Dissolved Barium (Ba)	2023/10/11		99	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C379188

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: Gordon Lake

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B148419	IKO	Method Blank	Dissolved Boron (B)	2023/10/11		98	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/11		101	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		101	%	80 - 120
			Dissolved Lithium (Li)	2023/10/11		98	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		101	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/11		102	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/11		98	%	80 - 120
			Dissolved Potassium (K)	2023/10/11		101	%	80 - 120
			Dissolved Silicon (Si)	2023/10/11		98	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		102	%	80 - 120
			Dissolved Strontium (Sr)	2023/10/11		98	%	80 - 120
			Dissolved Sulphur (S)	2023/10/11		95	%	80 - 120
			Dissolved Barium (Ba)	2023/10/11	<0.010		mg/L	
			Dissolved Boron (B)	2023/10/11	<0.020		mg/L	
			Dissolved Calcium (Ca)	2023/10/11	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/10/11	<0.060		mg/L	
			Dissolved Lithium (Li)	2023/10/11	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2023/10/11	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/10/11	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2023/10/11	<0.10		mg/L	
			Dissolved Potassium (K)	2023/10/11	<0.30		mg/L	
			Dissolved Silicon (Si)	2023/10/11	<0.50		mg/L	
			Dissolved Sodium (Na)	2023/10/11	<0.50		mg/L	
			Dissolved Strontium (Sr)	2023/10/11	<0.020		mg/L	
			Dissolved Sulphur (S)	2023/10/11	<0.20		mg/L	
B148419	IKO	RPD	Dissolved Barium (Ba)	2023/10/11	0.84		%	20
			Dissolved Boron (B)	2023/10/11	15		%	20
			Dissolved Calcium (Ca)	2023/10/11	0.18		%	20
			Dissolved Iron (Fe)	2023/10/11	NC		%	20
			Dissolved Lithium (Li)	2023/10/11	8.4		%	20
			Dissolved Magnesium (Mg)	2023/10/11	0.32		%	20
			Dissolved Manganese (Mn)	2023/10/11	NC		%	20
			Dissolved Phosphorus (P)	2023/10/11	NC		%	20
			Dissolved Potassium (K)	2023/10/11	1.8		%	20
			Dissolved Silicon (Si)	2023/10/11	0.58		%	20
			Dissolved Sodium (Na)	2023/10/11	0.62		%	20
			Dissolved Strontium (Sr)	2023/10/11	0.026		%	20
B158414	DVN	Matrix Spike [CAS502-04]	Dissolved Sulphur (S)	2023/10/11	0.23		%	20
			Total Dissolved Solids	2023/10/18		91	%	80 - 120
B158414	DVN	Spiked Blank	Total Dissolved Solids	2023/10/18		93	%	80 - 120
B158414	DVN	Method Blank	Total Dissolved Solids	2023/10/18	<10		mg/L	
B158414	DVN	RPD [CAS502-04]	Total Dissolved Solids	2023/10/18	NC		%	20
B166325	AZI	Matrix Spike [CAS503-04]	Total Suspended Solids	2023/10/24		99	%	80 - 120
B166325	AZI	Spiked Blank	Total Suspended Solids	2023/10/24		90	%	80 - 120
B166325	AZI	Method Blank	Total Suspended Solids	2023/10/24	<1.0		mg/L	



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B166325	AZI	RPD [CAS502-04]	Total Suspended Solids	2023/10/24	NC		%	20
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration) NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times$ RDL). (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.								



BUREAU
VERITAS

Bureau Veritas Job #: C379188
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: Gordon Lake

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Gita Pokhrel, Laboratory Supervisor

Sandy Yuan, M.Sc., QP, Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics



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Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free 800-563-6266 Fax:(403) 291-9468 www.bvna.com

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mcal-10-059

1379188

INVOICE TO:			Report Information			Project Information			se Only		
Company Name	#6699 AECOM CANADA LTD.		Company Name	JANINE MORRIS		Quotation #	C21789		Bottle Order #:		
Contact Name	BANE BROTSCHI		Contact Name	JANINE MORRIS		P.O. #					
Address	18817 Stony Plain Road NW EDMONTON AB T5S 0C2		Address			Project #	60710609		706140		
Phone	(587) 337-4190		Phone	(867) 446-3953		Project Name	Gordon Lake		Chain Of Custody Record		
Email	bane.brotschi@aecom.com		Email	janine.morris@aecom.com, bane.brotschi@aecom.com		Site #			Project Manager		
Regulatory Criteria			Special Instructions			Analysis Requested			Turnaround Time (TAT) Required		
CCE			Regulated Drinking Water? (Y/N) Metals Field Filtered? (Y/N)			Routine Water Regulated Metals (CCME/AT1) - Total, Total Hg Total Suspended Solids (NFR), TDS AT1 BTEX and F1-F4 in Water Ammonia-N (Total) Total Phosphorus Orthophosphate by Konelab Carbon (Total Organic) Total Metals - Bismuth, Cesium Turbidity			Regular (Standard) TAT		
									(will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.		
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form									Job Specific Rush TAT (if applies to entire submission)		
Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas									Date Required: _____ Time Required: _____		
									Rush Confirmation Number _____ (call lab for #)		
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix							
1	GLG-2023-00002-006	23/09/29	1735	SW	Y	N	X	X	X	X	X
2	GLG-2023-00002-007		1420	SW	Y	N	X	X	X	X	X
3	GLG-2023-00002-008		1505	SW	Y	N	X	X	X	X	X
4	GLG-2023-00002-009		1345	SW	Y	N	X	X	X	X	X
5	GLG-2023-00002-010		1200	SW	Y	N	X	X	X	X	X
6	GLG-2023-00002-011		1440	SW	Y	N	X	X	X	X	X
7	GLG-2023-00002-012		1755	SW	Y	N	X	X	X	X	X
8	GLG-2023-00002-016										
9	GLG-2023-00002-017										
10	GLG-2023-00002-020		1230	GW	Y	X	X	X	X	X	X
* RELINQUISHED BY: (Signature/Print)			Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)			Date: (YY/MM/DD)	Time	# Jars used and not submitted	
Janine M. [Signature]			23/09/29	1630	[Signature]			23/10/02	14:57		
									Lab Use Only		
									Time Sensitive ☐ Temperature (°C) on Receipt ☐ Custody Seal Intact on Cooler? ☐ Yes ☐ No		
									White: Bureau Veritas Yellow: Client		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

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



Bureau Veritas
4000 19th N.E., Calgary, Alberta Canada T2E 6P8 Tel: (403) 291-3077 Toll-free: 800-563-6266 Fax: (403) 291-9468 www.bvna.com

Page 2 of 2 **2**

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#6699 AECOM CANADA LTD.	Company Name		Quotation #	C21789	Bureau Veritas Job #	Bottle Order #:
Contact Name	BANE BROTSCHI	Contact Name	JANINE MORRIS	P.O. #			
Address	18817 Stony Plain Road NW EDMONTON AB T5S 0C2	Address		Project #	60710609	Chain Of Custody Record	Project Manager
Phone	(587) 337-4190 Fax: (780) 486-7070	Phone	(867) 446-3953 Fax:	Project Name	Gordon Lake		Parminder Virk
Email	bane.brotschi@aecom.com	Email	janine.morris@aecom.com, bane.brotschi@aecom.com	Site #		C#706140-02-01	
Regulatory Criteria	Special Instructions		Analysis Requested		Turnaround Time (TAT) Required		
CCME			Regulated Drinking Water? (Y/N) Metals Field Filtered? (Y/N) Routine Water Regulated Metals (OCME/AT1) - Total, Total Hg Total Suspended Solids (NFR), TDS AT1 BTEX and F1-F4 in Water Ammonia-N (Total) Total Phosphorus Orthophosphate by KoneLab Carbon (Total Organic) Total Metals - Bismuth, Cesium Turbidity		Please provide advance notice for rush projects Regular (Standard) TAT (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. ☒		
					Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number _____ (call lab for #)		
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas							
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Comments
1	GLG-2023-00002-021						
2	GLG-2023-00002-001	23/09/29	1430	GW	Y	X	Include dissolved metals in analysis
3	GLG-2023-00002-002	23/09/29	1250	GW	Y	X	
4	GLG-2023-00002-003						
5	GLG-2023-00002-004						
6	GLG-2023-00002-005						
7	GLG-2023-00002-013						
8	GLG-2023-00002-014						
9	GLG-2023-00002-015						
10	GLG-2023-00002-020						
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time
Janine M. [Signature]		23/09/29	16:35	[Signature] Jess Major		23/10/02	14:57
# Jars used and not submitted		Time Sensitive		Temperature (°C) on Receipt		Custody Seal Intact on Cooler?	
		☐		ACTR		☐ Yes ☐ No	
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.							
						White: Bureau Veritas Yellow: Client	



Your Project #: 60710609
Site Location: GORDON LAKE

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Your C.O.C. #: PAGE 1 OF 1, PAGE 1 OF 2, PAGE 2 OF 2

Report Date: 2023/10/24

Report #: R3415932

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379541

Received: 2023/10/02, 09:30

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	12	N/A	2023/10/15	AB SOP-00005	SM 24 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	10	N/A	2023/10/14	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	10	N/A	2023/10/16		Auto Calc
Cadmium - low level CCME - Dissolved (1)	2	N/A	2023/10/06		Auto Calc
Cadmium - low level CCME (Total) (1)	10	N/A	2023/10/09		Auto Calc
Cadmium - low level CCME (Total) (1)	2	N/A	2023/10/13		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	3	N/A	2023/10/05	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Chloride/Sulphate by Auto Colourimetry (1)	6	N/A	2023/10/06	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Chloride/Sulphate by Auto Colourimetry (1)	3	N/A	2023/10/08	AB SOP-00020	SM24-4500-Cl/SO ₄ -E m
Conductivity @25C (1)	12	N/A	2023/10/15	AB SOP-00005	SM 24 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	10	2023/10/05	2023/10/06	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	2	N/A	2023/10/10		Auto Calc
Hardness (1)	9	N/A	2023/10/11		Auto Calc
Hardness (1)	1	N/A	2023/10/12		Auto Calc
Mercury (Total) by CV (1)	11	2023/10/05	2023/10/09	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV (1)	1	2023/10/05	2023/10/10	AB SOP-00084	BCMOE BCLM Oct2013 m
Elements by ICP - Dissolved (1, 3)	2	N/A	2023/10/11	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	2	N/A	2023/10/09	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	8	N/A	2023/10/11	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	12	2023/10/08	2023/10/09	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Dissolved (1, 3)	2	N/A	2023/10/05	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Total (1)	10	2023/10/08	2023/10/08	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Total (1)	2	2023/10/08	2023/10/12	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	12	N/A	2023/10/15		Auto Calc
Sum of cations, anions (1)	2	N/A	2023/10/10		Auto Calc
Sum of cations, anions (1)	9	N/A	2023/10/11		Auto Calc



Your Project #: 60710609
Site Location: GORDON LAKE

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Your C.O.C. #: PAGE 1 OF 1, PAGE 1 OF 2, PAGE 2 OF 2

Report Date: 2023/10/24

Report #: R3415932

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379541

Received: 2023/10/02, 09:30

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sum of cations, anions (1)	1	N/A	2023/10/12		Auto Calc
Elements by CRC ICPMS (total) (1)	10	2023/10/08	2023/10/08	CAL SOP-00265	EPA 6020 m
Elements by CRC ICPMS (total) (1)	2	2023/10/10	2023/10/10	CAL SOP-00265	EPA 6020 m
Ammonia-N (Total) (1)	2	N/A	2023/10/07	AB SOP-00007	SM 24 4500 NH3 A G m
Ammonia-N (Total) (1)	10	N/A	2023/10/08	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite (1)	2	N/A	2023/10/06		Auto Calc
Nitrate and Nitrite (1)	10	N/A	2023/10/07		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	1	N/A	2023/10/05	AB SOP-00091	SM 24 4500 NO3m
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	11	N/A	2023/10/06	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N) (1)	2	2023/10/03	2023/10/06		Auto Calc
Nitrate (as N) (1)	10	2023/10/03	2023/10/07		Auto Calc
pH @25°C (1, 4)	12	N/A	2023/10/15	AB SOP-00005	SM 24 4500-H+B m
Orthophosphate by Automated Analyzer (1, 5)	12	N/A	2023/10/05	AB SOP-00025	SM 24 4500-P A,F m
Total Dissolved Solids (Filt. Residue) (1)	1	2023/10/05	2023/10/06	AB SOP-00065	SM 24 2540 C m
Total Dissolved Solids (Filt. Residue) (1)	6	2023/10/06	2023/10/08	AB SOP-00065	SM 24 2540 C m
Total Dissolved Solids (Filt. Residue) (1)	5	2023/10/16	2023/10/16	AB SOP-00065	SM 24 2540 C m
Total Dissolved Solids (Calculated) (1)	12	N/A	2023/10/15		Auto Calc
Carbon (Total Organic) (1, 6)	11	N/A	2023/10/10	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (1, 6)	1	N/A	2023/10/11	AB SOP-00087	MMCW 119 1996 m
Total Phosphorus (1)	12	2023/10/07	2023/10/08	AB SOP-00024	SM 24 4500-P A,B,F m
Total Suspended Solids (NFR) (1)	10	2023/10/23	2023/10/24	AB SOP-00061	SM 24 2540 D m
Total Suspended Solids (NFR) (1)	2	2023/10/24	2023/10/24	AB SOP-00061	SM 24 2540 D m
Turbidity (1)	12	N/A	2023/10/05	CAL SOP-00081	SM 24 2130 B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Bureau Veritas SOP is available upon request.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or



Your Project #: 60710609
Site Location: GORDON LAKE

Attention: JANINE MORRIS

AECOM CANADA LTD.
18817 Stony Plain Road NW
EDMONTON, AB
CANADA T5S 0C2

Your C.O.C. #: PAGE 1 OF 1, PAGE 1 OF 2, PAGE 2 OF 2

Report Date: 2023/10/24

Report #: R3415932

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C379541

Received: 2023/10/02, 09:30

implied. Bureau Veritas has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. When sampling is not conducted by Bureau Veritas, results apply only to the sample(s) as received. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) Silica gel clean up employed.

(3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.

(4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

(5) Orthophosphate > Total Phosphorus Imbalance: When applicable, Orthophosphate, Total Phosphorus and dissolved Phosphorus results were reviewed and data quality meets acceptable levels unless otherwise noted.

(6) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Parminder Virk, Key Account Specialist

Email: Parminder.Virk@bureauveritas.com

Phone# (403)735-2235

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Bureau Veritas ID		CAV399			CAV400		
Sampling Date		2023/10/01 11:45			2023/10/01 11:55		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	RDL	QC Batch	GLG-2023-00002-005	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	7.5	N/A	B136784	7.0	N/A	B136784
Cation Sum	meq/L	7.5	N/A	B136784	7.9	N/A	B136784
Hardness (CaCO ₃)	mg/L	360	0.50	B136772	380	0.50	B136772
Ion Balance (% Difference)	%	0.059	N/A	B138411	5.5	N/A	B138411
Nitrate (N)	mg/L	4.2	0.050	B136797	4.4	0.050	B136797
Nitrate (NO ₃)	mg/L	19	0.22	B136793	19	0.22	B136793
Nitrite (NO ₂)	mg/L	0.56	0.066	B136793	0.45	0.066	B136793
Calculated Total Dissolved Solids	mg/L	430	10	B136811	420	10	B136811
Elements							
Dissolved Cadmium (Cd)	ug/L	<0.020	0.020	B136747	<0.020	0.020	B136747
Total Cadmium (Cd)	ug/L	0.030	0.020	B136750	0.025	0.020	B136750
Misc. Inorganics							
Conductivity	uS/cm	630	2.0	B149670	630	2.0	B149670
pH	pH	7.91	N/A	B149662	7.95	N/A	B149662
Total Organic Carbon (C)	mg/L	2.4	0.50	B145420	2.4	0.50	B145420
Total Dissolved Solids	mg/L	420	10	B142158	420	10	B142158
Total Suspended Solids	mg/L	<1.0	1.0	B166325	6.1	0.99	B166325
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	200	1.0	B149659	190	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	250	1.0	B149659	240	1.0	B149659
Carbonate (CO ₃)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	<1.0	1.0	B143823	<1.0	1.0	B141996
Sulphate (SO ₄)	mg/L	150	5.0	B143823	140	5.0	B141996
Nutrients							
Total Ammonia (N)	mg/L	0.038	0.015	B144430	0.037	0.015	B144430
Orthophosphate (P)	mg/L	<0.0030	0.0030	B141601	<0.0030	0.0030	B141601
Total Phosphorus (P)	mg/L	0.0054	0.0030	B143902	0.0040	0.0030	B143901
Nitrite (N)	mg/L	0.17 (1)	0.020	B142733	0.14	0.020	B142733
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to matrix interference.							



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV399			CAV400		
Sampling Date		2023/10/01 11:45			2023/10/01 11:55		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	RDL	QC Batch	GLG-2023-00002-005	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	4.4 (1)	0.050	B142733	4.5 (1)	0.050	B142733
Physical Properties							
Turbidity	NTU	7.1	0.10	B139986	12	0.10	B139986
RDL = Reportable Detection Limit							
(1) Detection limits raised due to matrix interference.							



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV401	CAV401			CAV402		
Sampling Date		2023/10/01 13:20	2023/10/01 13:20			2023/10/01 14:20		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-013	GLG-2023-00002-013 Lab-Dup	RDL	QC Batch	GLG-2023-00002-014	RDL	QC Batch

Calculated Parameters								
Anion Sum	meq/L	2.4	N/A	N/A	B136784	1.1	N/A	B136784
Cation Sum	meq/L	2.2	N/A	N/A	B136784	1.1	N/A	B136784
Hardness (CaCO ₃)	mg/L	96	N/A	0.50	B136772	49	0.50	B136772
Ion Balance (% Difference)	%	NC	N/A	N/A	B138411	NC	N/A	B138411
Nitrate (N)	mg/L	0.042	N/A	0.020	B136797	<0.010	0.010	B136797
Nitrate (NO ₃)	mg/L	0.18	N/A	0.089	B136793	<0.044	0.044	B136793
Nitrite (NO ₂)	mg/L	<0.066	N/A	0.066	B136793	<0.033	0.033	B136793
Calculated Total Dissolved Solids	mg/L	120	N/A	10	B136811	57	10	B136811
Elements								
Total Cadmium (Cd)	ug/L	<0.020	N/A	0.020	B136750	<0.020	0.020	B136750
Misc. Inorganics								
Conductivity	uS/cm	190	N/A	2.0	B149670	100	2.0	B149670
pH	pH	6.92	N/A	N/A	B149662	6.43	N/A	B149662
Total Organic Carbon (C)	mg/L	21	N/A	0.50	B145420	2.9	0.50	B145420
Total Dissolved Solids	mg/L	130	N/A	10	B142158	<10	10	B154495
Total Suspended Solids	mg/L	1.3	N/A	1.0	B166325	1.8	0.99	B166325
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	110	N/A	1.0	B149659	45	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	130	N/A	1.0	B149659	55	1.0	B149659
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	<1.0	N/A	1.0	B143830	<1.0	1.0	B143830
Sulphate (SO ₄)	mg/L	11	N/A	1.0	B143830	8.7	1.0	B143830
Nutrients								
Total Ammonia (N)	mg/L	0.11	N/A	0.015	B144430	<0.015	0.015	B144077
Orthophosphate (P)	mg/L	<0.0030	N/A	0.0030	B141596	<0.0030	0.0030	B141596
Total Phosphorus (P)	mg/L	0.019	N/A	0.0030	B143902	0.0034	0.0030	B143901
Nitrite (N)	mg/L	<0.020 (1)	<0.020	0.020	B140561	<0.010	0.010	B142605
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								
N/A = Not Applicable								
(1) Matrix spike exceeds acceptance limits due to probable matrix interference.								



**BUREAU
VERITAS**

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV401	CAV401			CAV402		
Sampling Date		2023/10/01 13:20	2023/10/01 13:20			2023/10/01 14:20		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-013	GLG-2023-00002-013 Lab-Dup	RDL	QC Batch	GLG-2023-00002-014	RDL	QC Batch
Nitrate plus Nitrite (N)	mg/L	0.042 (1)	0.046	0.020	B140561	<0.010	0.010	B142605
Physical Properties								
Turbidity	NTU	1.3	N/A	0.10	B139986	<0.10	0.10	B139986
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference. Matrix spike exceeds acceptance limits due to probable matrix interference.								



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV402			CAV403		
Sampling Date		2023/10/01 14:20			2023/10/01 11:05		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-014 Lab-Dup	RDL	QC Batch	GLG-2023-00002-015	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	N/A	N/A	B136784	1.0	N/A	B138457
Cation Sum	meq/L	N/A	N/A	B136784	1.1	N/A	B138457
Hardness (CaCO ₃)	mg/L	N/A	0.50	B136772	47	0.50	B136772
Ion Balance (% Difference)	%	N/A	N/A	B138411	NC	N/A	B138411
Nitrate (N)	mg/L	N/A	0.010	B136797	<0.020	0.020	B136797
Nitrate (NO ₃)	mg/L	N/A	0.044	B136793	<0.089	0.089	B136793
Nitrite (NO ₂)	mg/L	N/A	0.033	B136793	<0.066	0.066	B136793
Calculated Total Dissolved Solids	mg/L	N/A	10	B136811	55	10	B138469
Elements							
Total Cadmium (Cd)	ug/L	N/A	0.020	B136750	<0.020	0.020	B136750
Misc. Inorganics							
Conductivity	uS/cm	N/A	2.0	B149670	100	2.0	B149670
pH	pH	N/A	N/A	B149662	6.45	N/A	B149662
Total Organic Carbon (C)	mg/L	N/A	0.50	B145420	2.8	0.50	B145420
Total Dissolved Solids	mg/L	<10	10	B154495	<10	10	B154495
Total Suspended Solids	mg/L	N/A	0.99	B166325	<1.0	1.0	B166325
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	N/A	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	N/A	1.0	B149659	45	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	N/A	1.0	B149659	55	1.0	B149659
Carbonate (CO ₃)	mg/L	N/A	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	N/A	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	N/A	1.0	B143830	<1.0	1.0	B141996
Sulphate (SO ₄)	mg/L	N/A	1.0	B143830	7.1	1.0	B141996
Nutrients							
Total Ammonia (N)	mg/L	N/A	0.015	B144077	<0.015	0.015	B144082
Orthophosphate (P)	mg/L	N/A	0.0030	B141596	<0.0030	0.0030	B141601
Total Phosphorus (P)	mg/L	0.0045	0.0030	B143901	<0.0030	0.0030	B143901
Nitrite (N)	mg/L	N/A	0.010	B142605	<0.020 (1)	0.020	B142733
Nitrate plus Nitrite (N)	mg/L	N/A	0.010	B142605	<0.020 (1)	0.020	B142733
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference.							



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV402			CAV403		
Sampling Date		2023/10/01 14:20			2023/10/01 11:05		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-014 Lab-Dup	RDL	QC Batch	GLG-2023-00002-015	RDL	QC Batch
Physical Properties							
Turbidity	NTU	N/A	0.10	B139986	<0.10	0.10	B139986
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV404			CAV405		
Sampling Date		2023/10/01 10:30			2023/10/01 10:40		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-024	RDL	QC Batch	GLG-2023-00002-025	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	1.6	N/A	B138457	1.6	N/A	B138457
Cation Sum	meq/L	1.6	N/A	B138457	1.6	N/A	B138457
Hardness (CaCO ₃)	mg/L	65	0.50	B136772	67	0.50	B136772
Ion Balance (% Difference)	%	NC	N/A	B138411	NC	N/A	B138411
Nitrate (N)	mg/L	0.042	0.020	B136797	0.044	0.020	B136797
Nitrate (NO ₃)	mg/L	0.18	0.089	B136793	0.20	0.089	B136793
Nitrite (NO ₂)	mg/L	<0.066	0.066	B136793	<0.066	0.066	B136793
Calculated Total Dissolved Solids	mg/L	85	10	B138469	85	10	B138469
Elements							
Total Cadmium (Cd)	ug/L	<0.020	0.020	B136750	<0.020	0.020	B136750
Misc. Inorganics							
Conductivity	uS/cm	140	2.0	B149670	150	2.0	B149670
pH	pH	6.56	N/A	B149662	6.60	N/A	B149662
Total Organic Carbon (C)	mg/L	13	0.50	B145420	14	0.50	B145420
Total Dissolved Solids	mg/L	52	10	B154495	40	10	B154495
Total Suspended Solids	mg/L	<0.99	0.99	B166325	<0.97	0.97	B166325
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	59	1.0	B149659	56	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	72	1.0	B149659	69	1.0	B149659
Carbonate (CO ₃)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	<1.0	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	<1.0	1.0	B143823	<1.0	1.0	B143820
Sulphate (SO ₄)	mg/L	21	1.0	B143823	21	1.0	B143820
Nutrients							
Total Ammonia (N)	mg/L	<0.015	0.015	B144436	<0.015	0.015	B144436
Orthophosphate (P)	mg/L	<0.0030	0.0030	B141601	<0.0030	0.0030	B141601
Total Phosphorus (P)	mg/L	0.012	0.0030	B143901	0.0093	0.0030	B143902
Nitrite (N)	mg/L	<0.020 (1)	0.020	B142733	<0.020 (1)	0.020	B142733
Nitrate plus Nitrite (N)	mg/L	0.042 (1)	0.020	B142733	0.044 (1)	0.020	B142733
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to matrix interference.							



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV404			CAV405		
Sampling Date		2023/10/01 10:30			2023/10/01 10:40		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-024	RDL	QC Batch	GLG-2023-00002-025	RDL	QC Batch
Physical Properties							
Turbidity	NTU	<0.10	0.10	B139986	<0.10	0.10	B139986
RDL = Reportable Detection Limit							



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV406	CAV406			CAV407		
Sampling Date		2023/10/01 10:10	2023/10/01 10:10			2023/10/01 10:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-026	GLG-2023-00002-026 Lab-Dup	RDL	QC Batch	GLG-2023-00002-027	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	1.1	N/A	N/A	B138457	1.3	N/A	B138457
Cation Sum	meq/L	1.1	N/A	N/A	B138457	1.6	N/A	B138457
Hardness (CaCO ₃)	mg/L	47	N/A	0.50	B136772	69	0.50	B136772
Ion Balance (% Difference)	%	NC	N/A	N/A	B138411	NC	N/A	B138411
Nitrate (N)	mg/L	<0.020	N/A	0.020	B136797	<0.020	0.020	B136797
Nitrate (NO ₃)	mg/L	<0.089	N/A	0.089	B136793	<0.089	0.089	B136793
Nitrite (NO ₂)	mg/L	<0.066	N/A	0.066	B136793	<0.066	0.066	B136793
Calculated Total Dissolved Solids	mg/L	59	N/A	10	B138469	76	10	B138469
Elements								
Total Cadmium (Cd)	ug/L	<0.020	N/A	0.020	B136750	<0.020	0.020	B136750
Misc. Inorganics								
Conductivity	uS/cm	110	N/A	2.0	B149670	120	2.0	B149670
pH	pH	6.48	N/A	N/A	B149662	6.46	N/A	B149662
Total Organic Carbon (C)	mg/L	4.1	N/A	0.50	B147956	4.6	0.50	B145420
Total Dissolved Solids	mg/L	64	N/A	10	B142191	60	10	B154495
Total Suspended Solids	mg/L	2.1	N/A	0.96	B166325	<0.95	0.95	B166325
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	46	N/A	1.0	B149659	47	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	56	N/A	1.0	B149659	57	1.0	B149659
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	1.2	1.5	1.0	B141996	1.0	1.0	B143820
Sulphate (SO ₄)	mg/L	8.9	9.0	1.0	B141996	16	1.0	B143820
Nutrients								
Total Ammonia (N)	mg/L	<0.015	N/A	0.015	B144430	<0.015	0.015	B144431
Orthophosphate (P)	mg/L	<0.0030	N/A	0.0030	B141601	<0.0030	0.0030	B141601
Total Phosphorus (P)	mg/L	0.0044	N/A	0.0030	B143901	0.0030	0.0030	B143902
Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B142733	<0.020 (1)	0.020	B142733
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B142733	<0.020 (1)	0.020	B142733
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Detection limits raised due to matrix interference.								



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV406	CAV406			CAV407		
Sampling Date		2023/10/01 10:10	2023/10/01 10:10			2023/10/01 10:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 1 OF 2		
	UNITS	GLG-2023-00002-026	GLG-2023-00002-026 Lab-Dup	RDL	QC Batch	GLG-2023-00002-027	RDL	QC Batch

Physical Properties								
Turbidity	NTU	2.2	N/A	0.10	B139986	0.13	0.10	B139986
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV408	CAV408			CAV409		
Sampling Date		2023/10/01 10:00	2023/10/01 10:00			2023/10/01 12:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 2 OF 2		
	UNITS	GLG-2023-00002-028	GLG-2023-00002-028 Lab-Dup	RDL	QC Batch	GLG-2023-00002-018	RDL	QC Batch

Calculated Parameters								
Anion Sum	meq/L	1.1	N/A	N/A	B138457	0.026	N/A	B138457
Cation Sum	meq/L	1.1	N/A	N/A	B138457	0.081	N/A	B138457
Hardness (CaCO ₃)	mg/L	45	N/A	0.50	B136772	1.1	0.50	B138450
Ion Balance (% Difference)	%	NC	N/A	N/A	B138411	NC	N/A	B138411
Nitrate (N)	mg/L	<0.020	N/A	0.020	B136797	<0.020	0.020	B136797
Nitrate (NO ₃)	mg/L	<0.089	N/A	0.089	B136793	<0.089	0.089	B136793
Nitrite (NO ₂)	mg/L	<0.066	N/A	0.066	B136793	<0.066	0.066	B136793
Calculated Total Dissolved Solids	mg/L	57	N/A	10	B138469	<10	10	B138469
Elements								
Total Cadmium (Cd)	ug/L	<0.020	N/A	0.020	B136750	<0.020	0.020	B138444
Misc. Inorganics								
Conductivity	uS/cm	100	N/A	2.0	B149670	<2.0	2.0	B149670
pH	pH	6.43	N/A	N/A	B149662	4.93	N/A	B149662
Total Organic Carbon (C)	mg/L	2.5	N/A	0.50	B145420	<0.50	0.50	B145420
Total Dissolved Solids	mg/L	40	N/A	10	B142191	<10	10	B142191
Total Suspended Solids	mg/L	<0.95	N/A	0.95	B166325	<1.0	1.0	B166903
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	45	N/A	1.0	B149659	<1.0	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	55	N/A	1.0	B149659	<1.0	1.0	B149659
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	B149659	<1.0	1.0	B149659
Chloride (Cl)	mg/L	<1.0	N/A	1.0	B143823	<1.0	1.0	B143823
Sulphate (SO ₄)	mg/L	9.6	N/A	1.0	B143823	1.2	1.0	B143823
Nutrients								
Total Ammonia (N)	mg/L	<0.015	<0.015	0.015	B144430	<0.015	0.015	B144431
Orthophosphate (P)	mg/L	<0.0030	N/A	0.0030	B141601	<0.0030	0.0030	B141601
Total Phosphorus (P)	mg/L	<0.0030	N/A	0.0030	B143902	<0.0030	0.0030	B143902
Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B142733	<0.020 (1)	0.020	B142733
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	N/A	0.020	B142733	<0.020 (1)	0.020	B142733
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								
N/A = Not Applicable								
(1) Detection limits raised due to matrix interference.								



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV408	CAV408			CAV409		
Sampling Date		2023/10/01 10:00	2023/10/01 10:00			2023/10/01 12:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2			PAGE 2 OF 2		
	UNITS	GLG-2023-00002-028	GLG-2023-00002-028 Lab-Dup	RDL	QC Batch	GLG-2023-00002-018	RDL	QC Batch

Physical Properties

Turbidity	NTU	<0.10	N/A	0.10	B139986	<0.10	0.10	B139986
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV409		CAV410	CAV410		
Sampling Date		2023/10/01 12:00		2023/10/01	2023/10/01		
COC Number		PAGE 2 OF 2		PAGE 2 OF 2	PAGE 2 OF 2		
	UNITS	GLG-2023-00002-018 Lab-Dup	QC Batch	GLG-2023-00002-019	GLG-2023-00002-019 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	N/A	B138457	0.0000	N/A	N/A	B138457
Cation Sum	meq/L	N/A	B138457	0.011	N/A	N/A	B138457
Hardness (CaCO ₃)	mg/L	N/A	B138450	<0.50	N/A	0.50	B138450
Ion Balance (% Difference)	%	N/A	B138411	NC	N/A	N/A	B138411
Nitrate (N)	mg/L	N/A	B136797	<0.020	N/A	0.020	B136797
Nitrate (NO ₃)	mg/L	N/A	B136793	<0.089	N/A	0.089	B136793
Nitrite (NO ₂)	mg/L	N/A	B136793	<0.066	N/A	0.066	B136793
Calculated Total Dissolved Solids	mg/L	N/A	B138469	<10	N/A	10	B138469
Elements							
Total Cadmium (Cd)	ug/L	N/A	B138444	<0.020	N/A	0.020	B138444
Misc. Inorganics							
Conductivity	uS/cm	N/A	B149670	<2.0	N/A	2.0	B149670
pH	pH	N/A	B149662	4.95	N/A	N/A	B149662
Total Organic Carbon (C)	mg/L	N/A	B145420	<0.50	N/A	0.50	B145420
Total Dissolved Solids	mg/L	N/A	B142191	<10	<10	10	B139711
Total Suspended Solids	mg/L	N/A	B166903	<1.0	N/A	1.0	B166903
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	N/A	B149659	<1.0	N/A	1.0	B149659
Alkalinity (Total as CaCO ₃)	mg/L	N/A	B149659	<1.0	N/A	1.0	B149659
Bicarbonate (HCO ₃)	mg/L	N/A	B149659	<1.0	N/A	1.0	B149659
Carbonate (CO ₃)	mg/L	N/A	B149659	<1.0	N/A	1.0	B149659
Hydroxide (OH)	mg/L	N/A	B149659	<1.0	N/A	1.0	B149659
Chloride (Cl)	mg/L	N/A	B143823	<1.0	N/A	1.0	B143820
Sulphate (SO ₄)	mg/L	N/A	B143823	<1.0	N/A	1.0	B143820
Nutrients							
Total Ammonia (N)	mg/L	<0.015	B144431	<0.015	<0.015	0.015	B144436
Orthophosphate (P)	mg/L	N/A	B141601	<0.0030	N/A	0.0030	B141601
Total Phosphorus (P)	mg/L	N/A	B143902	<0.0030	N/A	0.0030	B143901
Nitrite (N)	mg/L	N/A	B142733	<0.020	N/A	0.020	B142718
Nitrate plus Nitrite (N)	mg/L	N/A	B142733	<0.020	N/A	0.020	B142718
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		CAV409		CAV410	CAV410		
Sampling Date		2023/10/01 12:00		2023/10/01	2023/10/01		
COC Number		PAGE 2 OF 2		PAGE 2 OF 2	PAGE 2 OF 2		
	UNITS	GLG-2023-00002-018 Lab-Dup	QC Batch	GLG-2023-00002-019	GLG-2023-00002-019 Lab-Dup	RDL	QC Batch

Physical Properties

Turbidity	NTU	N/A	B139986	<0.10	N/A	0.10	B139986
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		CAV401	CAV402	CAV403	CAV404		
Sampling Date		2023/10/01 13:20	2023/10/01 14:20	2023/10/01 11:05	2023/10/01 10:30		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-013	GLG-2023-00002-014	GLG-2023-00002-015	GLG-2023-00002-024	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136734
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136734
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B136734
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	90	86	87	86	N/A	B136734
RDL = Reportable Detection Limit							
N/A = Not Applicable							

Bureau Veritas ID		CAV405	CAV406	CAV407	CAV408		
Sampling Date		2023/10/01 10:40	2023/10/01 10:10	2023/10/01 10:00	2023/10/01 10:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-025	GLG-2023-00002-026	GLG-2023-00002-027	GLG-2023-00002-028	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136734
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B136734
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	B136734
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	86	87	86	90	N/A	B136734
RDL = Reportable Detection Limit							
N/A = Not Applicable							

Bureau Veritas ID		CAV409	CAV410		
Sampling Date		2023/10/01 12:00	2023/10/01		
COC Number		PAGE 2 OF 2	PAGE 2 OF 2		
	UNITS	GLG-2023-00002-018	GLG-2023-00002-019	RDL	QC Batch

Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B136734
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B136734
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	0.20	B136734
Surrogate Recovery (%)					
O-TERPHENYL (sur.)	%	89	87	N/A	B136734
RDL = Reportable Detection Limit					
N/A = Not Applicable					



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

MERCURY BY COLD VAPOR (WATER)

Bureau Veritas ID		CAV399		CAV400	CAV401		
Sampling Date		2023/10/01 11:45		2023/10/01 11:55	2023/10/01 13:20		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	QC Batch	GLG-2023-00002-005	GLG-2023-00002-013	RDL	QC Batch

Elements							
Total Mercury (Hg)	ug/L	<0.0019	B145140	<0.0019	<0.0019	0.0019	B142626
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAV402	CAV403	CAV403	CAV404		
Sampling Date		2023/10/01 14:20	2023/10/01 11:05	2023/10/01 11:05	2023/10/01 10:30		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-014	GLG-2023-00002-015	GLG-2023-00002-015 Lab-Dup	GLG-2023-00002-024	RDL	QC Batch

Elements							
Total Mercury (Hg)	ug/L	<0.0019	<0.0019	0.0021	0.0028	0.0019	B142626
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Bureau Veritas ID		CAV405	CAV406		CAV407		
Sampling Date		2023/10/01 10:40	2023/10/01 10:10		2023/10/01 10:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2		PAGE 1 OF 2		
	UNITS	GLG-2023-00002-025	GLG-2023-00002-026	QC Batch	GLG-2023-00002-027	RDL	QC Batch

Elements							
Total Mercury (Hg)	ug/L	0.0045	<0.0019	B142626	<0.0019	0.0019	B145140
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAV407		CAV408		CAV409		
Sampling Date		2023/10/01 10:00		2023/10/01 10:00		2023/10/01 12:00		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2		PAGE 2 OF 2		
	UNITS	GLG-2023-00002-027 Lab-Dup	QC Batch	GLG-2023-00002-028	QC Batch	GLG-2023-00002-018	RDL	QC Batch

Elements								
Total Mercury (Hg)	ug/L	<0.0019	B145140	<0.0019	B142626	<0.0019	0.0019	B145140
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

MERCURY BY COLD VAPOR (WATER)

Bureau Veritas ID		CAV410		
Sampling Date		2023/10/01		
COC Number		PAGE 2 OF 2		
	UNITS	GLG-2023-00002-019	RDL	QC Batch
Elements				
Total Mercury (Hg)	ug/L	<0.0019	0.0019	B142626
RDL = Reportable Detection Limit				

**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

Bureau Veritas ID		CAV399		CAV400		CAV401		
Sampling Date		2023/10/01 11:45		2023/10/01 11:55		2023/10/01 13:20		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2		PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	QC Batch	GLG-2023-00002-005	QC Batch	GLG-2023-00002-013	RDL	QC Batch

Elements								
Dissolved Aluminum (Al)	mg/L	0.0041	B139143	0.0033	B139143	N/A	0.0030	B139143
Total Aluminum (Al)	mg/L	0.020	B144751	0.018	B144831	0.018	0.0030	B144751
Dissolved Antimony (Sb)	mg/L	0.0019	B139143	0.0014	B139143	N/A	0.00060	N/A
Total Antimony (Sb)	mg/L	0.0037	B144751	0.0036	B144831	<0.00060	0.00060	B144751
Dissolved Arsenic (As)	mg/L	0.0015	B139143	0.0015	B139143	N/A	0.00020	N/A
Total Arsenic (As)	mg/L	0.0027	B144751	0.0022	B144831	0.0036	0.00020	B144751
Dissolved Barium (Ba)	mg/L	0.056	B145445	0.067	B149936	N/A	0.010	N/A
Total Barium (Ba)	mg/L	0.045	B144752	0.044	B144835	0.017	0.010	B144752
Dissolved Beryllium (Be)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Beryllium (Be)	mg/L	<0.0010	B144751	<0.0010	B144831	<0.0010	0.0010	B144751
Dissolved Boron (B)	mg/L	0.027	B145445	0.034	B145445	N/A	0.020	N/A
Total Boron (B)	mg/L	<0.020	B144752	<0.020	B144835	<0.020	0.020	B144752
Dissolved Calcium (Ca)	mg/L	120	B145445	130	B145445	N/A	0.30	N/A
Total Calcium (Ca)	mg/L	120	B144752	120	B144835	24	0.30	B144752
Dissolved Chromium (Cr)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Chromium (Cr)	mg/L	<0.0010	B144751	<0.0010	B144831	<0.0010	0.0010	B144751
Dissolved Cobalt (Co)	mg/L	0.0012	B139143	0.0015	B139143	N/A	0.00030	N/A
Total Cobalt (Co)	mg/L	0.00073	B144751	0.00060	B144831	0.00061	0.00030	B144751
Dissolved Copper (Cu)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Copper (Cu)	mg/L	0.0095	B144751	0.0050	B144831	<0.0010	0.0010	B144751
Dissolved Iron (Fe)	mg/L	<0.060	B145445	<0.060	B145445	N/A	0.060	N/A
Total Iron (Fe)	mg/L	0.14	B144752	0.12	B144835	<0.060	0.060	B144752
Dissolved Lead (Pb)	mg/L	<0.00020	B139143	<0.00020	B139143	N/A	0.00020	N/A
Total Lead (Pb)	mg/L	<0.00020	B144751	<0.00020	B144831	<0.00020	0.00020	B144751
Dissolved Lithium (Li)	mg/L	<0.020	B145445	<0.020	B145445	N/A	0.020	N/A
Total Lithium (Li)	mg/L	<0.020	B144752	<0.020	B144835	<0.020	0.020	B144752
Dissolved Magnesium (Mg)	mg/L	12	B145445	13	B145445	N/A	0.20	N/A
Total Magnesium (Mg)	mg/L	11	B144752	11	B144835	7.4	0.20	B144752
Dissolved Manganese (Mn)	mg/L	0.61	B149936	0.83	B149936	N/A	0.0040	N/A
Total Manganese (Mn)	mg/L	0.18	B144752	0.15	B144835	0.045	0.0040	B144752
Dissolved Molybdenum (Mo)	mg/L	0.0036	B139143	0.0030	B139143	N/A	0.00020	N/A

RDL = Reportable Detection Limit

N/A = Not Applicable



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV399		CAV400		CAV401		
Sampling Date		2023/10/01 11:45		2023/10/01 11:55		2023/10/01 13:20		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2		PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	QC Batch	GLG-2023-00002-005	QC Batch	GLG-2023-00002-013	RDL	QC Batch
Total Molybdenum (Mo)	mg/L	0.0061	B144751	0.0053	B144831	<0.00020	0.00020	B144751
Dissolved Nickel (Ni)	mg/L	0.0032	B139143	0.0035	B139143	N/A	0.00050	N/A
Total Nickel (Ni)	mg/L	0.0052	B144751	0.0038	B144831	0.010	0.00050	B144751
Dissolved Phosphorus (P)	mg/L	<0.10	B145445	<0.10	B145445	N/A	0.10	N/A
Total Phosphorus (P)	mg/L	<0.10	B144752	<0.10	B144835	<0.10	0.10	B144752
Dissolved Potassium (K)	mg/L	2.9	B145445	3.4	B149936	N/A	0.30	N/A
Total Potassium (K)	mg/L	2.3	B144752	2.3	B144835	2.6	0.30	B144752
Dissolved Selenium (Se)	mg/L	0.0015	B139143	0.00099	B139143	N/A	0.00020	N/A
Total Selenium (Se)	mg/L	0.0020	B144751	0.0018	B144831	<0.00020	0.00020	B144751
Dissolved Silicon (Si)	mg/L	5.4	B145445	5.7	B145445	N/A	0.50	N/A
Total Silicon (Si)	mg/L	5.3	B144752	5.2	B144835	0.53	0.50	B144752
Dissolved Silver (Ag)	mg/L	<0.00010	B139143	<0.00010	B139143	N/A	0.00010	N/A
Total Silver (Ag)	mg/L	<0.00010	B144751	<0.00010	B144831	<0.00010	0.00010	B144751
Dissolved Sodium (Na)	mg/L	4.0	B145445	4.3	B145445	N/A	0.50	N/A
Total Sodium (Na)	mg/L	3.7	B144752	3.7	B144835	5.5	0.50	B144752
Dissolved Strontium (Sr)	mg/L	0.36	B145445	0.39	B145445	N/A	0.020	N/A
Total Strontium (Sr)	mg/L	0.36	B144752	0.36	B144835	0.094	0.020	B144752
Dissolved Sulphur (S)	mg/L	45	B145445	45	B145445	N/A	0.20	N/A
Total Sulphur (S)	mg/L	46	B144752	46	B144835	3.3	0.20	B144752
Dissolved Thallium (Tl)	mg/L	<0.00020	B139143	<0.00020	B139143	N/A	0.00020	N/A
Total Thallium (Tl)	mg/L	<0.00020	B144751	<0.00020	B144831	<0.00020	0.00020	B144751
Dissolved Tin (Sn)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Tin (Sn)	mg/L	<0.0010	B144751	<0.0010	B144831	<0.0010	0.0010	B144751
Dissolved Titanium (Ti)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Titanium (Ti)	mg/L	<0.0010	B144751	<0.0010	B144831	<0.0010	0.0010	B144751
Dissolved Uranium (U)	mg/L	0.0034	B139143	0.0037	B139143	N/A	0.00010	N/A
Total Uranium (U)	mg/L	0.0033	B144751	0.0029	B144831	<0.00010	0.00010	B144751
Dissolved Vanadium (V)	mg/L	<0.0010	B139143	<0.0010	B139143	N/A	0.0010	N/A
Total Vanadium (V)	mg/L	<0.0010	B144751	<0.0010	B144831	<0.0010	0.0010	B144751
Dissolved Zinc (Zn)	mg/L	<0.0030	B139143	<0.0030	B139143	N/A	0.0030	N/A
Total Zinc (Zn)	mg/L	0.0069	B144751	0.0034	B144831	<0.0030	0.0030	B144751

RDL = Reportable Detection Limit

N/A = Not Applicable



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV399		CAV400		CAV401		
Sampling Date		2023/10/01 11:45		2023/10/01 11:55		2023/10/01 13:20		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2		PAGE 1 OF 2		
	UNITS	GLG-2023-00002-004	QC Batch	GLG-2023-00002-005	QC Batch	GLG-2023-00002-013	RDL	QC Batch

Lab Filtered Elements								
Dissolved Calcium (Ca)	mg/L	N/A	N/A	N/A	N/A	25	0.30	B145299
Dissolved Iron (Fe)	mg/L	N/A	N/A	N/A	N/A	<0.060	0.060	B145299
Dissolved Magnesium (Mg)	mg/L	N/A	N/A	N/A	N/A	7.9	0.20	B145299
Dissolved Manganese (Mn)	mg/L	N/A	N/A	N/A	N/A	0.027	0.0040	B145299
Dissolved Potassium (K)	mg/L	N/A	N/A	N/A	N/A	2.7	0.30	B145299
Dissolved Sodium (Na)	mg/L	N/A	N/A	N/A	N/A	5.9	0.50	B145299

Total Metals by ICPMS								
Total Bismuth (Bi)	mg/L	<0.0010	B144766	<0.0010	B145744	<0.0010	0.0010	B144766
Total Cesium (Cs)	mg/L	<0.00020	B144766	<0.00020	B145744	<0.00020	0.00020	B144766

RDL = Reportable Detection Limit

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV402		CAV403	CAV404		
Sampling Date		2023/10/01 14:20		2023/10/01 11:05	2023/10/01 10:30		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-014	QC Batch	GLG-2023-00002-015	GLG-2023-00002-024	RDL	QC Batch

Elements							
Total Aluminum (Al)	mg/L	0.034	B144751	0.011	0.025	0.0030	B144751
Total Antimony (Sb)	mg/L	<0.00060	B144751	<0.00060	<0.00060	0.00060	B144751
Total Arsenic (As)	mg/L	0.00081	B144751	0.00037	0.00058	0.00020	B144751
Total Barium (Ba)	mg/L	<0.010	B144752	<0.010	<0.010	0.010	B144752
Total Beryllium (Be)	mg/L	<0.0010	B144751	<0.0010	<0.0010	0.0010	B144751
Total Boron (B)	mg/L	<0.020	B144752	<0.020	<0.020	0.020	B144752
Total Calcium (Ca)	mg/L	13	B144752	13	17	0.30	B144752
Total Chromium (Cr)	mg/L	<0.0010	B144751	<0.0010	<0.0010	0.0010	B144751
Total Cobalt (Co)	mg/L	<0.00030	B144751	<0.00030	<0.00030	0.00030	B144751
Total Copper (Cu)	mg/L	<0.0010	B144751	<0.0010	0.0029	0.0010	B144751
Total Iron (Fe)	mg/L	<0.060	B144752	<0.060	0.14	0.060	B144752
Total Lead (Pb)	mg/L	<0.00020	B144751	<0.00020	<0.00020	0.00020	B144751
Total Lithium (Li)	mg/L	<0.020	B144752	<0.020	<0.020	0.020	B144752
Total Magnesium (Mg)	mg/L	3.2	B144752	3.2	5.7	0.20	B144752
Total Manganese (Mn)	mg/L	0.0064	B144752	<0.0040	0.0093	0.0040	B144752
Total Molybdenum (Mo)	mg/L	<0.00020	B144751	<0.00020	0.00052	0.00020	B144751
Total Nickel (Ni)	mg/L	0.00065	B144751	0.00053	0.0032	0.00050	B144751
Total Phosphorus (P)	mg/L	<0.10	B144752	<0.10	<0.10	0.10	B144752
Total Potassium (K)	mg/L	1.5	B144752	1.5	1.4	0.30	B144752
Total Selenium (Se)	mg/L	<0.00020	B144751	<0.00020	<0.00020	0.00020	B144751
Total Silicon (Si)	mg/L	<0.50	B144752	<0.50	3.5	0.50	B144752
Total Silver (Ag)	mg/L	<0.00010	B144751	<0.00010	<0.00010	0.00010	B144751
Total Sodium (Na)	mg/L	2.5	B144752	2.5	4.9	0.50	B144752
Total Strontium (Sr)	mg/L	0.045	B144752	0.046	0.055	0.020	B144752
Total Sulphur (S)	mg/L	2.7	B144752	2.7	5.9	0.20	B144752
Total Thallium (Tl)	mg/L	<0.00020	B144751	<0.00020	<0.00020	0.00020	B144751
Total Tin (Sn)	mg/L	<0.0010	B144751	<0.0010	<0.0010	0.0010	B144751
Total Titanium (Ti)	mg/L	0.0014	B144751	<0.0010	0.0011	0.0010	B144751
Total Uranium (U)	mg/L	0.00015	B144751	0.00011	0.00022	0.00010	B144751
Total Vanadium (V)	mg/L	<0.0010	B144751	<0.0010	<0.0010	0.0010	B144751
Total Zinc (Zn)	mg/L	<0.0030	B144751	<0.0030	<0.0030	0.0030	B144751

RDL = Reportable Detection Limit



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV402		CAV403	CAV404		
Sampling Date		2023/10/01 14:20		2023/10/01 11:05	2023/10/01 10:30		
COC Number		PAGE 1 OF 2		PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-014	QC Batch	GLG-2023-00002-015	GLG-2023-00002-024	RDL	QC Batch

Lab Filtered Elements							
Dissolved Calcium (Ca)	mg/L	14	B145299	14	17	0.30	B148147
Dissolved Iron (Fe)	mg/L	<0.060	B145299	<0.060	<0.060	0.060	B148147
Dissolved Magnesium (Mg)	mg/L	3.4	B145299	3.2	5.5	0.20	B148147
Dissolved Manganese (Mn)	mg/L	<0.0040	B145299	<0.0040	0.0054	0.0040	B148147
Dissolved Potassium (K)	mg/L	1.6	B145299	1.5	1.4	0.30	B148147
Dissolved Sodium (Na)	mg/L	2.6	B145299	2.6	4.8	0.50	B148147
Total Metals by ICPMS							
Total Bismuth (Bi)	mg/L	<0.0010	B144766	<0.0010	<0.0010	0.0010	B144766
Total Cesium (Cs)	mg/L	<0.00020	B144766	<0.00020	<0.00020	0.00020	B144766
RDL = Reportable Detection Limit							

**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

Bureau Veritas ID		CAV405			CAV406	CAV407		
Sampling Date		2023/10/01 10:40			2023/10/01 10:10	2023/10/01 10:00		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-025	RDL	QC Batch	GLG-2023-00002-026	GLG-2023-00002-027	RDL	QC Batch

Elements								
Total Aluminum (Al)	mg/L	0.019	0.0030	B144836	0.038	0.019	0.0030	B144751
Total Antimony (Sb)	mg/L	<0.00060	0.00060	B144836	<0.00060	<0.00060	0.00060	B144751
Total Arsenic (As)	mg/L	0.00059	0.00020	B144836	0.00048	0.00038	0.00020	B144751
Total Barium (Ba)	mg/L	<0.010	0.010	B144837	<0.010	<0.010	0.010	B144752
Total Beryllium (Be)	mg/L	<0.0010	0.0010	B144836	<0.0010	<0.0010	0.0010	B144751
Total Boron (B)	mg/L	0.022	0.020	B144837	<0.020	<0.020	0.020	B144752
Total Calcium (Ca)	mg/L	16	0.30	B144837	14	14	0.30	B144752
Total Chromium (Cr)	mg/L	<0.0010	0.0010	B144836	<0.0010	<0.0010	0.0010	B144751
Total Cobalt (Co)	mg/L	<0.00030	0.00030	B144836	<0.00030	<0.00030	0.00030	B144751
Total Copper (Cu)	mg/L	0.0012	0.0010	B144836	0.0012	<0.0010	0.0010	B144751
Total Iron (Fe)	mg/L	0.12	0.073	B144837	0.090	0.088	0.060	B144752
Total Lead (Pb)	mg/L	<0.00020	0.00020	B144836	<0.00020	<0.00020	0.00020	B144751
Total Lithium (Li)	mg/L	0.024	0.021	B144837	<0.020	<0.020	0.020	B144752
Total Magnesium (Mg)	mg/L	5.3	0.20	B144837	3.6	3.7	0.20	B144752
Total Manganese (Mn)	mg/L	0.0082	0.0040	B144837	0.0072	0.011	0.0040	B144752
Total Molybdenum (Mo)	mg/L	0.00050	0.00020	B144836	0.00020	<0.00020	0.00020	B144751
Total Nickel (Ni)	mg/L	0.0015	0.00050	B144836	0.00080	<0.00050	0.00050	B144751
Total Phosphorus (P)	mg/L	<0.10	0.10	B144837	<0.10	<0.10	0.10	B144752
Total Potassium (K)	mg/L	1.5	0.30	B144837	1.4	1.5	0.30	B144752
Total Selenium (Se)	mg/L	<0.00020	0.00020	B144836	<0.00020	<0.00020	0.00020	B144751
Total Silicon (Si)	mg/L	3.5	0.50	B144837	0.90	0.89	0.50	B144752
Total Silver (Ag)	mg/L	<0.00010	0.00010	B144836	<0.00010	<0.00010	0.00010	B144751
Total Sodium (Na)	mg/L	4.8	0.50	B144837	3.1	3.2	0.50	B144752
Total Strontium (Sr)	mg/L	0.044	0.020	B144837	0.047	0.062	0.020	B144752
Total Sulphur (S)	mg/L	6.2	0.20	B144837	3.5	4.6	0.20	B144752
Total Thallium (Tl)	mg/L	<0.00020	0.00020	B144836	<0.00020	<0.00020	0.00020	B144751
Total Tin (Sn)	mg/L	<0.0010	0.0010	B144836	<0.0010	<0.0010	0.0010	B144751
Total Titanium (Ti)	mg/L	<0.0010	0.0010	B144836	0.0015	0.0039	0.0010	B144751
Total Uranium (U)	mg/L	0.00019	0.00010	B144836	0.00017	0.00014	0.00010	B144751
Total Vanadium (V)	mg/L	<0.0010	0.0010	B144836	<0.0010	<0.0010	0.0010	B144751
Total Zinc (Zn)	mg/L	<0.0030	0.0030	B144836	<0.0030	<0.0030	0.0030	B144751

RDL = Reportable Detection Limit



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV405			CAV406	CAV407		
Sampling Date		2023/10/01 10:40			2023/10/01 10:10	2023/10/01 10:00		
COC Number		PAGE 1 OF 2			PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-025	RDL	QC Batch	GLG-2023-00002-026	GLG-2023-00002-027	RDL	QC Batch

Lab Filtered Elements

Dissolved Calcium (Ca)	mg/L	17	0.30	B148147	13	19	0.30	B148147
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B148147	<0.060	<0.060	0.060	B148147
Dissolved Magnesium (Mg)	mg/L	5.6	0.20	B148147	3.4	5.3	0.20	B148147
Dissolved Manganese (Mn)	mg/L	<0.0040	0.0040	B148147	<0.0040	0.0052	0.0040	B148147
Dissolved Potassium (K)	mg/L	1.4	0.30	B148147	1.4	1.8	0.30	B148147
Dissolved Sodium (Na)	mg/L	5.0	0.50	B148147	3.1	4.2	0.50	B148147

Total Metals by ICPMS

Total Bismuth (Bi)	mg/L	<0.0010	0.0010	B144768	<0.0010	<0.0010	0.0010	B144766
Total Cesium (Cs)	mg/L	<0.00020	0.00020	B144768	<0.00020	<0.00020	0.00020	B144766

RDL = Reportable Detection Limit



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV408	CAV409		CAV410		
Sampling Date		2023/10/01 10:00	2023/10/01 12:00		2023/10/01		
COC Number		PAGE 1 OF 2	PAGE 2 OF 2		PAGE 2 OF 2		
	UNITS	GLG-2023-00002-028	GLG-2023-00002-018	QC Batch	GLG-2023-00002-019	RDL	QC Batch

Elements							
Total Aluminum (Al)	mg/L	0.010	<0.0030	B144751	<0.0030	0.0030	B144831
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	B144751	<0.00060	0.00060	B144831
Total Arsenic (As)	mg/L	0.00037	<0.00020	B144751	<0.00020	0.00020	B144831
Total Barium (Ba)	mg/L	<0.010	<0.010	B144752	<0.010	0.010	B144835
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Boron (B)	mg/L	<0.020	<0.020	B144752	<0.020	0.020	B144835
Total Calcium (Ca)	mg/L	13	<0.30	B144752	<0.30	0.30	B144835
Total Chromium (Cr)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Cobalt (Co)	mg/L	<0.00030	<0.00030	B144751	<0.00030	0.00030	B144831
Total Copper (Cu)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Iron (Fe)	mg/L	<0.060	<0.060	B144752	<0.060	0.060	B144835
Total Lead (Pb)	mg/L	<0.00020	<0.00020	B144751	<0.00020	0.00020	B144831
Total Lithium (Li)	mg/L	<0.020	<0.020	B144752	<0.020	0.020	B144835
Total Magnesium (Mg)	mg/L	3.2	<0.20	B144752	<0.20	0.20	B144835
Total Manganese (Mn)	mg/L	<0.0040	<0.0040	B144752	<0.0040	0.0040	B144835
Total Molybdenum (Mo)	mg/L	<0.00020	<0.00020	B144751	<0.00020	0.00020	B144831
Total Nickel (Ni)	mg/L	0.0021	<0.00050	B144751	<0.00050	0.00050	B144831
Total Phosphorus (P)	mg/L	<0.10	<0.10	B144752	<0.10	0.10	B144835
Total Potassium (K)	mg/L	1.5	<0.30	B144752	<0.30	0.30	B144835
Total Selenium (Se)	mg/L	<0.00020	<0.00020	B144751	<0.00020	0.00020	B144831
Total Silicon (Si)	mg/L	<0.50	<0.50	B144752	<0.50	0.50	B144835
Total Silver (Ag)	mg/L	<0.00010	<0.00010	B144751	<0.00010	0.00010	B144831
Total Sodium (Na)	mg/L	2.5	<0.50	B144752	<0.50	0.50	B144835
Total Strontium (Sr)	mg/L	0.046	<0.020	B144752	<0.020	0.020	B144835
Total Sulphur (S)	mg/L	2.7	<0.20	B144752	<0.20	0.20	B144835
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	B144751	<0.00020	0.00020	B144831
Total Tin (Sn)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Titanium (Ti)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Uranium (U)	mg/L	0.00011	<0.00010	B144751	<0.00010	0.00010	B144831
Total Vanadium (V)	mg/L	<0.0010	<0.0010	B144751	<0.0010	0.0010	B144831
Total Zinc (Zn)	mg/L	<0.0030	<0.0030	B144751	<0.0030	0.0030	B144831

RDL = Reportable Detection Limit



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		CAV408	CAV409		CAV410		
Sampling Date		2023/10/01 10:00	2023/10/01 12:00		2023/10/01		
COC Number		PAGE 1 OF 2	PAGE 2 OF 2		PAGE 2 OF 2		
	UNITS	GLG-2023-00002-028	GLG-2023-00002-018	QC Batch	GLG-2023-00002-019	RDL	QC Batch

Lab Filtered Elements							
Dissolved Calcium (Ca)	mg/L	13	0.43	B148147	<0.30	0.30	B148147
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	B148147	<0.060	0.060	B148147
Dissolved Magnesium (Mg)	mg/L	3.1	<0.20	B148147	<0.20	0.20	B148147
Dissolved Manganese (Mn)	mg/L	0.0073	<0.0040	B148147	<0.0040	0.0040	B148147
Dissolved Potassium (K)	mg/L	1.4	<0.30	B148147	<0.30	0.30	B148147
Dissolved Sodium (Na)	mg/L	2.5	1.1	B148147	<0.50	0.50	B148147
Total Metals by ICPMS							
Total Bismuth (Bi)	mg/L	<0.0010	<0.0010	B144766	<0.0010	0.0010	B145744
Total Cesium (Cs)	mg/L	<0.00020	<0.00020	B144766	<0.00020	0.00020	B145744
RDL = Reportable Detection Limit							



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VERITAS

Bureau Veritas Job #: C379541
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: GORDON LAKE

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CAV401	CAV402	CAV403	CAV404		
Sampling Date		2023/10/01 13:20	2023/10/01 14:20	2023/10/01 11:05	2023/10/01 10:30		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-013	GLG-2023-00002-014	GLG-2023-00002-015	GLG-2023-00002-024	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B140848
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	<0.89	0.89	B136743
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	B136743
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B140848

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	103	104	105	104	N/A	B140848
4-Bromofluorobenzene (sur.)	%	95	95	94	94	N/A	B140848
D4-1,2-Dichloroethane (sur.)	%	93	93	93	93	N/A	B140848

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID		CAV405	CAV406	CAV407	CAV408		
Sampling Date		2023/10/01 10:40	2023/10/01 10:10	2023/10/01 10:00	2023/10/01 10:00		
COC Number		PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2	PAGE 1 OF 2		
	UNITS	GLG-2023-00002-025	GLG-2023-00002-026	GLG-2023-00002-027	GLG-2023-00002-028	RDL	QC Batch

Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	B140848
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	B140848
Xylenes (Total)	ug/L	<0.89	<0.89	<0.89	<0.89	0.89	B138442
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	B138442
F1 (C6-C10)	ug/L	<100	<100	<100	<100	100	B140848

Surrogate Recovery (%)

1,4-Difluorobenzene (sur.)	%	105	105	105	103	N/A	B140848
4-Bromofluorobenzene (sur.)	%	94	94	94	94	N/A	B140848
D4-1,2-Dichloroethane (sur.)	%	94	94	95	93	N/A	B140848

RDL = Reportable Detection Limit

N/A = Not Applicable



VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CAV409	CAV410		
Sampling Date		2023/10/01 12:00	2023/10/01		
COC Number		PAGE 2 OF 2	PAGE 2 OF 2		
	UNITS	GLG-2023-00002-018	GLG-2023-00002-019	RDL	QC Batch
Volatiles					
Benzene	ug/L	<0.40	<0.40	0.40	B140848
Toluene	ug/L	<0.40	<0.40	0.40	B140848
Ethylbenzene	ug/L	<0.40	<0.40	0.40	B140848
m & p-Xylene	ug/L	<0.80	<0.80	0.80	B140848
o-Xylene	ug/L	<0.40	<0.40	0.40	B140848
Xylenes (Total)	ug/L	<0.89	<0.89	0.89	B138442
F1 (C6-C10) - BTEX	ug/L	<100	<100	100	B138442
F1 (C6-C10)	ug/L	<100	<100	100	B140848
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	105	105	N/A	B140848
4-Bromofluorobenzene (sur.)	%	93	93	N/A	B140848
D4-1,2-Dichloroethane (sur.)	%	94	93	N/A	B140848
RDL = Reportable Detection Limit					
N/A = Not Applicable					



GENERAL COMMENTS

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

Package 1	4.7°C
Package 2	5.3°C

Version 2: Report re-issued to provide results for parameters requested on the original Chain of custody. Results for TSS on all samples have been added. Analyzed past hold time as per client request on 23/10/23.

Sample CAV399 [GLG-2023-00002-004] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAV400 [GLG-2023-00002-005] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAV401 [GLG-2023-00002-013] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAV402 [GLG-2023-00002-014] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV403 [GLG-2023-00002-015] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV404 [GLG-2023-00002-024] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV405 [GLG-2023-00002-025] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV406 [GLG-2023-00002-026] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.



Sample CAV407 [GLG-2023-00002-027] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Dissolved Solids (Filt. Residue). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV408 [GLG-2023-00002-028] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample CAV409 [GLG-2023-00002-018] : Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

Sample CAV410 [GLG-2023-00002-019] : NO₂ (N); NO₂ (N) + NO₃ (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes. Orthophosphate by Automated Analyzer completed within five days of sampling. Data is satisfactory for compliance purposes. Turbidity completed within five days of sampling. Data is satisfactory for compliance purposes. Sample was analyzed past method specified hold time for Total Suspended Solids (NFR).

RESULTS OF CHEMICAL ANALYSES OF WATER Comments

Sample CAV401 [GLG-2023-00002-013] NO₂ (N); NO₂ (N) + NO₃ (N) in Water: Detection limits raised due to matrix interference. Matrix spike exceeds acceptance limits due to probable matrix interference.

Sample CAV399, Elements by ICP - Dissolved: Test repeated.

Sample CAV400, Elements by ICP - Dissolved: Test repeated.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C379541
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: GORDON LAKE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B136734	CHA	Matrix Spike	O-TERPHENYL (sur.)	2023/10/05		87	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/10/05		97	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/10/05		96	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/10/05		92	%	60 - 140
B136734	CHA	Spiked Blank	O-TERPHENYL (sur.)	2023/10/05		88	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/10/05		96	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2023/10/05		96	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2023/10/05		92	%	60 - 140
B136734	CHA	Method Blank	O-TERPHENYL (sur.)	2023/10/05		87	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2023/10/05	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2023/10/05	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2023/10/05	<0.20		mg/L	
B136734	CHA	RPD	F2 (C10-C16 Hydrocarbons)	2023/10/05	10		%	30
			F3 (C16-C34 Hydrocarbons)	2023/10/05	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2023/10/05	NC		%	30
B139143	JAB	Matrix Spike	Dissolved Aluminum (Al)	2023/10/05		103	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/05		105	%	80 - 120
			Dissolved Arsenic (As)	2023/10/05		98	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/05		89	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/05		97	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/05		92	%	80 - 120
			Dissolved Copper (Cu)	2023/10/05		87	%	80 - 120
			Dissolved Lead (Pb)	2023/10/05		84	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/05		113	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/05		86	%	80 - 120
			Dissolved Selenium (Se)	2023/10/05		92	%	80 - 120
			Dissolved Silver (Ag)	2023/10/05		89	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/05		86	%	80 - 120
			Dissolved Tin (Sn)	2023/10/05		109	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/05		107	%	80 - 120
			Dissolved Uranium (U)	2023/10/05		NC	%	80 - 120
			Dissolved Vanadium (V)	2023/10/05		103	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/05		80	%	80 - 120
B139143	JAB	Spiked Blank	Dissolved Aluminum (Al)	2023/10/05		115	%	80 - 120
			Dissolved Antimony (Sb)	2023/10/05		105	%	80 - 120
			Dissolved Arsenic (As)	2023/10/05		99	%	80 - 120
			Dissolved Beryllium (Be)	2023/10/05		93	%	80 - 120
			Dissolved Chromium (Cr)	2023/10/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2023/10/05		95	%	80 - 120
			Dissolved Copper (Cu)	2023/10/05		95	%	80 - 120
			Dissolved Lead (Pb)	2023/10/05		94	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/10/05		99	%	80 - 120
			Dissolved Nickel (Ni)	2023/10/05		93	%	80 - 120
			Dissolved Selenium (Se)	2023/10/05		94	%	80 - 120
			Dissolved Silver (Ag)	2023/10/05		94	%	80 - 120
			Dissolved Thallium (Tl)	2023/10/05		93	%	80 - 120
			Dissolved Tin (Sn)	2023/10/05		101	%	80 - 120
			Dissolved Titanium (Ti)	2023/10/05		95	%	80 - 120
			Dissolved Uranium (U)	2023/10/05		93	%	80 - 120
B139143	JAB	Method Blank	Dissolved Vanadium (V)	2023/10/05		96	%	80 - 120
			Dissolved Zinc (Zn)	2023/10/05		94	%	80 - 120
			Dissolved Aluminum (Al)	2023/10/05	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2023/10/05	<0.00060		mg/L	
			Dissolved Arsenic (As)	2023/10/05	<0.00020		mg/L	



BUREAU
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Bureau Veritas Job #: C379541
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: GORDON LAKE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B139143	JAB	RPD	Dissolved Beryllium (Be)	2023/10/05	<0.0010		mg/L	
			Dissolved Chromium (Cr)	2023/10/05	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2023/10/05	<0.00030		mg/L	
			Dissolved Copper (Cu)	2023/10/05	<0.0010		mg/L	
			Dissolved Lead (Pb)	2023/10/05	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2023/10/05	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2023/10/05	<0.00050		mg/L	
			Dissolved Selenium (Se)	2023/10/05	<0.00020		mg/L	
			Dissolved Silver (Ag)	2023/10/05	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2023/10/05	<0.00020		mg/L	
			Dissolved Tin (Sn)	2023/10/05	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2023/10/05	<0.0010		mg/L	
			Dissolved Uranium (U)	2023/10/05	<0.00010		mg/L	
			Dissolved Vanadium (V)	2023/10/05	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2023/10/05	<0.0030		mg/L	
			Dissolved Aluminum (Al)	2023/10/05	NC		%	20
			Dissolved Antimony (Sb)	2023/10/05	NC		%	20
			Dissolved Arsenic (As)	2023/10/05	8.9		%	20
			Dissolved Beryllium (Be)	2023/10/05	NC		%	20
			Dissolved Chromium (Cr)	2023/10/05	NC		%	20
			Dissolved Cobalt (Co)	2023/10/05	0.067		%	20
			Dissolved Copper (Cu)	2023/10/05	2.6		%	20
			Dissolved Lead (Pb)	2023/10/05	NC		%	20
			Dissolved Molybdenum (Mo)	2023/10/05	1.3		%	20
			Dissolved Nickel (Ni)	2023/10/05	1.1		%	20
			Dissolved Silver (Ag)	2023/10/05	NC		%	20
			Dissolved Thallium (Tl)	2023/10/05	NC		%	20
			Dissolved Tin (Sn)	2023/10/05	NC		%	20
			Dissolved Titanium (Ti)	2023/10/05	NC		%	20
			Dissolved Uranium (U)	2023/10/05	1.2		%	20
			Dissolved Vanadium (V)	2023/10/05	NC		%	20
			Dissolved Zinc (Zn)	2023/10/05	NC		%	20
B139711	RTM	Matrix Spike [CAV410-01]	Total Dissolved Solids	2023/10/06		106	%	80 - 120
B139711	RTM	Spiked Blank	Total Dissolved Solids	2023/10/06		97	%	80 - 120
B139711	RTM	Method Blank	Total Dissolved Solids	2023/10/06	<10		mg/L	
B139711	RTM	RPD [CAV410-01]	Total Dissolved Solids	2023/10/06	NC		%	20
B139986	RTM	Spiked Blank	Turbidity	2023/10/05		101	%	80 - 120
B139986	RTM	Method Blank	Turbidity	2023/10/05	<0.10		NTU	
B139986	RTM	RPD	Turbidity	2023/10/05	17		%	20
B140561	ISW	Matrix Spike [CAV401-02]	Nitrite (N)	2023/10/05		196 (1)	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/05		233 (1)	%	80 - 120
B140561	ISW	Spiked Blank	Nitrite (N)	2023/10/05		103	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/05		100	%	80 - 120
B140561	ISW	Method Blank	Nitrite (N)	2023/10/05	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/05	<0.010		mg/L	
B140561	ISW	RPD [CAV401-02]	Nitrite (N)	2023/10/05	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/05	10		%	20
B140848	RIL	Matrix Spike	1,4-Difluorobenzene (sur.)	2023/10/14		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/14		96	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/14		87	%	50 - 140
			Benzene	2023/10/14		93	%	50 - 140
			Toluene	2023/10/14		96	%	50 - 140
			Ethylbenzene	2023/10/14		96	%	50 - 140
			m & p-Xylene	2023/10/14		101	%	50 - 140



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B140848	RIL	Spiked Blank	o-Xylene	2023/10/14		100	%	50 - 140
			F1 (C6-C10)	2023/10/14		91	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/10/14		98	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/14		96	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/14		86	%	50 - 140
			Benzene	2023/10/14		92	%	60 - 130
			Toluene	2023/10/14		95	%	60 - 130
			Ethylbenzene	2023/10/14		93	%	60 - 130
			m & p-Xylene	2023/10/14		102	%	60 - 130
			o-Xylene	2023/10/14		101	%	60 - 130
B140848	RIL	Method Blank	F1 (C6-C10)	2023/10/14		104	%	60 - 140
			1,4-Difluorobenzene (sur.)	2023/10/14		105	%	50 - 140
			4-Bromofluorobenzene (sur.)	2023/10/14		94	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2023/10/14		95	%	50 - 140
			Benzene	2023/10/14	<0.40		ug/L	
			Toluene	2023/10/14	<0.40		ug/L	
			Ethylbenzene	2023/10/14	<0.40		ug/L	
			m & p-Xylene	2023/10/14	<0.80		ug/L	
			o-Xylene	2023/10/14	<0.40		ug/L	
			F1 (C6-C10)	2023/10/14	<100		ug/L	
B140848	RIL	RPD	Benzene	2023/10/14	NC		%	30
			Toluene	2023/10/14	NC		%	30
			Ethylbenzene	2023/10/14	NC		%	30
			m & p-Xylene	2023/10/14	NC		%	30
			o-Xylene	2023/10/14	NC		%	30
			F1 (C6-C10)	2023/10/14	NC		%	30
B141596	CTU	Matrix Spike	Orthophosphate (P)	2023/10/05		100	%	80 - 120
B141596	CTU	Spiked Blank	Orthophosphate (P)	2023/10/05		100	%	80 - 120
B141596	CTU	Method Blank	Orthophosphate (P)	2023/10/05	<0.0030		mg/L	
B141596	CTU	RPD	Orthophosphate (P)	2023/10/05	0.63		%	20
B141601	CTU	Matrix Spike	Orthophosphate (P)	2023/10/05		104	%	80 - 120
B141601	CTU	Spiked Blank	Orthophosphate (P)	2023/10/05		101	%	80 - 120
B141601	CTU	Method Blank	Orthophosphate (P)	2023/10/05	<0.0030		mg/L	
B141601	CTU	RPD	Orthophosphate (P)	2023/10/05	3.8		%	20
B141996	TOR	Matrix Spike [CAV406-02]	Chloride (Cl)	2023/10/05		104	%	80 - 120
			Sulphate (SO4)	2023/10/05		104	%	80 - 120
			Chloride (Cl)	2023/10/05		99	%	80 - 120
B141996	TOR	Spiked Blank	Sulphate (SO4)	2023/10/05		99	%	80 - 120
			Chloride (Cl)	2023/10/05	<1.0		mg/L	
			Sulphate (SO4)	2023/10/05	<1.0		mg/L	
B141996	TOR	RPD [CAV406-02]	Chloride (Cl)	2023/10/05	NC		%	20
			Sulphate (SO4)	2023/10/05	1.3		%	20
B142158	DVN	Matrix Spike	Total Dissolved Solids	2023/10/08		101	%	80 - 120
B142158	DVN	Spiked Blank	Total Dissolved Solids	2023/10/08		97	%	80 - 120
B142158	DVN	Method Blank	Total Dissolved Solids	2023/10/08	<10		mg/L	
B142158	DVN	RPD	Total Dissolved Solids	2023/10/08	2.4		%	20
B142191	AZI	Matrix Spike	Total Dissolved Solids	2023/10/08		107	%	80 - 120
B142191	AZI	Spiked Blank	Total Dissolved Solids	2023/10/08		94	%	80 - 120
B142191	AZI	Method Blank	Total Dissolved Solids	2023/10/08	<10		mg/L	
B142191	AZI	RPD	Total Dissolved Solids	2023/10/08	2.2		%	20
B142605	ISW	Matrix Spike	Nitrite (N)	2023/10/06		93	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/06		103	%	80 - 120
			Nitrite (N)	2023/10/06		102	%	80 - 120
B142605	ISW	Spiked Blank	Nitrate plus Nitrite (N)	2023/10/06		105	%	80 - 120



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B142605	ISW	Method Blank	Nitrite (N)	2023/10/06	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/06	<0.010		mg/L	
B142605	ISW	RPD	Nitrite (N)	2023/10/06	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/06	NC		%	20
B142626	KKM	Matrix Spike [CAV410-07]	Total Mercury (Hg)	2023/10/09		112	%	80 - 120
B142626	KKM	Spiked Blank	Total Mercury (Hg)	2023/10/09		103	%	80 - 120
B142626	KKM	Method Blank	Total Mercury (Hg)	2023/10/09	<0.0019		ug/L	
B142626	KKM	RPD [CAV403-07]	Total Mercury (Hg)	2023/10/09	12		%	20
B142718	AFI	Matrix Spike	Nitrite (N)	2023/10/06		104	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/06		104	%	80 - 120
B142718	AFI	Spiked Blank	Nitrite (N)	2023/10/06		103	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/06		106	%	80 - 120
B142718	AFI	Method Blank	Nitrite (N)	2023/10/06	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/06	<0.010		mg/L	
B142718	AFI	RPD	Nitrite (N)	2023/10/06	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/06	NC		%	20
B142733	ISW	Matrix Spike	Nitrite (N)	2023/10/06		125 (1)	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/06		104	%	80 - 120
B142733	ISW	Spiked Blank	Nitrite (N)	2023/10/06		100	%	80 - 120
			Nitrate plus Nitrite (N)	2023/10/06		105	%	80 - 120
B142733	ISW	Method Blank	Nitrite (N)	2023/10/06	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2023/10/06	<0.010		mg/L	
B142733	ISW	RPD	Nitrite (N)	2023/10/06	NC		%	20
			Nitrate plus Nitrite (N)	2023/10/06	NC		%	20
B143820	TOR	Matrix Spike	Chloride (Cl)	2023/10/08		101	%	80 - 120
			Sulphate (SO4)	2023/10/08		NC	%	80 - 120
B143820	TOR	Spiked Blank	Chloride (Cl)	2023/10/08		98	%	80 - 120
			Sulphate (SO4)	2023/10/08		101	%	80 - 120
B143820	TOR	Method Blank	Chloride (Cl)	2023/10/08	<1.0		mg/L	
			Sulphate (SO4)	2023/10/08	<1.0		mg/L	
B143820	TOR	RPD	Chloride (Cl)	2023/10/08	0.21		%	20
			Sulphate (SO4)	2023/10/08	3.2		%	20
B143823	TOR	Matrix Spike	Chloride (Cl)	2023/10/06		105	%	80 - 120
			Sulphate (SO4)	2023/10/06		109	%	80 - 120
B143823	TOR	Spiked Blank	Chloride (Cl)	2023/10/06		96	%	80 - 120
			Sulphate (SO4)	2023/10/06		99	%	80 - 120
B143823	TOR	Method Blank	Chloride (Cl)	2023/10/06	<1.0		mg/L	
			Sulphate (SO4)	2023/10/06	<1.0		mg/L	
B143823	TOR	RPD	Chloride (Cl)	2023/10/06	NC		%	20
			Sulphate (SO4)	2023/10/06	NC		%	20
B143830	TOR	Matrix Spike	Chloride (Cl)	2023/10/06		NC	%	80 - 120
			Sulphate (SO4)	2023/10/06		NC	%	80 - 120
B143830	TOR	Spiked Blank	Chloride (Cl)	2023/10/08		99	%	80 - 120
			Sulphate (SO4)	2023/10/08		104	%	80 - 120
B143830	TOR	Method Blank	Chloride (Cl)	2023/10/06	<1.0		mg/L	
			Sulphate (SO4)	2023/10/06	<1.0		mg/L	
B143830	TOR	RPD	Chloride (Cl)	2023/10/06	13		%	20
			Sulphate (SO4)	2023/10/06	2.1		%	20
B143901	CTU	Matrix Spike [CAV402-04]	Total Phosphorus (P)	2023/10/08		115	%	80 - 120
B143901	CTU	QC Standard	Total Phosphorus (P)	2023/10/08		94	%	80 - 120
B143901	CTU	Spiked Blank	Total Phosphorus (P)	2023/10/08		102	%	80 - 120
B143901	CTU	Method Blank	Total Phosphorus (P)	2023/10/08	<0.0030		mg/L	
B143901	CTU	RPD [CAV402-04]	Total Phosphorus (P)	2023/10/08	NC		%	20
B143902	CTU	Matrix Spike	Total Phosphorus (P)	2023/10/08		113	%	80 - 120



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B143902	CTU	QC Standard	Total Phosphorus (P)	2023/10/08		96	%	80 - 120
B143902	CTU	Spiked Blank	Total Phosphorus (P)	2023/10/08		101	%	80 - 120
B143902	CTU	Method Blank	Total Phosphorus (P)	2023/10/08	<0.0030		mg/L	
B143902	CTU	RPD	Total Phosphorus (P)	2023/10/08	7.0		%	20
B144077	NVO	Matrix Spike	Total Ammonia (N)	2023/10/07		101	%	80 - 120
B144077	NVO	Spiked Blank	Total Ammonia (N)	2023/10/07		102	%	80 - 120
B144077	NVO	Method Blank	Total Ammonia (N)	2023/10/07	<0.015		mg/L	
B144077	NVO	RPD	Total Ammonia (N)	2023/10/07	1.0		%	20
B144082	NVO	Matrix Spike	Total Ammonia (N)	2023/10/07		93	%	80 - 120
B144082	NVO	Spiked Blank	Total Ammonia (N)	2023/10/07		100	%	80 - 120
B144082	NVO	Method Blank	Total Ammonia (N)	2023/10/07	<0.015		mg/L	
B144082	NVO	RPD	Total Ammonia (N)	2023/10/07	2.6		%	20
B144430	ISW	Matrix Spike [CAV408-06]	Total Ammonia (N)	2023/10/08		103	%	80 - 120
B144430	ISW	Spiked Blank	Total Ammonia (N)	2023/10/08		102	%	80 - 120
B144430	ISW	Method Blank	Total Ammonia (N)	2023/10/08	<0.015		mg/L	
B144430	ISW	RPD [CAV408-06]	Total Ammonia (N)	2023/10/08	NC		%	20
B144431	ISW	Matrix Spike [CAV409-06]	Total Ammonia (N)	2023/10/08		105	%	80 - 120
B144431	ISW	Spiked Blank	Total Ammonia (N)	2023/10/08		103	%	80 - 120
B144431	ISW	Method Blank	Total Ammonia (N)	2023/10/08	<0.015		mg/L	
B144431	ISW	RPD [CAV409-06]	Total Ammonia (N)	2023/10/08	NC		%	20
B144436	ISW	Matrix Spike [CAV410-06]	Total Ammonia (N)	2023/10/08		106	%	80 - 120
B144436	ISW	Spiked Blank	Total Ammonia (N)	2023/10/08		103	%	80 - 120
B144436	ISW	Method Blank	Total Ammonia (N)	2023/10/08	<0.015		mg/L	
B144436	ISW	RPD [CAV410-06]	Total Ammonia (N)	2023/10/08	NC		%	20
B144751	JAB	Matrix Spike	Total Aluminum (Al)	2023/10/08		NC	%	80 - 120
			Total Antimony (Sb)	2023/10/08		100	%	80 - 120
			Total Arsenic (As)	2023/10/08		100	%	80 - 120
			Total Beryllium (Be)	2023/10/08		104	%	80 - 120
			Total Chromium (Cr)	2023/10/08		102	%	80 - 120
			Total Cobalt (Co)	2023/10/08		100	%	80 - 120
			Total Copper (Cu)	2023/10/08		100	%	80 - 120
			Total Lead (Pb)	2023/10/08		99	%	80 - 120
			Total Molybdenum (Mo)	2023/10/08		104	%	80 - 120
			Total Nickel (Ni)	2023/10/08		99	%	80 - 120
			Total Selenium (Se)	2023/10/08		102	%	80 - 120
			Total Silver (Ag)	2023/10/08		100	%	80 - 120
			Total Thallium (Tl)	2023/10/08		92	%	80 - 120
			Total Tin (Sn)	2023/10/08		100	%	80 - 120
			Total Titanium (Ti)	2023/10/08		106	%	80 - 120
			Total Uranium (U)	2023/10/08		98	%	80 - 120
			Total Vanadium (V)	2023/10/08		103	%	80 - 120
			Total Zinc (Zn)	2023/10/08		101	%	80 - 120
B144751	JAB	Spiked Blank	Total Aluminum (Al)	2023/10/08		104	%	80 - 120
			Total Antimony (Sb)	2023/10/08		110	%	80 - 120
			Total Arsenic (As)	2023/10/08		106	%	80 - 120
			Total Beryllium (Be)	2023/10/08		106	%	80 - 120
			Total Chromium (Cr)	2023/10/08		107	%	80 - 120
			Total Cobalt (Co)	2023/10/08		108	%	80 - 120
			Total Copper (Cu)	2023/10/08		108	%	80 - 120
			Total Lead (Pb)	2023/10/08		107	%	80 - 120
			Total Molybdenum (Mo)	2023/10/08		109	%	80 - 120
			Total Nickel (Ni)	2023/10/08		107	%	80 - 120
			Total Selenium (Se)	2023/10/08		109	%	80 - 120
			Total Silver (Ag)	2023/10/08		106	%	80 - 120



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B144751	JAB	Method Blank	Total Thallium (Tl)	2023/10/08		108	%	80 - 120
			Total Tin (Sn)	2023/10/08		104	%	80 - 120
			Total Titanium (Ti)	2023/10/08		105	%	80 - 120
			Total Uranium (U)	2023/10/08		106	%	80 - 120
			Total Vanadium (V)	2023/10/08		107	%	80 - 120
			Total Zinc (Zn)	2023/10/08		106	%	80 - 120
			Total Aluminum (Al)	2023/10/08	<0.0030		mg/L	
			Total Antimony (Sb)	2023/10/08	<0.00060		mg/L	
			Total Arsenic (As)	2023/10/08	<0.00020		mg/L	
			Total Beryllium (Be)	2023/10/08	<0.0010		mg/L	
			Total Chromium (Cr)	2023/10/08	<0.0010		mg/L	
			Total Cobalt (Co)	2023/10/08	<0.00030		mg/L	
			Total Copper (Cu)	2023/10/08	<0.0010		mg/L	
			Total Lead (Pb)	2023/10/08	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/10/08	<0.00020		mg/L	
			Total Nickel (Ni)	2023/10/08	<0.00050		mg/L	
			Total Selenium (Se)	2023/10/08	<0.00020		mg/L	
			Total Silver (Ag)	2023/10/08	<0.00010		mg/L	
			Total Thallium (Tl)	2023/10/08	<0.00020		mg/L	
			Total Tin (Sn)	2023/10/08	<0.0010		mg/L	
			Total Titanium (Ti)	2023/10/08	<0.0010		mg/L	
			Total Uranium (U)	2023/10/08	<0.00010		mg/L	
			Total Vanadium (V)	2023/10/08	<0.0010		mg/L	
			Total Zinc (Zn)	2023/10/08	<0.0030		mg/L	
B144751	JAB	RPD	Total Aluminum (Al)	2023/10/08	6.3		%	20
			Total Antimony (Sb)	2023/10/08	NC		%	20
			Total Arsenic (As)	2023/10/08	6.1		%	20
			Total Beryllium (Be)	2023/10/08	NC		%	20
			Total Chromium (Cr)	2023/10/08	2.3		%	20
			Total Cobalt (Co)	2023/10/08	8.2		%	20
			Total Copper (Cu)	2023/10/08	0.95		%	20
			Total Lead (Pb)	2023/10/08	3.7		%	20
			Total Molybdenum (Mo)	2023/10/08	6.2		%	20
			Total Nickel (Ni)	2023/10/08	5.7		%	20
			Total Selenium (Se)	2023/10/08	7.6		%	20
			Total Silver (Ag)	2023/10/08	12		%	20
			Total Thallium (Tl)	2023/10/08	NC		%	20
			Total Tin (Sn)	2023/10/08	NC		%	20
			Total Titanium (Ti)	2023/10/08	3.6		%	20
			Total Uranium (U)	2023/10/08	4.2		%	20
			Total Vanadium (V)	2023/10/08	6.2		%	20
			Total Zinc (Zn)	2023/10/08	94 (1)		%	20
B144752	MPU	Matrix Spike	Total Barium (Ba)	2023/10/09		91	%	80 - 120
			Total Boron (B)	2023/10/09		92	%	80 - 120
			Total Calcium (Ca)	2023/10/09		NC	%	80 - 120
			Total Iron (Fe)	2023/10/09		NC	%	80 - 120
			Total Lithium (Li)	2023/10/09		88	%	80 - 120
			Total Magnesium (Mg)	2023/10/09		86	%	80 - 120
			Total Manganese (Mn)	2023/10/09		96	%	80 - 120
			Total Phosphorus (P)	2023/10/09		91	%	80 - 120
			Total Potassium (K)	2023/10/09		92	%	80 - 120
			Total Silicon (Si)	2023/10/09		87	%	80 - 120
			Total Sodium (Na)	2023/10/09		90	%	80 - 120
			Total Strontium (Sr)	2023/10/09		87	%	80 - 120



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B144752	MPU	Spiked Blank	Total Sulphur (S)	2023/10/09		91	%	80 - 120
			Total Barium (Ba)	2023/10/09		101	%	80 - 120
			Total Boron (B)	2023/10/09		101	%	80 - 120
			Total Calcium (Ca)	2023/10/09		101	%	80 - 120
			Total Iron (Fe)	2023/10/09		110	%	80 - 120
			Total Lithium (Li)	2023/10/09		98	%	80 - 120
			Total Magnesium (Mg)	2023/10/09		103	%	80 - 120
			Total Manganese (Mn)	2023/10/09		107	%	80 - 120
			Total Phosphorus (P)	2023/10/09		101	%	80 - 120
			Total Potassium (K)	2023/10/09		103	%	80 - 120
			Total Silicon (Si)	2023/10/09		99	%	80 - 120
			Total Sodium (Na)	2023/10/09		101	%	80 - 120
			Total Strontium (Sr)	2023/10/09		98	%	80 - 120
			Total Sulphur (S)	2023/10/09		99	%	80 - 120
B144752	MPU	Method Blank	Total Barium (Ba)	2023/10/09	<0.010		mg/L	
			Total Boron (B)	2023/10/09	<0.020		mg/L	
			Total Calcium (Ca)	2023/10/09	<0.30		mg/L	
			Total Iron (Fe)	2023/10/09	<0.060		mg/L	
			Total Lithium (Li)	2023/10/09	<0.020		mg/L	
			Total Magnesium (Mg)	2023/10/09	<0.20		mg/L	
			Total Manganese (Mn)	2023/10/09	<0.0040		mg/L	
			Total Phosphorus (P)	2023/10/09	<0.10		mg/L	
			Total Potassium (K)	2023/10/09	<0.30		mg/L	
			Total Silicon (Si)	2023/10/09	<0.50		mg/L	
			Total Sodium (Na)	2023/10/09	<0.50		mg/L	
			Total Strontium (Sr)	2023/10/09	<0.020		mg/L	
			Total Sulphur (S)	2023/10/09	<0.20		mg/L	
B144752	MPU	RPD	Total Barium (Ba)	2023/10/09	1.9		%	20
			Total Boron (B)	2023/10/09	13		%	20
			Total Calcium (Ca)	2023/10/09	3.1		%	20
			Total Iron (Fe)	2023/10/09	2.4		%	20
			Total Lithium (Li)	2023/10/09	NC		%	20
			Total Magnesium (Mg)	2023/10/09	3.2		%	20
			Total Manganese (Mn)	2023/10/09	0.046		%	20
			Total Phosphorus (P)	2023/10/09	0.12		%	20
			Total Potassium (K)	2023/10/09	6.6		%	20
			Total Silicon (Si)	2023/10/09	0.99		%	20
			Total Sodium (Na)	2023/10/09	3.6		%	20
			Total Strontium (Sr)	2023/10/09	3.6		%	20
			Total Sulphur (S)	2023/10/09	4.7		%	20
B144766	STI	Matrix Spike	Total Bismuth (Bi)	2023/10/08		98	%	80 - 120
			Total Cesium (Cs)	2023/10/08		102	%	80 - 120
B144766	STI	Spiked Blank	Total Bismuth (Bi)	2023/10/08		101	%	80 - 120
			Total Cesium (Cs)	2023/10/08		104	%	80 - 120
B144766	STI	Method Blank	Total Bismuth (Bi)	2023/10/08	<0.0010		mg/L	
			Total Cesium (Cs)	2023/10/08	<0.00020		mg/L	
B144766	STI	RPD	Total Bismuth (Bi)	2023/10/08	NC		%	20
B144768	STI	Matrix Spike [CAV405-03]	Total Bismuth (Bi)	2023/10/08		100	%	80 - 120
			Total Cesium (Cs)	2023/10/08		103	%	80 - 120
B144768	STI	Spiked Blank	Total Bismuth (Bi)	2023/10/08		98	%	80 - 120
			Total Cesium (Cs)	2023/10/08		103	%	80 - 120
B144768	STI	Method Blank	Total Bismuth (Bi)	2023/10/08	<0.0010		mg/L	
			Total Cesium (Cs)	2023/10/08	<0.00020		mg/L	
B144768	STI	RPD	Total Bismuth (Bi)	2023/10/08	NC		%	20



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B144831	JAB	Matrix Spike	Total Aluminum (Al)	2023/10/12		108	%	80 - 120
			Total Antimony (Sb)	2023/10/12		120	%	80 - 120
			Total Arsenic (As)	2023/10/12		103	%	80 - 120
			Total Beryllium (Be)	2023/10/12		102	%	80 - 120
			Total Chromium (Cr)	2023/10/12		101	%	80 - 120
			Total Cobalt (Co)	2023/10/12		100	%	80 - 120
			Total Copper (Cu)	2023/10/12		98	%	80 - 120
			Total Lead (Pb)	2023/10/12		101	%	80 - 120
			Total Molybdenum (Mo)	2023/10/12		112	%	80 - 120
			Total Nickel (Ni)	2023/10/12		99	%	80 - 120
			Total Selenium (Se)	2023/10/12		101	%	80 - 120
			Total Silver (Ag)	2023/10/12		103	%	80 - 120
			Total Thallium (Tl)	2023/10/12		102	%	80 - 120
			Total Tin (Sn)	2023/10/12		111	%	80 - 120
			Total Titanium (Ti)	2023/10/12		106	%	80 - 120
			Total Uranium (U)	2023/10/12		103	%	80 - 120
			Total Vanadium (V)	2023/10/12		104	%	80 - 120
			Total Zinc (Zn)	2023/10/12		99	%	80 - 120
B144831	JAB	Spiked Blank	Total Aluminum (Al)	2023/10/12		109	%	80 - 120
			Total Antimony (Sb)	2023/10/12		118	%	80 - 120
			Total Arsenic (As)	2023/10/12		101	%	80 - 120
			Total Beryllium (Be)	2023/10/12		98	%	80 - 120
			Total Chromium (Cr)	2023/10/12		101	%	80 - 120
			Total Cobalt (Co)	2023/10/12		100	%	80 - 120
			Total Copper (Cu)	2023/10/12		100	%	80 - 120
			Total Lead (Pb)	2023/10/12		102	%	80 - 120
			Total Molybdenum (Mo)	2023/10/12		107	%	80 - 120
			Total Nickel (Ni)	2023/10/12		99	%	80 - 120
			Total Selenium (Se)	2023/10/12		100	%	80 - 120
			Total Silver (Ag)	2023/10/12		102	%	80 - 120
			Total Thallium (Tl)	2023/10/12		102	%	80 - 120
			Total Tin (Sn)	2023/10/12		107	%	80 - 120
			Total Titanium (Ti)	2023/10/12		104	%	80 - 120
			Total Uranium (U)	2023/10/12		100	%	80 - 120
			Total Vanadium (V)	2023/10/12		101	%	80 - 120
			Total Zinc (Zn)	2023/10/12		101	%	80 - 120
B144831	JAB	Method Blank	Total Aluminum (Al)	2023/10/12	<0.0030		mg/L	
			Total Antimony (Sb)	2023/10/12	<0.00060		mg/L	
			Total Arsenic (As)	2023/10/12	<0.00020		mg/L	
			Total Beryllium (Be)	2023/10/12	<0.0010		mg/L	
			Total Chromium (Cr)	2023/10/12	<0.0010		mg/L	
			Total Cobalt (Co)	2023/10/12	<0.00030		mg/L	
			Total Copper (Cu)	2023/10/12	<0.0010		mg/L	
			Total Lead (Pb)	2023/10/12	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/10/12	<0.00020		mg/L	
			Total Nickel (Ni)	2023/10/12	<0.00050		mg/L	
			Total Selenium (Se)	2023/10/12	<0.00020		mg/L	
			Total Silver (Ag)	2023/10/12	<0.00010		mg/L	
			Total Thallium (Tl)	2023/10/12	<0.00020		mg/L	
			Total Tin (Sn)	2023/10/12	<0.0010		mg/L	
			Total Titanium (Ti)	2023/10/12	<0.0010		mg/L	
			Total Uranium (U)	2023/10/12	<0.00010		mg/L	
			Total Vanadium (V)	2023/10/12	<0.0010		mg/L	
			Total Zinc (Zn)	2023/10/12	<0.0030		mg/L	



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B144831	JAB	RPD		Total Aluminum (Al)	2023/10/12	15		%	20
				Total Antimony (Sb)	2023/10/12	NC		%	20
				Total Arsenic (As)	2023/10/12	14		%	20
				Total Beryllium (Be)	2023/10/12	NC		%	20
				Total Chromium (Cr)	2023/10/12	NC		%	20
				Total Cobalt (Co)	2023/10/12	16		%	20
				Total Copper (Cu)	2023/10/12	NC		%	20
				Total Lead (Pb)	2023/10/12	NC		%	20
				Total Molybdenum (Mo)	2023/10/12	15		%	20
				Total Nickel (Ni)	2023/10/12	16		%	20
				Total Selenium (Se)	2023/10/12	NC		%	20
				Total Silver (Ag)	2023/10/12	NC		%	20
				Total Thallium (Tl)	2023/10/12	NC		%	20
				Total Tin (Sn)	2023/10/12	NC		%	20
				Total Titanium (Ti)	2023/10/12	NC		%	20
				Total Uranium (U)	2023/10/12	17		%	20
				Total Vanadium (V)	2023/10/12	NC		%	20
				Total Zinc (Zn)	2023/10/12	17		%	20
B144835	MPU	Matrix Spike		Total Barium (Ba)	2023/10/09		102	%	80 - 120
				Total Boron (B)	2023/10/09		103	%	80 - 120
				Total Calcium (Ca)	2023/10/09		NC	%	80 - 120
				Total Iron (Fe)	2023/10/09		NC	%	80 - 120
				Total Lithium (Li)	2023/10/09		99	%	80 - 120
				Total Magnesium (Mg)	2023/10/09		107	%	80 - 120
				Total Manganese (Mn)	2023/10/09		109	%	80 - 120
				Total Phosphorus (P)	2023/10/09		102	%	80 - 120
				Total Potassium (K)	2023/10/09		104	%	80 - 120
				Total Silicon (Si)	2023/10/09		118	%	80 - 120
				Total Sodium (Na)	2023/10/09		103	%	80 - 120
				Total Strontium (Sr)	2023/10/09		98	%	80 - 120
				Total Sulphur (S)	2023/10/09		102	%	80 - 120
B144835	MPU	Spiked Blank		Total Barium (Ba)	2023/10/09		102	%	80 - 120
				Total Boron (B)	2023/10/09		102	%	80 - 120
				Total Calcium (Ca)	2023/10/09		102	%	80 - 120
				Total Iron (Fe)	2023/10/09		111	%	80 - 120
				Total Lithium (Li)	2023/10/09		99	%	80 - 120
				Total Magnesium (Mg)	2023/10/09		104	%	80 - 120
				Total Manganese (Mn)	2023/10/09		108	%	80 - 120
				Total Phosphorus (P)	2023/10/09		102	%	80 - 120
				Total Potassium (K)	2023/10/09		104	%	80 - 120
				Total Silicon (Si)	2023/10/09		100	%	80 - 120
				Total Sodium (Na)	2023/10/09		102	%	80 - 120
				Total Strontium (Sr)	2023/10/09		99	%	80 - 120
B144835	MPU	Method Blank		Total Sulphur (S)	2023/10/09		102	%	80 - 120
				Total Barium (Ba)	2023/10/09	<0.010		mg/L	
				Total Boron (B)	2023/10/09	<0.020		mg/L	
				Total Calcium (Ca)	2023/10/09	<0.30		mg/L	
				Total Iron (Fe)	2023/10/09	<0.060		mg/L	
				Total Lithium (Li)	2023/10/09	<0.020		mg/L	
				Total Magnesium (Mg)	2023/10/09	<0.20		mg/L	
				Total Manganese (Mn)	2023/10/09	<0.0040		mg/L	
				Total Phosphorus (P)	2023/10/09	<0.10		mg/L	
				Total Potassium (K)	2023/10/09	<0.30		mg/L	
				Total Silicon (Si)	2023/10/09	<0.50		mg/L	



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B144835	MPU	RPD		Total Sodium (Na)	2023/10/09	<0.50		mg/L	
				Total Strontium (Sr)	2023/10/09	<0.020		mg/L	
				Total Sulphur (S)	2023/10/09	<0.20		mg/L	
				Total Barium (Ba)	2023/10/09	0.82		%	20
				Total Boron (B)	2023/10/09	3.0		%	20
				Total Calcium (Ca)	2023/10/09	1.1		%	20
				Total Iron (Fe)	2023/10/09	0.80		%	20
				Total Lithium (Li)	2023/10/09	2.0		%	20
				Total Magnesium (Mg)	2023/10/09	1.4		%	20
				Total Manganese (Mn)	2023/10/09	0.50		%	20
				Total Phosphorus (P)	2023/10/09	0.77		%	20
				Total Potassium (K)	2023/10/09	1.3		%	20
				Total Silicon (Si)	2023/10/09	1.4		%	20
				Total Sodium (Na)	2023/10/09	1.0		%	20
				Total Strontium (Sr)	2023/10/09	0.47		%	20
B144836	JAB	Matrix Spike		Total Sulphur (S)	2023/10/09	0.36		%	20
				Total Aluminum (Al)	2023/10/08		NC	%	80 - 120
				Total Antimony (Sb)	2023/10/08		114	%	80 - 120
				Total Arsenic (As)	2023/10/08		102	%	80 - 120
				Total Beryllium (Be)	2023/10/08		106	%	80 - 120
				Total Chromium (Cr)	2023/10/08		103	%	80 - 120
				Total Cobalt (Co)	2023/10/08		99	%	80 - 120
				Total Copper (Cu)	2023/10/08		95	%	80 - 120
				Total Lead (Pb)	2023/10/08		93	%	80 - 120
				Total Molybdenum (Mo)	2023/10/08		110	%	80 - 120
				Total Nickel (Ni)	2023/10/08		96	%	80 - 120
				Total Selenium (Se)	2023/10/08		102	%	80 - 120
				Total Silver (Ag)	2023/10/08		97	%	80 - 120
				Total Thallium (Tl)	2023/10/08		95	%	80 - 120
				Total Tin (Sn)	2023/10/08		103	%	80 - 120
B144836	JAB	Spiked Blank		Total Titanium (Ti)	2023/10/08		110	%	80 - 120
				Total Uranium (U)	2023/10/08		92	%	80 - 120
				Total Vanadium (V)	2023/10/08		105	%	80 - 120
				Total Zinc (Zn)	2023/10/08		92	%	80 - 120
				Total Aluminum (Al)	2023/10/08		100	%	80 - 120
				Total Antimony (Sb)	2023/10/08		108	%	80 - 120
				Total Arsenic (As)	2023/10/08		104	%	80 - 120
				Total Beryllium (Be)	2023/10/08		104	%	80 - 120
				Total Chromium (Cr)	2023/10/08		105	%	80 - 120
				Total Cobalt (Co)	2023/10/08		105	%	80 - 120
				Total Copper (Cu)	2023/10/08		104	%	80 - 120
				Total Lead (Pb)	2023/10/08		105	%	80 - 120
				Total Molybdenum (Mo)	2023/10/08		104	%	80 - 120
				Total Nickel (Ni)	2023/10/08		104	%	80 - 120
				Total Selenium (Se)	2023/10/08		107	%	80 - 120
B144836	JAB	Method Blank		Total Silver (Ag)	2023/10/08		105	%	80 - 120
				Total Thallium (Tl)	2023/10/08		106	%	80 - 120
				Total Tin (Sn)	2023/10/08		101	%	80 - 120
				Total Titanium (Ti)	2023/10/08		102	%	80 - 120
				Total Uranium (U)	2023/10/08		104	%	80 - 120
B144836	JAB	Method Blank		Total Vanadium (V)	2023/10/08		105	%	80 - 120
				Total Zinc (Zn)	2023/10/08		103	%	80 - 120
				Total Aluminum (Al)	2023/10/08	<0.0030		mg/L	
				Total Antimony (Sb)	2023/10/08	<0.00060		mg/L	



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B144836	JAB	RPD	Total Arsenic (As)	2023/10/08	<0.00020		mg/L	
			Total Beryllium (Be)	2023/10/08	<0.0010		mg/L	
			Total Chromium (Cr)	2023/10/08	<0.0010		mg/L	
			Total Cobalt (Co)	2023/10/08	<0.00030		mg/L	
			Total Copper (Cu)	2023/10/08	<0.0010		mg/L	
			Total Lead (Pb)	2023/10/08	<0.00020		mg/L	
			Total Molybdenum (Mo)	2023/10/08	<0.00020		mg/L	
			Total Nickel (Ni)	2023/10/08	<0.00050		mg/L	
			Total Selenium (Se)	2023/10/08	<0.00020		mg/L	
			Total Silver (Ag)	2023/10/08	<0.00010		mg/L	
			Total Thallium (Tl)	2023/10/08	<0.00020		mg/L	
			Total Tin (Sn)	2023/10/08	<0.0010		mg/L	
			Total Titanium (Ti)	2023/10/08	<0.0010		mg/L	
			Total Uranium (U)	2023/10/08	<0.00010		mg/L	
			Total Vanadium (V)	2023/10/08	<0.0010		mg/L	
			Total Zinc (Zn)	2023/10/08	<0.0030		mg/L	
			Total Aluminum (Al)	2023/10/08	5.9		%	20
			Total Antimony (Sb)	2023/10/08	NC		%	20
			Total Arsenic (As)	2023/10/08	7.6		%	20
			Total Beryllium (Be)	2023/10/08	NC		%	20
B144837	MPU	Matrix Spike	Total Chromium (Cr)	2023/10/08	2.8		%	20
			Total Cobalt (Co)	2023/10/08	13		%	20
			Total Copper (Cu)	2023/10/08	7.8		%	20
			Total Lead (Pb)	2023/10/08	9.4		%	20
			Total Molybdenum (Mo)	2023/10/08	9.3		%	20
			Total Nickel (Ni)	2023/10/08	12		%	20
			Total Selenium (Se)	2023/10/08	7.8		%	20
			Total Silver (Ag)	2023/10/08	NC		%	20
			Total Thallium (Tl)	2023/10/08	NC		%	20
			Total Tin (Sn)	2023/10/08	NC		%	20
			Total Titanium (Ti)	2023/10/08	16		%	20
			Total Uranium (U)	2023/10/08	8.5		%	20
			Total Vanadium (V)	2023/10/08	3.0		%	20
			Total Zinc (Zn)	2023/10/08	9.6		%	20
			Total Barium (Ba)	2023/10/09		85	%	80 - 120
			Total Boron (B)	2023/10/09		86	%	80 - 120
			Total Calcium (Ca)	2023/10/09		NC	%	80 - 120
			Total Iron (Fe)	2023/10/09		NC	%	80 - 120
			Total Lithium (Li)	2023/10/09		92	%	80 - 120
B144837	MPU	Spiked Blank	Total Magnesium (Mg)	2023/10/09		NC	%	80 - 120
			Total Manganese (Mn)	2023/10/09		106	%	80 - 120
			Total Phosphorus (P)	2023/10/09		109	%	80 - 120
			Total Potassium (K)	2023/10/09		95	%	80 - 120
			Total Silicon (Si)	2023/10/09		95	%	80 - 120
			Total Sodium (Na)	2023/10/09		NC	%	80 - 120
			Total Strontium (Sr)	2023/10/09		83	%	80 - 120
			Total Sulphur (S)	2023/10/09		NC	%	80 - 120
			Total Barium (Ba)	2023/10/09		85	%	80 - 120
			Total Boron (B)	2023/10/09		86	%	80 - 120
			Total Calcium (Ca)	2023/10/09		96	%	80 - 120
			Total Iron (Fe)	2023/10/09		105	%	80 - 120
			Total Lithium (Li)	2023/10/09		93	%	80 - 120
			Total Magnesium (Mg)	2023/10/09		97	%	80 - 120
			Total Manganese (Mn)	2023/10/09		106	%	80 - 120



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				Total Phosphorus (P)	2023/10/09		107	%	80 - 120
				Total Potassium (K)	2023/10/09		94	%	80 - 120
				Total Silicon (Si)	2023/10/09		101	%	80 - 120
				Total Sodium (Na)	2023/10/09		95	%	80 - 120
				Total Strontium (Sr)	2023/10/09		81	%	80 - 120
				Total Sulphur (S)	2023/10/09		101	%	80 - 120
B144837	MPU		Method Blank	Total Barium (Ba)	2023/10/09	<0.010		mg/L	
				Total Boron (B)	2023/10/09	<0.020		mg/L	
				Total Calcium (Ca)	2023/10/09	<0.30		mg/L	
				Total Iron (Fe)	2023/10/09	0.073, RDL=0.073		mg/L	
				Total Lithium (Li)	2023/10/09	<0.021		mg/L	
				Total Magnesium (Mg)	2023/10/09	<0.20		mg/L	
				Total Manganese (Mn)	2023/10/09	<0.0040		mg/L	
				Total Phosphorus (P)	2023/10/09	<0.10		mg/L	
				Total Potassium (K)	2023/10/09	<0.30		mg/L	
				Total Silicon (Si)	2023/10/09	<0.50		mg/L	
				Total Sodium (Na)	2023/10/09	<0.50		mg/L	
				Total Strontium (Sr)	2023/10/09	<0.020		mg/L	
				Total Sulphur (S)	2023/10/09	<0.20		mg/L	
B144837	MPU	RPD		Total Barium (Ba)	2023/10/10	14		%	20
				Total Boron (B)	2023/10/10	0.99		%	20
				Total Calcium (Ca)	2023/10/10	1.2		%	20
				Total Iron (Fe)	2023/10/10	3.1		%	20
				Total Lithium (Li)	2023/10/10	1.9		%	20
				Total Magnesium (Mg)	2023/10/10	0.46		%	20
				Total Manganese (Mn)	2023/10/10	1.8		%	20
				Total Phosphorus (P)	2023/10/10	NC		%	20
				Total Potassium (K)	2023/10/10	1.5		%	20
				Total Silicon (Si)	2023/10/10	2.2		%	20
				Total Sodium (Na)	2023/10/10	13		%	20
				Total Strontium (Sr)	2023/10/10	1.7		%	20
				Total Sulphur (S)	2023/10/10	14		%	20
B145140	KKM		Matrix Spike [CAV409-07]	Total Mercury (Hg)	2023/10/09		111	%	80 - 120
B145140	KKM		Spiked Blank	Total Mercury (Hg)	2023/10/09		101	%	80 - 120
B145140	KKM		Method Blank	Total Mercury (Hg)	2023/10/09	<0.0019		ug/L	
B145140	KKM		RPD [CAV407-07]	Total Mercury (Hg)	2023/10/09	NC		%	20
B145299	MPU		Matrix Spike	Dissolved Calcium (Ca)	2023/10/09		NC	%	80 - 120
				Dissolved Iron (Fe)	2023/10/09		111	%	80 - 120
				Dissolved Magnesium (Mg)	2023/10/09		99	%	80 - 120
				Dissolved Manganese (Mn)	2023/10/09		108	%	80 - 120
				Dissolved Potassium (K)	2023/10/09		109	%	80 - 120
				Dissolved Sodium (Na)	2023/10/09		105	%	80 - 120
B145299	MPU		Spiked Blank	Dissolved Calcium (Ca)	2023/10/09		105	%	80 - 120
				Dissolved Iron (Fe)	2023/10/09		115	%	80 - 120
				Dissolved Magnesium (Mg)	2023/10/09		107	%	80 - 120
				Dissolved Manganese (Mn)	2023/10/09		113	%	80 - 120
				Dissolved Potassium (K)	2023/10/09		107	%	80 - 120
				Dissolved Sodium (Na)	2023/10/09		106	%	80 - 120
B145299	MPU		Method Blank	Dissolved Calcium (Ca)	2023/10/09	<0.30		mg/L	
				Dissolved Iron (Fe)	2023/10/09	<0.060		mg/L	
				Dissolved Magnesium (Mg)	2023/10/09	<0.20		mg/L	
				Dissolved Manganese (Mn)	2023/10/09	<0.0040		mg/L	
				Dissolved Potassium (K)	2023/10/09	<0.30		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C379541
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: GORDON LAKE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B145299	MPU	RPD	Dissolved Sodium (Na)	2023/10/09	<0.50		mg/L	
			Dissolved Calcium (Ca)	2023/10/09	1.7		%	20
			Dissolved Iron (Fe)	2023/10/09	NC		%	20
			Dissolved Magnesium (Mg)	2023/10/09	1.9		%	20
			Dissolved Manganese (Mn)	2023/10/09	5.4		%	20
			Dissolved Potassium (K)	2023/10/09	0.66		%	20
			Dissolved Sodium (Na)	2023/10/09	1.2		%	20
B145420	YHK	Matrix Spike	Total Organic Carbon (C)	2023/10/10		90	%	80 - 120
B145420	YHK	Spiked Blank	Total Organic Carbon (C)	2023/10/10		116	%	80 - 120
B145420	YHK	Method Blank	Total Organic Carbon (C)	2023/10/10	<0.50		mg/L	
B145420	YHK	RPD	Total Organic Carbon (C)	2023/10/10	11		%	20
B145445	MPU	Matrix Spike	Dissolved Barium (Ba)	2023/10/11		94	%	80 - 120
			Dissolved Boron (B)	2023/10/11		100	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/11		NC	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		109	%	80 - 120
			Dissolved Lithium (Li)	2023/10/11		92	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		NC	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/11		108	%	80 - 120
			Dissolved Potassium (K)	2023/10/11		95	%	80 - 120
			Dissolved Silicon (Si)	2023/10/11		86	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		NC	%	80 - 120
			Dissolved Barium (Ba)	2023/10/11		102	%	80 - 120
			Dissolved Boron (B)	2023/10/11		102	%	80 - 120
			Dissolved Calcium (Ca)	2023/10/11		102	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		105	%	80 - 120
			Dissolved Lithium (Li)	2023/10/11		102	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		106	%	80 - 120
			Dissolved Phosphorus (P)	2023/10/11		104	%	80 - 120
B145445	MPU	Method Blank	Dissolved Potassium (K)	2023/10/11		99	%	80 - 120
			Dissolved Silicon (Si)	2023/10/11		100	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		100	%	80 - 120
			Dissolved Strontium (Sr)	2023/10/11		100	%	80 - 120
			Dissolved Sulphur (S)	2023/10/11		99	%	80 - 120
			Dissolved Barium (Ba)	2023/10/11	<0.010		mg/L	
			Dissolved Boron (B)	2023/10/11	<0.020		mg/L	
			Dissolved Calcium (Ca)	2023/10/11	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/10/11	<0.060		mg/L	
			Dissolved Lithium (Li)	2023/10/11	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2023/10/11	<0.20		mg/L	
			Dissolved Phosphorus (P)	2023/10/11	<0.10		mg/L	
			Dissolved Potassium (K)	2023/10/11	<0.30		mg/L	
			Dissolved Silicon (Si)	2023/10/11	<0.50		mg/L	
			Dissolved Sodium (Na)	2023/10/11	<0.50		mg/L	
			Dissolved Strontium (Sr)	2023/10/11	<0.020		mg/L	
			Dissolved Sulphur (S)	2023/10/11	<0.20		mg/L	
B145445	MPU	RPD	Dissolved Calcium (Ca)	2023/10/11	0.21		%	20
			Dissolved Iron (Fe)	2023/10/11	NC		%	20
			Dissolved Magnesium (Mg)	2023/10/11	0.96		%	20
			Dissolved Potassium (K)	2023/10/11	3.1		%	20
			Dissolved Sodium (Na)	2023/10/11	0.20		%	20
B145744	RY3	Matrix Spike	Total Bismuth (Bi)	2023/10/10		103	%	80 - 120
			Total Cesium (Cs)	2023/10/10		102	%	80 - 120
B145744	RY3	Spiked Blank	Total Bismuth (Bi)	2023/10/10		100	%	80 - 120
			Total Cesium (Cs)	2023/10/10		99	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C379541
Report Date: 2023/10/24

AECOM CANADA LTD.
Client Project #: 60710609
Site Location: GORDON LAKE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B145744	RY3	Method Blank	Total Bismuth (Bi)	2023/10/10	<0.0010		mg/L	
			Total Cesium (Cs)	2023/10/10	<0.00020		mg/L	
B145744	RY3	RPD	Total Bismuth (Bi)	2023/10/10	NC		%	20
B147956	YHK	Matrix Spike	Total Organic Carbon (C)	2023/10/11		90	%	80 - 120
B147956	YHK	Spiked Blank	Total Organic Carbon (C)	2023/10/11		100	%	80 - 120
B147956	YHK	Method Blank	Total Organic Carbon (C)	2023/10/11	<0.50		mg/L	
B147956	YHK	RPD	Total Organic Carbon (C)	2023/10/11	4.4		%	20
B148147	IKO	Matrix Spike	Dissolved Calcium (Ca)	2023/10/11		101	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		93	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		104	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/11		95	%	80 - 120
			Dissolved Potassium (K)	2023/10/11		103	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		106	%	80 - 120
B148147	IKO	Spiked Blank	Dissolved Calcium (Ca)	2023/10/11		101	%	80 - 120
			Dissolved Iron (Fe)	2023/10/11		102	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/11		101	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/11		103	%	80 - 120
			Dissolved Potassium (K)	2023/10/11		101	%	80 - 120
			Dissolved Sodium (Na)	2023/10/11		104	%	80 - 120
B148147	IKO	Method Blank	Dissolved Calcium (Ca)	2023/10/11	<0.30		mg/L	
			Dissolved Iron (Fe)	2023/10/11	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2023/10/11	<0.20		mg/L	
			Dissolved Manganese (Mn)	2023/10/11	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/10/11	<0.30		mg/L	
			Dissolved Sodium (Na)	2023/10/11	<0.50		mg/L	
B148147	IKO	RPD	Dissolved Calcium (Ca)	2023/10/11	1.0		%	20
			Dissolved Iron (Fe)	2023/10/11	NC		%	20
			Dissolved Magnesium (Mg)	2023/10/11	0.58		%	20
			Dissolved Manganese (Mn)	2023/10/11	1.6		%	20
			Dissolved Potassium (K)	2023/10/11	1.1		%	20
			Dissolved Sodium (Na)	2023/10/11	1.1		%	20
B149659	JVM	Spiked Blank	Alkalinity (Total as CaCO3)	2023/10/15		100	%	80 - 120
B149659	JVM	Method Blank	Alkalinity (PP as CaCO3)	2023/10/15	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2023/10/15	<1.0		mg/L	
			Bicarbonate (HCO3)	2023/10/15	<1.0		mg/L	
			Carbonate (CO3)	2023/10/15	<1.0		mg/L	
			Hydroxide (OH)	2023/10/15	<1.0		mg/L	
B149662	JVM	Spiked Blank	pH	2023/10/15		100	%	97 - 103
B149670	JVM	Spiked Blank	Conductivity	2023/10/15		99	%	90 - 110
B149670	JVM	Method Blank	Conductivity	2023/10/15	<2.0		uS/cm	
B149936	HQV	Matrix Spike	Dissolved Barium (Ba)	2023/10/12		95	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/12		103	%	80 - 120
			Dissolved Potassium (K)	2023/10/12		104	%	80 - 120
B149936	HQV	Spiked Blank	Dissolved Barium (Ba)	2023/10/12		100	%	80 - 120
			Dissolved Manganese (Mn)	2023/10/12		104	%	80 - 120
			Dissolved Potassium (K)	2023/10/12		101	%	80 - 120
B149936	HQV	Method Blank	Dissolved Barium (Ba)	2023/10/12	<0.010		mg/L	
			Dissolved Manganese (Mn)	2023/10/12	<0.0040		mg/L	
			Dissolved Potassium (K)	2023/10/12	<0.30		mg/L	
B149936	HQV	RPD	Dissolved Barium (Ba)	2023/10/12	4.9		%	20
			Dissolved Manganese (Mn)	2023/10/12	1.8		%	20
			Dissolved Potassium (K)	2023/10/12	0.31		%	20
B154495	HE1	Matrix Spike [CAV402-01]	Total Dissolved Solids	2023/10/16		86	%	80 - 120
B154495	HE1	Spiked Blank	Total Dissolved Solids	2023/10/16		97	%	80 - 120



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B154495	HE1	Method Blank	Total Dissolved Solids	2023/10/16	<10		mg/L	
B154495	HE1	RPD [CAV402-01]	Total Dissolved Solids	2023/10/16	NC		%	20
B166325	AZI	Matrix Spike	Total Suspended Solids	2023/10/24		99	%	80 - 120
B166325	AZI	Spiked Blank	Total Suspended Solids	2023/10/24		90	%	80 - 120
B166325	AZI	Method Blank	Total Suspended Solids	2023/10/24	<1.0		mg/L	
B166325	AZI	RPD	Total Suspended Solids	2023/10/24	NC		%	20
B166903	HE1	Matrix Spike	Total Suspended Solids	2023/10/24		95	%	80 - 120
B166903	HE1	Spiked Blank	Total Suspended Solids	2023/10/24		96	%	80 - 120
B166903	HE1	Method Blank	Total Suspended Solids	2023/10/24	<1.0		mg/L	
B166903	HE1	RPD	Total Suspended Solids	2023/10/24	0.71		%	20

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C379541

Report Date: 2023/10/24

AECOM CANADA LTD.

Client Project #: 60710609

Site Location: GORDON LAKE

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Gita Pokhrel, Laboratory Supervisor

Rahul Suryawanshi, Senior Analyst

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist



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Bureau Veritas
4000 19th N.E. Calgary, Alberta Canada T2E 6P8 Tel: (403) 291-3077 Toll-free: 800-563-6266 Fax: (403) 291-9468 www.bvna.com

Chain Of Custody Record

Page 1 of 2

INVOICE TO:		Report Information		Project Information		Laboratory Use Only												
Company Name	#6699 AECOM CANADA LTD.	Company Name		Quotation #	C21789	Bureau Veritas Job #	Bottle Order #:											
Contact Name	BANE BROTSCHI	Contact Name	JANINE MORRIS	P.O. #														
Address	18817 Stony Plain Road NW EDMONTON AB T5S 0C2	Address		Project #	60710609													
Phone	(587) 337-4190 Fax: (780) 486-7070	Phone	(867) 446-3953 Fax:	Project Name	Gordon Lake	Chain Of Custody Record	Project Manager											
Email	bane.brotschi@aecom.com	Email	janine.morris@aecom.com, bane.brotschi@aecom.com	Site #														
Regulatory Criteria		Special Instructions		Analysis Requested		Turnaround Time (TAT) Required												
CCME						Please provide advance notice for rush projects												
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form				Regular (Standard) TAT														
Samples must be kept cool (< 10°C) from time of sampling until delivery to Bureau Veritas				(will be applied if Rush TAT is not specified)														
				Standard TAT = 5-7 Working days for most tests.														
				Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.														
				Job Specific Rush TAT (if applies to entire submission)														
				Date Required: Time Required:														
				Rush Confirmation Number														
				(call lab for #)														
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Routine Water	Regulated Metals (CCME/AT1) - Total, Total Hg	Total Suspended Solids (NFR), TDS	AT1 BTEX and F1-F4 in Water	Ammonia-N (Total)	Total Phosphorus	Orthophosphate by KoneLab	Carbon (Total Organic)	Total Metals - Bismuth, Cesium	Turbidity	# of Bottles	Comments
1	GLG-2023-00002-004	23/10/01	11:45	GW	N	Y	X	X	X	X	X	X	X	X	X	X	8	add dissolved metals to analysis
2	GLG-2023-00002-005		11:55	GW	N	Y	X	X	X	X	X	X	X	X	X	X	8	add dissolved metals to analysis
3	GLG-2023-00002-013		13:20	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	
4	GLG-2023-00002-014		14:20	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	
5	GLG-2023-00002-015		11:05	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	
6	GLG-2023-00002-024		10:30	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	Received in yellowknife
7	GLG-2023-00002-025		10:40	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	By: J. Macan
8	GLG-2023-00002-026		10:10	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	@ 9:30
9	GLG-2023-00002-027		10:00	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	10:11/2023
10	GLG-2023-00002-028		10:00	SW	N	N	X	X	X	X	X	X	X	X	X	X	10	ice-yas / as-w
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted		Lab Use Only		Custody Seal Intact on Cooler?		White: Bureau Veritas		Yellow: Client		
Janine 14		23/10/01	1630	J. Macan		203/10/03	14:40			Time Sensitive		Temperature (°C) on Receipt		ICE-YX3				
										Yes		No						
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.																		
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.																		



INVOICE TO:				Report Information				Project Information				Laboratory Use Only																											
Company Name #6699 AECOM CANADA LTD.				Company Name JANINE MORRIS				Quotation # C21789				Bureau Veritas Job #				Bottle Order #:																							
Contact Name BANE BROTSCHI				Contact Name JANINE MORRIS				P.O. #				706140				706140																							
Address 18817 Stony Plain Road NW				Address				Project # 60710609				Chain Of Custody Record				Project Manager																							
EDMONTON AB T5S 0C2								Project Name				Gordon Lake				C#706140-05-01																							
Phone (587) 337-4190 Fax (780) 486-7070				Phone (867) 446-3953 Fax				Site #				Parminder Virk																											
Email bane.brotschi@aecom.com				Email janine.morris@aecom.com, bane.brotschi@aecom.com				Sampled By																															
Regulatory Criteria				Special Instructions				Analysis Requested				Turnaround Time (TAT) Required																											
CCME												Please provide advance notice for rush projects																											
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form				Regulated Drinking Water ? (Y/N)				Metals Field Filtered ? (Y/N)				Regular (Standard) TAT																											
Samples must be kept cool (<10°C) from time of sampling until delivery to Bureau Veritas				Routine Water				Regulated Metals (CCME/AT1) - Total, Total Hg				(will be applied if Rush TAT is not specified)																											
				Total Suspended Solids (NFR), TDS				AT1 BTEX and F1-F4 in Water				Standard TAT = 5-7 Working days for most tests.																											
				Ammonia-N (Total)				Total Phosphorus				Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.																											
				Orthophosphate by Konelab				Carbon (Total Organic)				Job Specific Rush TAT (if applies to entire submission)																											
				Total Metals - Bismuth, Cesium				Turbidity				Date Required: Time Required:																											
				# of Bottles				Comments				Rush Confirmation Number																											
												(call lab for #)																											
Sample Barcode Label				Sample (Location) Identification				Date Sampled				Time Sampled				Matrix																							
1				GL-2023-00002-018				23/10/01				1200				SW																							
2				GL-2023-00002-019				"				1300				SW																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
* RELINQUISHED BY: (Signature/Print)				Date: (YY/MM/DD)				Time				RECEIVED BY: (Signature/Print)				Date: (YY/MM/DD)				Time				# Jars used and not submitted				Lab Use Only											
Janine M				23/10/01				1630				Janine M				23/10/03				14:40								Time Sensitive				Temperature (°C) on Receipt				Custody Seal Intact on Cooler?			
																																Yes No							
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COCC-TERMS-AND-CONDITIONS.																								White: Bureau Veritas				Yellow: Client											
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.																																							



Bureau Veritas
4000 19th N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9458 www.bvna.com

Chain Of Custody Record

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INVOICE TO:		Report Information		Project Information		Laboratory Use Only								
Company Name #6599 AECOM CANADA LTD.	Company Name BANE BROTSCHI	Company Name JANINE MORRIS	Quotation # C21789	Bureau Veritas Job #	Bottle Order #:									
Contact Name 18817 Stony Plain Road NW	Contact Name JANINE MORRIS	Contact Name JANINE MORRIS	P.O. #											
Address EDMONTON AB T5S 0C2	Address	Address	Project # 60710609											
Phone (587) 337-4190	Phone (587) 337-4190	Phone (867) 446-3953	Project Name Gordon Lake	Chain Of Custody Record	Project Manager									
Email bane.brotschi@aecom.com	Email bane.brotschi@aecom.com	Email janine.morris@aecom.com	Site #											
Regulatory Criteria CCME		Special Instructions	Analysis Requested	Turnaround Time (TAT) Required Please provide advance notice for rush projects										
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form		Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Regular (Standard) TAT (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.										
Samples must be kept cool (<10°C) from time of sampling until delivery to Bureau Veritas		Routine Water	Regulated Metals (CCME/AT1) - Total, Total Hg	Total Suspended Solids (NFR)	ATI BTEX and F1-F4 in Water	Ammonia-N (Total)	Total Phosphorus	Orthophosphate by Kometab	Carbon (Total Organic)	Total Metals - Bismuth, Cesium	Turbidity	# of Bottles	Comments	
1	46-203-00002-018	23/10/01	1200	SW	N	N	X	X	X	X	X	X	10	
2	46-203-00002-019	"	1300	SW	N	N	X	X	X	X	X	X	10	
3														
4														
5														
6														
7														
8														
9														
10														
RELINQUISHED BY: (Signature/Print) <i>Janine M</i>		Date: (YY/MM/DD) 23/10/01	Time 1630	RECEIVED BY: (Signature/Print) <i>Janine M</i>		Date: (YY/MM/DD) 20/10/03	Time 14:40	# Jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?	White: Bureau Veritas Yellow: Client		
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.														
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.														

