



**2022 Environmental Monitoring
Program, Resolute Bay Airport
Land Treatment Unit,
Cornwallis Island, Nunavut**

Final Report

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Canada on behalf of Transport Canada

Prepared by:

Stantec Consulting Ltd.

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Sign-off Sheet

This document entitled 2022 Environmental Monitoring Program, Resolute Bay Airport Land Treatment Unit, Cornwallis Island, Nunavut was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Public Services and Procurement Canada on behalf of Transport Canada (the "Client").

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Executive Summary

Stantec Consulting Ltd. (Stantec) completed the 2022 Environmental Monitoring Program (the Program) at two Land Treatment Units (LTU 1 and LTU 2) located at the northern portion of the Resolute Bay Airport on Cornwallis Island, Nunavut (the Site). The Program was completed from August 14 to August 16, 2022, with the authorization of Public Services and Procurement Canada (PSPC) on behalf of Transport Canada (TC). The program consisted of groundwater monitoring/assessment activities to meet licensing requirements (Nunavut Water Board (NWB) Licence No. IBR-RLF1520) and a visual assessment of the LTU liners and berms to assess for potential seepage issues. In 2020, the licence was modified to include the requirement for surface water samples to be collected. Groundwater sampling was removed from the licence requirement.

Stantec monitored six groundwater monitoring wells surrounding LTUs 1 and 2 (MW 1 through MW6) to supplement the surface water data required by the license. None of the monitoring wells contained sufficient groundwater to allow for sampling. Further, three of the monitoring wells (MW3 – southwest of LTU 1, MW4 – north of LTU 2, and MW6 – south of LTU 6) were in poor condition as the well screen was leaning due to heaving (MW3) or the well screen was above the ground surface due to heaving (MW4 and MW6). Five surface water samples (SW22-1 through SW22-4 and SW21-7) were collected from accumulated surface water at the Site in the vicinity of the LTUs in order to meet the NWB Licence requirements and assess LTU integrity. A surface water sample was also duplicated in the field for quality assurance, quality control (QA/QC) purposes. The field duplicate as well as one trip blank and one field blank were analyzed for the NWB Licence groundwater parameters. One background surface water sample (SS22-BG) was also collected from water accumulated on the ground surface to the east of the Site (across the road).

A summary of guideline / standards exceedances is provided below:

Sample Location	Parameter Category	Individual Parameter	Applicable Guideline Exceeded
SW22-3 Along the west side of LTU 2 (cross-gradient)	Hydrocarbons, Metals	Lead, Toluene, PHC F1	The lead concentration (0.012 mg/L) exceeded the CCME guideline (0.0065 mg/L). The toluene concentration (0.047 mg/L) exceeded the CCME guideline (0.0020 mg/L). The PHC F2 concentration (0.20 mg/L) exceeded the Ontario SCS guideline (0.15 mg/L).
SW22-4 South of LTU 2 (down-gradient) near MW5 and down-gradient of a low area against the inside berm.	General Chemistry, Metals	Ammonia (as N), Lead	The ammonia (as N) concentration (17 mg/L) exceeded the CCME guideline (12.58 mg/L). The lead concentration (0.012 mg/L) exceeded the CCME guideline (0.0065 mg/L).



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During the 2018 site visit, a weathered drum labelled as containing aviation fuel was observed on the Site west of LTU 2, a weathered 1 m³ bag containing salt was observed on the Site south of LTU 1, and a pile of construction debris was observed located inside the berms of LTU 1. A similar pile of construction debris was observed at the Site within LTU 2 during the 2018 site visit. Disposal of the aforementioned items was discussed with the airport authority in 2018, but they were still on-site when Stantec returned in 2019 and 2021. In 2022 the aviation fuel drum had been removed, but the other items remained.

During the program, Stantec personnel estimated the surface water drainage direction at the Site to be generally in southerly and westerly directions in the areas surrounding the LTUs. The groundwater flow direction in the vicinity of the Site is unknown, due to consistently insufficient water in the monitoring wells. However, based on local topography, Stantec inferred the shallow groundwater flow direction to be southerly.

Accumulated surface water was observed southeast of LTU 1, between LTU 3 and 4, west of LTU 2, south of LTU 2, and inside LTU 1 along the northern portion of the east berm.

While onsite, Stantec personnel visually assessed the condition of the exposed portions of geomembrane liners and berms of both LTUs. Twenty areas with liner deficiencies were observed at LTU 1. The liner deficiencies at LTU 1 consisted of tears ranging in size from less than 5 to 310 centimetres (cm). Sixteen areas with liner deficiencies were observed at LTU 2. The liner deficiencies at LTU 2 consisted of tears ranging in size from less than 5 cm to 400 cm, areas of low berm located north and south of the LTU access ramp on the west side of LTU 2, pooling water against the inside berm (along the east berm in the northern portion of LTU 2), and a low area inside the berm (along the south berm of LTU 2). The liner deficiencies were in similar locations to those observed in 2019 and 2021. Standing surface water against the inside berms of the LTUs may potentially spill over low berms or accumulate and migrate outside of the LTUs during periods of heavy rain and/or high winds.

Surface water has accumulated adjacent to the outside of the west berm of LTU 2 (adjacent to the low areas). This surface water accumulation was also observed in 2018, 2019 and 2021. Two samples contained concentrations of analyzed parameters above the referenced guidelines: SW22-3 for lead, PHC F2 and toluene, and SW22-4 for ammonia (as N) and lead.

The statements made in the Executive Summary are subject to the same limitations included in the Limitations Section 7.0 and are to be read in conjunction with the remainder of this report.



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1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) completed the 2022 Site Environmental Monitoring Program (the Program) at the Land Treatment Units (LTUs) located at the northern portion of the Resolute Bay Airport on Cornwallis Island, Nunavut (hereinafter referred to as the Site). The Program was completed under the authorization of Public Services and Procurement Canada (PSPC) on behalf of Transport Canada (TC).

The Site location is presented in Figure 1 of **Appendix A**.

1.1 OBJECTIVES

The objectives of the Program were as follows:

- Complete a monitoring program, including the collection of surface water samples, at the Site to assess for dissolved chemicals of concern to meet Nunavut Water Board (NWB) Licence 1BR-RLF2030 Requirements
- Assess LTUs 1 and 2 to visually evaluate the integrity and function of the LTU liners and the condition of the Site monitoring well network, including documentation with photographs

1.2 BACKGROUND

The history and background of the Site provided by PSPC, including previous assessments, are summarized below:

- The Resolute Bay Airport has been in operation since 1949. It was originally constructed by the Royal Canadian Air Force. Ownership was transferred to the Government of Canada in 1964 and it was operated by Transport Canada (TC) until July 1, 1995. Ownership was transferred to the Government of the Northwest Territories in 1999 and then to the Government of Nunavut.
- In 2002, Winnipeg Environmental Remediation Inc (WERI) and Eng-Tech Consulting Ltd. supervised the construction of two LTUs (LTUs 1 and 2) that were constructed of 20 mil oil-resistant reinforced polyethylene (RPE) liner to contain and treat petroleum hydrocarbon (PHC) impacted soil from a former above ground storage tank (AST) farm that stored bulk fuel and a former fire mock-up training area (FTA). LTU 1 was subdivided into three (3) cells (numbered 1 to 3 from west to east). Zone 3 occupies the eastern half of LTU 1 and contains lighter petroleum hydrocarbon impacted soils. The two western cells contained heavier fraction petroleum hydrocarbon impacted soil. Approximately 5,500 cubic metres (m³) of PHC impacted soil was excavated from the FTA and approximately 300 m³ of PHC impacted soil was excavated from the aboveground storage tank (AST) farm for treatment in the LTUs. The LTUs were filled to an approximate height of 1.3 metres (m). Nutrients were added to both LTUs; 145 kilograms (kg) of 38-0-0 Nitrogen–Phosphorus–Potassium was added to LTU 1, and 2,273 kg was added LTU 2. Approximately 40 kg of surfactant (“cyclone white”) was also added to a depth of 0.3 m below the surface of LTU 2.



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- In September 2003, a soil monitoring program was completed to assess the effectiveness of the nutrient amendment program. A ground heating system was installed in the northern portion of LTU 2 to conduct a pilot project to enhance bioremediation in northern half of the LTU. The infrastructure of the heating system consisted of pipes, junction boxes, and air exchange housing. The impacted soil was covered and remains covered today by a geomembrane to contain the heat generated by the heating system.
- In August 2004, 400 kg of 38-0-0 (zones 1 and 2 of LTU 1), 600 kg of 38-0-0 nutrients (uncovered LTU 2 area) and 100 kg of surfactants in zone 1 of LTU 1 were applied to the LTUs. The heating system was operated between August to early October of 2004.
- According to TC personnel, the heating system was only operated for two field seasons between 2004 and 2005 and has not been functional since 2005.
- In 2005, a soil sampling program (39 soil samples analyzed for petroleum hydrocarbon) was completed at both LTUs to assess the effectiveness of nutrient amendment under heated conditions and non-heated conditions. The report concluded bioremediation was occurring; however, the results were inconclusive to the effectiveness of either method being better than the other.
- Two smaller LTUs (LTU 3 and 4) are also present at the Site; however, there is no background information regarding the origin of these LTUs. TC is not the custodian of LTUs 3 and 4, and these LTUs are not included in the scope of work presented herein.
- In 2015, Arcadis Canada conducted the first annual groundwater and soil monitoring program to meet NWB Licensing requirements in late September. Additional soil sampling occurred at LTUs 3 and 4 to assess for contaminants of concern within the LTUs. The maximum soil sample depth investigated was approximately 0.7 m below ground surface (mbgs). One soil sample was collected per test pit excavated at the respective LTUs (five test pits at LTU 1 and four test pits at LTU 2). The soil sampling program confirmed the presence of perfluorooctanesulfonic acid (PFOS), one of the per- and poly-fluorinated alkyl substances (PFAS), exceeding interim federal guidelines in the LTU soils sampled in both LTU 1 and LTU 2. Concentration exceedances ranged between seven and 22 times the interim guideline value. The 13 soil samples collected contained PHC concentrations exceeding applicable federal guidelines in the LTU soils. The LTUs were also assessed for capacity, and it was determined that no additional impacted soil should be added to the LTUs.
- In July 2017, the condition of six existing monitoring wells was assessed (MW1 through MW6), as was the integrity of the liners at both LTUs. In August 2017, only one groundwater sample could be collected. Surface water samples were also collected around the LTU perimeter to assess for potential impacts to compensate for the lack of groundwater samples. Monitoring wells MW4 and MW6 (located upgradient and downgradient of LTU 2) were reported to have heaved and were not considered viable for future sampling.
- In 2018-2019, Stantec conducted an annual monitoring and inspection program in August for the two LTUs. The six monitoring wells at the Site were monitored; however, only one well (MW1 at LTU 1) contained sufficient groundwater to sample. The remaining monitoring wells either did not contain sufficient water for sampling (MW2 and MW6), were concluded to be compromised as the screen was partially above the surface (MW4 and MW6), were inaccessible due to a frozen bailer within the monitoring well standpipe (MW5) or were dry (MW3). MW4 and MW6 were recommended to be removed from future monitoring programs. Surface water samples from ponded water at the Site and



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at locations near the groundwater monitoring locations were collected as substitutes for groundwater samples to try and meet licence requirements. A Preliminary Quantitative Human Health and Ecological Risk Assessment (PQRA) was also completed for the two LTUs in 2018. Shallow soil samples were collected to assess for potential seepage issues at the west side and southwest corner of LTU 2, and to support the PQRA. During the PQRA, Stantec reviewed the information available from previous environmental investigations to perform a preliminary quantitative evaluation for the potential for human and ecological risks associated with the contaminants of potential concern (COPCs) excluding PFAS at the Site. COPCs were not identified in shallow soil (<0.45m) in the LTUs at the Site. In deeper soil (≥0.45 m), COPCs for the direct/contact ingestion pathway included xylenes, PHC fractions, and naphthalene. For the protection of groundwater for aquatic life, COPCs in deeper soil included benzene, toluene, xylenes, PHC fractions, fluorene, naphthalene, and phenanthrene. COPCs in groundwater were limited to metals and COPCs in surface water included PHC F2, lead, nitrate, and phenols. The PQRA concluded that no unacceptable risks were anticipated for human or ecological receptors at the Site from the LTUs. Should site conditions change (e.g., loss of integrity of the LTUs liners and berms or construction of a building at the Site), the results of the risk assessment may need to be revisited to assess/confirm there are no additional or increased risks to potential receptors.

- In 2020 there were no monitoring or inspection activities completed at the Site due to the COVID-19 pandemic travel restrictions in the Territory.
- In 2021-2022 MW1 through MW3 and MW5 were monitored in July 2021 and contained insufficient water for sample collection. Five surface water samples were collected and analyzed to meet licence requirements.

An operating licence for the historical LTU (LTU 1 and 2) was obtained by TC through the Nunavut Water Board (NWB) in 2015 (Licence No. IBR-RLF1520) and requires annual or semi-annual groundwater monitoring and sampling, depending on site activities. The NWB Licence dictates soil sampling requirements should soil be added to, removed from, or treated (with amendments) in the LTUs. As these activities did not occur since the last monitoring event in 2019, soil sampling did not take place in 2022. A renewed licence 1BR-RLF2030 was issued May 19, 2020, that revised the monitoring requirements to the collection of surface water samples and the requirement of groundwater sampling was removed from the license.

1.3 SCOPE OF WORK

The scope of work of the Program is outlined in the sections below.

1.3.1 Task 1 – Health and Safety

- Prepare a site-specific health and safety plan to identify and address site specific hazards

1.3.2 Task 2 – Groundwater/Surface Water Monitoring and Sampling

- Retain a local field assistant to provide support to Stantec staff (this was not completed, as no field assistant was made available in Resolute, NU)



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- Monitor the existing groundwater monitoring wells (MW1 through MW6) for thickness of free-phase liquid petroleum hydrocarbons (if present), depth to water, and field parameters
- Document the condition of existing groundwater monitoring wells (MW1 through MW6)
- Collect surface water samples in the vicinity of the LTUs
- Submit the samples to Bureau Veritas Canada (2019) Inc. (Bureau Veritas) depot in Yellowknife, NT for transportation to the Bureau Veritas laboratory in Calgary for analysis of the parameters specified in the NWB Licence (and Section 3.4 of this report)
- Georeference monitoring well locations
- Provide a letter from Bureau Veritas confirming review of the quality control sampling plan (**Appendix B**)



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2.0 REGULATORY FRAMEWORK

The NWB Licence provides guidelines for effluent released from the Site. As there was no planned effluent releases from the Site in 2022, the NWB Licence effluent guidelines were not considered applicable to the Site during the Program.

In 2018, the NWB directed TC to use the Ontario Ministry of the Environment, Conservation and Parks (MECP), 2011 Site Condition Standards (under Ontario Regulation 153/04) for evaluation of parameter concentrations in groundwater. A copy of the e-mail communication from the NWB is provided in **Appendix C**.

Per Ontario Regulation 153/04 (Section 35 (3)), groundwater at a property is considered non-potable when the property, and all other properties located, in whole or in part, within 250 m of the boundaries of the property, are supplied by a municipal drinking water system and have no wells installed. As there are no potable water wells within 250 m of the Site boundary, groundwater at the Site is considered non-potable. As such, the Table 3 Full Depth Generic Site Condition standards in a Non-Potable Groundwater Condition (Table 3 SCS) were considered applicable to the Site. The Table 3 SCS for groundwater are not dependent on land use.

The NWB Licence does not specify guidelines for evaluation of surface water. To evaluate surface water during the Program, the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines (CWQG) (CCME, 2014) for freshwater aquatic life were applied to the Site for comparison purposes. It should be noted that the limited accumulated surface water at the Site is not anticipated to support aquatic life. As the Site is located more than 1 kilometre (km) from the ocean, the CWQG for protection of Marine Life were not included for comparison to surface water samples.

The MECP Table 3 SCS are not intended for use when evaluating parameter concentrations in surface water. However, they were provided for reference purposes where the surface water samples were collected in lieu of groundwater samples.

The guidelines and standards considered applicable to the program are summarized in Table 2-1, below and excerpts are provided in **Appendix D**.

Table 2-1 Summary of Applicable Guidelines and Standards

Source	Guidelines / Standards
Groundwater	MECP Table 3 SCS
Surface Water	CCME Canadian Water Quality Guidelines for Freshwater Aquatic Life (CWQG) (For reference only) MECP Table 3 SCS (For reference only)



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3.0 METHODOLOGY

3.1 TASK 1 – HEALTH AND SAFETY

Stantec prepared a site-specific health and safety plan (HSP) to address site-specific hazards. The HSP was submitted to PSPC on August 10, 2022, prior to the initiation of field activities.

3.2 TASK 2 – GROUNDWATER MONITORING

The groundwater monitoring portion of the Program was completed on August 14, 2022. The depth to groundwater in the existing groundwater monitoring wells (MW1 through MW6) was measured using an interface probe, combustible headspace vapour (CHV) concentrations were measured using an RKI Eagle 2™, and the monitoring well locations were georeferenced using a handheld GPS unit with an estimated accuracy of ± 5 m.

Three monitoring wells (MW3, MW4 and MW6) were observed to be in poor condition as they were heaved and the standpipe was leaning (MW3 – south of LTU 1) or heaved with the well screen above the ground surface (MW4 – north of LTU 2 and MW6 – South of LTU 2) and were not considered to be acceptable for sample collection; these conditions were noted in the 2018 program and have not changed. No groundwater samples were collected in MW1, MW2, or MW5 as insufficient/no groundwater was present in the wells at the time of monitoring.

Refer to Figure 2, **Appendix A**, for locations of the monitoring wells at the Site and to Table 1, **Appendix D** for field observations at monitoring well locations. The GPS coordinates of the groundwater monitoring wells are presented in Table 5, **Appendix D**.

3.3 TASK 3 – SURFACE WATER SAMPLING

The surface water sampling portion of the Program was completed on August 16, 2022. Multiple locations of accumulated surface water were observed in the vicinity of the LTUs during the site visit. Because the intent of the licence is to monitor the integrity of the LTUs, Stantec took into consideration the following factors when selecting surface water sampling locations:

- Standing water available to sample
- Possible locations for berm over-flow
- Proximity of standing water to existing groundwater monitoring wells
- Considering the reportedly light rain in Resolute on August 11, 12 and 14, Stantec's field personnel focused sampling efforts on areas of consistent standing water, rather than those that were likely the result of recent rainfall.

The surface water sampling locations were georeferenced using a handheld GPS unit with an estimated accuracy of ± 5 m. The approximate locations of accumulated surface water and surface water samples are depicted on Figures 2 and 3, **Appendix A**. The GPS coordinates of the surface water samples are presented in Table 5, **Appendix D**.



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Stantec collected five surface water samples and one blind field duplicate for laboratory analysis of the NWB Licence parameters. The samples were collected by submerging laboratory-provided bottles directly into the surface water.

The samples were stored in an ice-chilled cooler prior to and during transportation to the laboratory. The samples were shipped by air by a private cargo charter to Bureau Veritas's laboratory in Calgary, Alberta, via the Bureau Veritas depot in Yellowknife, Northwest Territories.

The surface water sample locations are summarized in Table 3-1, below and are presented on Figures 2 and 3, **Appendix A**.

Table 3-1 Surface Water Sample Locations

Sample ID	Purpose	Location/Rationale
SW22-1	Licence requirement	South (down-gradient) of LTU 1 and west (cross-gradient) from LTU 2
SW22-2	Licence requirement	Immediately north (up-gradient) of the northwest berm of LTU 1.
SW22-3/Field Duplicate	Licence requirement	Along the west side of LTU 2 (cross-gradient), near a potential berm breach identified by Stantec in 2019.
SW22-4	Licence requirement	South of LTU 2 (down-gradient) near MW5 and down-gradient of a low area against the inside berm. Surface water was also observed at this location in 2019.
SW22-7	Licence requirement	Southwest (down-gradient) of LTU 1
SW22-BG	Background assessment	To the east across the road from the Site to assess background concentrations

Previously sampled locations SW5 and SW6 did not have accumulated surface water and as such were not sampled in 2022.

3.3.1 Laboratory Program

The laboratory analytical program is summarized in Table 3-2, below.

Table 3-2 Laboratory Program Summary

Source	Laboratory Analysis
Surface Water SW21-1 through SW21-4 and SW21-7, Field Duplicate (at SW21-3), SW22-BG	Total Suspended Solids (TSS) Polycyclic Aromatic Hydrocarbons (PAH) Benzene, toluene, ethylbenzene, xylenes (BTEX) Total extractable hydrocarbons (TEH) Oil and Grease Total Phenols Total and Dissolved Metals (aluminum, cadmium, copper, lead, nickel, silver, zinc, arsenic, cobalt, iron, molybdenum, selenium, titanium) Routine parameters (total hardness, conductivity, calcium, sodium, chloride, magnesium, potassium, sulphate, total alkalinity, nitrate-nitrite, ammonia nitrogen, and pH) Note: SW22-BG was only analyzed for Total and Dissolved Metals



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3.3.2 Quality Assurance and Quality Control

The following field quality assurance and quality control (QA/QC) procedures were followed during the Program.

- Groundwater monitoring and surface water sample collection equipment decontamination was completed in general accordance with Stantec's standard operating procedures (SOPs)
- Equipment was calibrated by Stantec personnel prior to fieldwork
- Surface water samples were stored in ice-chilled coolers prior to and during transportation to the laboratory
- Surface water samples were delivered to the laboratory following standard chain-of-custody protocols
- Workers collecting samples took measures to prevent cross-contamination from walking or driving through areas where surface water was sampled at the Site
- An equipment blank was collected by Stantec for analysis by Bureau Veritas
- Laboratory prepared trip blanks were included with the samples for analysis by Bureau Veritas
- Samples selected for analysis were analyzed by Bureau Veritas, which is accredited by the Canadian Association of Laboratory Accreditation (CALA)
- One blind field duplicate surface water sample was collected by Stantec and analyzed by Bureau Veritas. The analytical results were compared to those of the parent sample using the method of relative percent difference (RPD) to evaluate precision

In addition to the Stantec QA/QC procedures, the laboratory analyzes and assesses method blanks, Certified Reference Materials, method spikes, and surrogate recoveries to monitor data quality. These results are presented in the laboratory certificates of analysis.

3.3.3 Liner Visual Assessment

While at the Site, Stantec personnel visually assessed the condition of the exposed portions of the geomembrane liners and the berms of LTU 1 and LTU 2 for evidence of overflow and visible indications of tearing or material distress. The locations of observed areas of concern (defined as tears or material distress larger than 5 centimetres [cm]) were measured from the nearest corner of the LTUs.

The locations of observed liner deficiencies are indicated on Figures 4 and 5, **Appendix A** and photographs are included in the Photographic Log, **Appendix F**.



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4.0 RESULTS

The 2022 field program was conducted from August 14 to August 16, 2022.

The results of the Program are presented in the following figures, tables, and appendices of the report, and are presented in detail in subsections presented below:

Description	Figures or Tables and Associated Appendix
Site Features and Surface Water Drainage	Figure 2, Appendix A
Groundwater Monitoring Results	Table 1, Appendix D
Surface Water Sample Locations and Monitoring Results	Figure 2, Appendix A and Table 2, Appendix D
Analytical Results (including QA/QC samples)	Figure 3, Appendix A and Table 3, Appendix D
GPS Locations of Monitoring Wells and Sample Locations	Table 5, Appendix D
Observed Liner Deficiencies at LTU 1	Figure 4, Appendix A
Observed Liner and Berm Deficiencies at LTU 2	Figure 5, Appendix A
Photographic Log	Appendix F
Copies of Laboratory Certificates of Analysis	Appendix G

4.1 SITE CONDITIONS

The temperature high was 3 Celsius (°C) on each day of the field program. Conditions were generally foggy in the morning with overcast conditions in the afternoons.

During the 2018 site visit, a weathered drum labelled as containing aviation fuel was observed on the Site west of LTU 3, a weathered bag (with approximately 1 m³ volume) containing salt was observed on the Site south of LTU 1, and a pile of construction debris was observed located inside the berms of LTU 1. A similar pile of construction debris was observed at the Site within LTU 2 during the 2019 site visit. Stantec had coordinated the removal of that pile with the airport authority in 2018. However, the weathered drum and bag of salt observed during the 2018 site visit had not been removed when Stantec returned to the Site in 2019 (the airport authority had committed to removing the materials in 2018). The drum and bag of salt were again observed on the Site during the 2021 site visit, and Stantec reminded the airport authority to remove them; they had not been removed by the time Stantec de-mobilized from the Site. The drum and bag were still present on the Site during the 2022 program.

Accumulated surface water was observed immediately northwest of LTU 1 (against the berm), southeast of LTU 1, between LTU 3 and LTU 4, west of LTU 2, and south of LTU 2. Stantec was unable to confirm how long the surface water had been accumulating on the Site.

A small, vegetated area was observed outside of the southwest berm of LTU 1. A second vegetated area was observed southeast and southwest of LTU 1. Vegetated areas were also present along the west



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berm and to the south of LTU 2. Other smaller vegetated areas were also identified and shown on Figure 2, **Appendix A**. Vegetated areas observed were consistent with those previously noted at the Site.

During the program, Stantec personnel estimated the surface water drainage direction at the Site to be generally in southerly and westerly directions in the areas surrounding the LTUs. The groundwater flow direction in the vicinity of the Site has not been confirmed due to persistent insufficient quantities of groundwater in the monitoring wells. However, based on local topography, Stantec estimates the shallow groundwater flow direction to be southerly.

The observed surface water drainage directions, accumulated surface water, and vegetated areas are indicated on Figure 2, **Appendix A**.

4.2 GEOLOGY AND SURFICIAL GEOLOGY

The surficial geology in the area of the Site consists of colluvial deposits that are residual materials deposited as veneers and blankets of debris through downslope movement and in-place disintegration of bedrock, including areas of rock outcrop (Arcadis, 2017). The colluvial rubble reportedly contains rubble and silt derived from carbonate and consolidated fine clastic sedimentary rock substrate (Canada-Nunavut Geoscience Office, 2006a). The bedrock of the Site is of Paleozoic era, specifically the Arctic Platform and is composed of Silurian carbonate and siliciclastic rocks (Canada-Nunavut Geoscience Office, 2006b).

Resolute Bay is subject to continuous permafrost, and groundwater is not used as potable water (Arcadis, 2017). The potable water source for the hamlet is Char Lake, located approximately 2 km southeast and upgradient of the Site.

Surficial soil was not sampled for grain size analysis; however, based on visual observation, the soil was concluded to be coarse-grained, gravelly soil.

4.3 GROUNDWATER MONITORING

Stantec observed the condition of the six groundwater monitoring wells (MW1 through MW6) surrounding LTU 1 and LTU 2. Stantec personnel labelled the inside of the well caps with the monitoring well ID and added a reference marker to the outside of the monitoring well standpipes to indicate where the depth to water and depth to bottom in each well were measured from using a Sharpie™ marker. The reference markers were added to the highest point on the standpipe if the standpipe was cut unevenly.

Six operable monitoring wells were monitored for depth to groundwater (MW1 through MW6) but did not contain sufficient water for sample collection. Five wells (MW2, MW3, MW4, MW5, and MW6) were dry, and MW1 contained 0.029 m of standing water in the well at the time of monitoring.

The depth to water in the monitored wells ranged from dry conditions in MW2 through MW6 to 0.769 metres below top of casing (mBTC) in MW1 on August 14, 2022. Frozen wells were not encountered during the event.



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Combustible headspace vapour (CHV) concentrations were less than the detection limit of the instrument (0 parts per million (ppm)) in MW1 through MW6. Volatile headspace vapour (VHV) concentrations ranged from non-detect to 1 ppm (MW1), and other parameters including temperature, specific conductance, pH, oxidation reduction potential, and dissolved oxygen could not be measured as there was no/insufficient groundwater to obtain such measurements. The groundwater monitoring results are summarized in Table 1, **Appendix D**.

4.4 SURFACE WATER SAMPLING

Stantec collected five surface water samples and one field duplicate sample from accumulated surface water at the Site. Locations of the accumulated surface water were generally consistent with the surface water sample locations collected during the 2019 and 2021 Program, with the addition of location SW22-7. The 2022 analytical results are compared to 2019 and 2021 results in Table 4, **Appendix D**, and historical surface water sample locations are shown on Figure 6, **Appendix A**. The surface water samples were analyzed for the parameters required by the NWB Licence.

The reported concentrations exceeding the referenced guidelines are listed in Table 4-1, below.

Table 4-1 Summary of 2022 Sampling Event Surface Water Parameters Exceeding Referenced Guidelines

Sample Location	Parameter Category	Individual Parameter	Guideline Exceeded
SW22-3 Along the west side of LTU 2 (cross-gradient)	Hydrocarbons, Metals	Lead, Toluene, PHC F2	The lead concentration (0.012 mg/L) exceeded the CCME guideline (0.0065 mg/L); the concentration was one magnitude higher than the guideline value. The toluene concentration (0.047 mg/L) exceeded the CCME guideline (0.0020 mg/L); the concentration was one magnitude higher than the guideline value. The PHC F2 concentration (0.20 mg/L) exceeded the Ontario SCS guideline (0.15 mg/L); the concentration as of the same order of magnitude as the guideline value.
SW22-4 South of LTU 2 (down-gradient) near MW5 and down-gradient of a low area against the inside berm.	General Chemistry, Metals	Ammonia (as N), Lead	The ammonia (as N) concentration (17 mg/L) exceeded the CCME guideline (12.58 mg/L), the concentration was of the same order of magnitude as the guideline value. The lead concentration (0.012 mg/L) exceeded the CCME guideline (0.0065 mg/L), the concentration was one magnitude higher than the guideline value.

The reported concentrations of the remaining analyzed parameters in the surface water samples analyzed generally ranged from below the detection limit to detectable concentrations that were less than the referenced guidelines.

The reported concentrations of metals (with the exception of lead) and/or routine parameters generally ranged from the same to two orders of magnitude below the applicable guidelines.



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The reported concentrations of phenols in the collected surface water samples were below the laboratory RDLs and therefore less than the CCME guidelines and MECP SCS.

The reported concentrations of BTEX and PAH parameters were below the laboratory RDLs in the samples collected with the exception of sample SW22-03, where exceedances of applicable guidelines for toluene and PHC F2 were reported. In samples collected at locations other than SW22-03, BTEX and PAH concentrations were reported as above the RDL but at least one order of magnitude lower than the applicable guidelines.

The surface water analytical results for this program, as compared to the applicable guidelines/standards/limits, are presented in Table 3, **Appendix A** and are summarized on Figure 3, **Appendix A**.

4.5 LINER VISUAL ASSESSMENT

While at the Site, Stantec personnel visually assessed the condition of the exposed portions of the geomembrane liners and berms of LTU 1 and LTU 2.

4.5.1 LTU 1

In LTU 1, liner deficiencies were observed in 18 locations. The liner deficiencies are summarized in Table 4-2, below.

Table 4-2 LTU 1 Observed Liner and Berm Deficiencies

Deficiency Number	Location	Deficiency	Deficiency length (cm)	Reference to Photolog in Appendix F
22-1	0-2 m W of NE corner	Multiple tears	5-35	-
22-2	3 m S of NE corner	Multiple tears	5-15	-
22-4	15 m S of NE corner	Multiple tears	10, 20, 30	-
22-5	22 m SE of NE corner	1 tear	25	-
22-6	24 m SE of NE corner	1 tear	25	-
22-7	3 m W of SE corner	Multiple tears	5, 5, 5, 20	-
22-8	6 m W of SE corner	2 tears	5, 5	-
22-9	8 m W of SE corner	1 tear	20	-
22-10	12 m W of SE corner	Tear	6	-
22-11	25 m W of SE corner	Tear	5	-
25-12	12 m S of NW corner 1	1 tear	8	-
22-13	9 m north of SW corner	1 tear	5	-
22-14	13 m S of NW corner	1 tear	38	Photograph 3
22-15	5 m north of SW corner	Liner not keyed in correctly, worn out	310	Photograph 4
22-16	14 m north of SW corner	Tear	7	-
22-17	13 m S of NW corner	Multiple tears	20, 35, 70	-
22-18	5 m S of NW corner	Multiple tears	15, 20, 20, 48	Photograph 5
22-19	3 m S of NW corner	3 tears	15, 30, 36	-
22-20	19 m W of NE corner	1 tear	8	-



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The locations of the observed liner deficiencies in LTU 1 are indicated on Figure 4, **Appendix A** and select deficiencies are shown in Photographs 3 through 5 in **Appendix F**.

4.5.2 LTU 2

In LTU 2, liner and berm deficiencies were observed at 29 locations. The LTU 2 liner and berm deficiencies are summarized in Table 4-3, below.

The locations of the observed liner and berm deficiencies in LTU 2 are indicated on Figure 5, **Appendix A** and select deficiencies are shown in photographs 6 through 8, **Appendix F**.

Table 4-3 LTU 2 Observed Liner and Berm Deficiencies

Deficiency Number	Location	Deficiency	Deficiency Length (cm)	Reference to Photolog in Appendix F
22-21	Northeast corner	2 tears	7, 18	-
22-22	2-2.5 m S of NE corner	2 tears	18, 10	-
22-23	5 m S of NE corner	Multiple tears	8, 17, 55	-
22-24	7 m S of NE corner	Multiple tears	7, 10, 15, 25, 30	-
22-25	9 m S of NE corner	Multiple tears	5, 7, 25	-
22-26	11 m S of NE corner	2 tears	25, 30	-
22-27	13-17 m S of NE corner	Multiple tears	400, 7, multiple <5	Photograph 6
22-28	20 m S of NE corner	2 tears	7, 22	-
22-29	23 m S of NE corner	4 tears	5, 10, 10	-
22-30	24 m S of NE corner	Multiple tears	7, 7, 7, 20	-
22-31	25 m S of NE corner	1 tear	45	-
22-32	12 m N of SE corner	2 tears	5, 8	-
22-33	3 m W of SE corner	1 tear	90	Photograph 7
22-34	4.5 m W of SE corner	1 tear	10	-
22-35	16-17 m E of SW corner	6 tears	30, 16, 6, 6, 5, 3	-
22-36	0.5 m N of SW corner	1 tear	25	Photograph 8



5.0 QUALITY ASSURANCE / QUALITY CONTROL

A QA/QC program was conducted to assess data reliability. Surface water samples were collected in general accordance with Stantec's SOPs, were uniquely labelled, and control was maintained using chain-of-custody forms. Surface water samples were collected in laboratory-supplied containers and preserved in ice-chilled insulated coolers.

The data quality objective (DQO) of the Program was to collect data that were reproducible, complete, and suitable for comparison with the referenced guidelines / standards.

5.1 SAMPLE HOLD TIMES

Samples submitted to the laboratory were analyzed past the recommended hold times as outlined in the CCME 2016 Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 4 Analytical Methods (CCME, 2016b) for the following parameters:

- PHC F2
- BTEX and F1
- Total suspended solids
- Nitrate
- Nitrate plus nitrite
- Alkalinity
- Phenols

For the parameters analyzed after hold times, the analytical results may be biased low and should be viewed with caution. With the exception of the PHC F2 concentration reported in SW22-3, the parameters analyzed after recommended hold times were reported as either non-detectable concentrations or at least an order of magnitude lower than the guideline. These concentrations were generally consistent with previous surface water sampling events; therefore, the exceedance of the hold times was not considered by Stantec to have impacted data interpretation. In SW22-3, the PHC F2 concentration exceeded the referenced guideline; therefore, the hold time exceedance potentially biasing the laboratory analytical result low is not considered to have impacted the interpretation of the results.

5.2 TEMPERATURE

Sample temperatures were recorded upon arrival at the laboratory by measuring up to three random sample container temperatures and calculating the average result to obtain a representative temperature. The ideal temperature should be approximately 4°C. Samples that arrive at the laboratory with temperatures measured above 4°C may have reported concentrations that are biased low as a result of the elevated sample temperatures.

Although it is ideal to have sample temperatures below 4°C, Bureau Veritas has noted the difficulty in maintaining samples below 4°C. As such, Bureau Veritas considers a temperature range of 4°C to 10°C as



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acceptable. Sample coolers received at the laboratory indicated temperatures (10.3°C and 12.7°C). As such, petroleum hydrocarbon parameters analytical results may have been biased low.

5.3 FIELD DUPLICATES

The method of RPD is used to evaluate the sample result variability and is calculated by the following equation:

$$RPD = \left[\frac{|S1 - S2|}{S3} \right] \times 100$$

Where:

RPD = relative percent difference

S1 = original soil or groundwater sample concentration

S2 = duplicate soil or groundwater sample concentration

S3 = average concentration = (S1 + S2)/2

In the event that the analytical result for either sample is less than five times the laboratory reportable detection limit (RDL), any calculated RPD is considered not to be valid, and no conclusion can be made with respect to the data reproducibility. The generally accepted industry standard for acceptable RPD's analyses is less than or equal to 40% for field duplicated water samples described by the CCME Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 1 Guidance Manual (CCME, 2016a).

SW22-DUP was a blind field duplicate surface water sample collected from SW3. RPD values ranged from 0 % (multiple parameters) to 28 % (Ammonia as N). As such, the data was considered valid.

The RPD results are summarized on Table 3, **Appendix D**

5.4 TRIP BLANK

The trip blank (TRIP BLANK) consisted of de-ionized water prepared by the laboratory. The trip blank sample was submitted for analysis of the NWB Licence parameters to assess for potential cross-contamination during sample storage and transportation. The laboratory analytical results indicated that the reported concentrations were less than the laboratory RDL. Reported pH concentrations in the trip blank were reported as outside of guidelines, but Bureau Veritas confirmed the values were within standard values for deionized water provided for blanks. As such, the results indicate that shipping of the samples did not influence the surface water results.

The trip blank results are summarized on Table 2, **Appendix E**.

5.5 EQUIPMENT BLANK

The equipment blank (FIELD BLANK) was prepared by Stantec personnel using deionized water provided by the laboratory. The equipment blank sample was packaged in laboratory-supplied bottles in the field by Stantec using the same equipment used to collect the surface water samples. The equipment blank



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sample was submitted for analysis of NWB Licence parameters to assess for potential cross-contamination while sampling in the field. Laboratory analytical results indicated the reported concentrations of the tested parameters were less than the laboratory RDLs. Reported pH concentrations in the equipment blank were reported as outside of guidelines, but Bureau Veritas confirmed the values were within standard values for deionized water provided for blanks. The reported pH value was similar to that reported in the trip blank. As such, the equipment blank results indicate that sample handling and sampling equipment did not influence the surface water analytical results.

The equipment blank results are summarized on Table 2, **Appendix E**.

5.6 LABORATORY QA/QC

In addition to the Stantec QA/QC procedures, the laboratory analyzes and assesses method blanks, Certified Reference Materials, method spikes, and surrogate recoveries to monitor data quality. In general, the laboratory QA/QC results were considered acceptable with the exception of the following:

- The relative percent difference (RDP) for laboratory duplications for the following parameters were outside of the control limits:
 - Total chromium
 - Dissolved manganese

Bureau Veritas indicated that the overall quality control for these analyses met acceptability criteria. The laboratory concentrations of the above-noted parameters were less than the laboratory RDL which was one order of magnitude below the CCME guidelines. Therefore, these matrix spike recovery issues did not affect the interpretation of the results.

The laboratory QA/QC results are presented as part of the copies of the laboratory certificates of analysis in **Appendix G**.

5.7 SUMMARY

Based on the results of the assessment above, the DQO for the Program was considered to have been met and the data were considered valid; however, samples submitted to the laboratory were analyzed past the recommended hold times as outlined in the CCME 2016 Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 4 Analytical Methods (CCME, 2016b). For the parameters analyzed after hold times, the analytical results may be biased low and should be viewed with caution. With the exception of the PHC F2 concentration reported in SW22-3, the parameters analyzed after recommended hold times were reported as either non-detectable concentrations or at least an order of magnitude lower than the guideline. These concentrations were generally consistent with previous surface water sampling events; therefore, the exceedance of the hold times was not considered to have impacted data interpretation. In SW22-3, the PHC F2 concentration exceeded the referenced guideline; therefore, the hold time exceedance potentially biasing the laboratory analytical result low is not considered to have impacted the interpretation of the results.



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6.0 SUMMARY AND CONCLUSIONS

Stantec completed the 2022 Site Environmental Monitoring Program at the LTUs located at the Resolute Bay Airport on Cornwallis Island, Nunavut in August 2022. The findings of the Program are summarized below.

Site Conditions

During the 2018 site visit, a weathered drum labelled as containing aviation fuel was observed on the Site west of LTU 3, a weathered 1 m³ bag containing salt was observed on the Site south of LTU 1, and a pile of construction debris was observed located inside the berms of LTU 1. A pile of construction debris was also observed at the Site within LTU 2 during the 2018 program. Stantec had coordinated the removal of the pile of construction debris with the airport authority in 2018. The weathered drum and the bag of salt observed during the 2018 site visit had not been removed when Stantec returned to the Site in 2019 (the airport authority had committed to removing the materials in 2018). Stantec reminded the airport authority to remove the materials while on Site in 2021. In 2022, the aviation fuel drum was not observed to be present, but the bag of salt was still present when Stantec had left the Site.

The presence of a bag of salt, construction debris, and a drum of aviation fuel are considered to be a potential environmental concern for soil and groundwater at the Site.

Groundwater Monitoring

Stantec observed the condition of, and monitored, six groundwater monitoring wells (MW1 through MW6) surrounding LTU 1 and 2. The six monitored wells did not contain sufficient water for sample collection, which is consistent with previous monitoring program completed at the Site since 2016.

Surface Water Sampling

Stantec collected five surface water samples and one field duplicate sample from accumulated surface water at the Site in the vicinity of the LTUs.

In general, the reported concentrations of the parameters analyzed in the surface water samples were below the applicable guidelines / standards with the exception of:

- Lead, toluene, and PHC F2 concentrations in sample SW22-3
- Ammonia (as N) and lead in sample SW22-4

Quality Assurance / Quality Control

Based on the results of the field and laboratory QA/QC program, the DQO for the Program was considered to have been met; however, the laboratory results for parameters that exceeded may be biased low and should be viewed with caution. Due to the reported concentrations being consistent with



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previous surface water sampling events, or above the referenced guidelines, the hold time exceedances were not considered to have impacted the interpretation of the results.

LTU Conditions and Liner Visual Assessment

While at the Site, Stantec personnel visually assessed the condition of the exposed portions of the geomembrane liners and berms of the two LTUs. Two areas of low berm were observed adjacent to the access ramp of LTU 2.

Numerous tears of the liners were observed at both LTU 1 and LTU 2. The largest tear was located 13 m south of the northeast corner of LTU 2 and measured approximately 4.0 m in length.

LTU Integrity

Based on the results of the surface water sampling and the visual assessment of the LTUs and liners, the following areas of concern for LTU integrity were noted:

- Surface water is accumulated west of LTU 2. The surface water is potentially associated with an area of low berm adjacent to the access ramp to LTU 2, however residue and staining were not observed on the liner.
 - Accumulated surface water was also observed in this location in previous years
- A low area where surface water may accumulate was observed inside the south berm of LTU 2. Accumulated surface water along the inside berm of the LTU has the potential to overflow and/or be blown over the berm during high wind events and accumulate outside of the LTU. This low area inside the berm is associated with an area of low berm observed by Stantec in 2018 and 2019.
 - Accumulated surface water was observed south (down-gradient) of LTU 2 (south of the low area inside the berm). The corresponding surface water sample (SW22-4) indicated parameter concentrations were below the guidelines / standards / limits with the exception of ammonia (as N) and lead which exceeded the CCME guidelines.
- Surface water was observed to be pooling against the inside east berm of LTU 2 in the northern portion of the LTU. This pooling is also located near an approximately 4.0 m tear in the liner. The tears present a potential risk for LTU water to be released to the surrounding environment.



Limitations
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7.0 LIMITATIONS

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

This report has been prepared for the exclusive use of PSPC and TC and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

This report is limited by the following:

- The majority of the liners were covered with soil and could not be visually assessed

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.



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The conclusions are based on the site conditions encountered by Stantec at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Factors such as areas of potential concern identified in previous studies, site conditions (e.g., utilities) and cost may have constrained the sampling locations used in this assessment. In addition, analysis has been carried out for only a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site. As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.



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References
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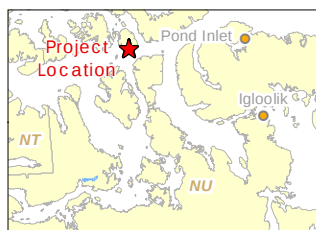
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APPENDIX A

Figures



- ★ Site Location
- Land Parcel

PSPC: Public Services and Procurement Canada

0 600 1,200 metres
1:40,000 (at original document size of 8.5x11)



Project Location 123514046
Comwalls Island,
Nunavut Prepared by MKuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

Client/Project
PSPC for Transport Canada
2022 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.

1

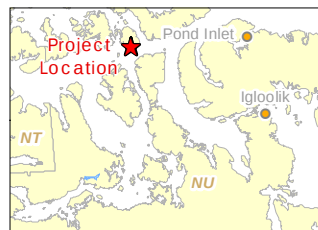
Title

Site Location Plan

Notes

1. Coordinate System: NAD 1983 UTM Zone 15N
2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.
4. Parcels: Canada Lands Digital Cadastral Data, ©Her Majesty the Queen in Right of Canada, Department of Natural Resources, All rights reserved.

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Notes

1. Coordinate System: NAD 1983 UTM Zone 15N
2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
3. Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.

- Monitoring Well Location
- Monitoring Well Location - Screen Heaved above surface, Not Suitable for Sample Collection
- Surface Water Sample Location
- Bag of Weathered Salt
- Soil and Construction Debris Pile

- Observed Surface Drainage Flow Direction Based on Topography
- Land Treatment Unit (LTU)
- Vegetated Areas
- Approximate Areas of Accumulated Surface Water
- Approximate Low Berm Location

PSPC: Public Services and Procurement Canada

0 15 30 metres
1:1,000 (at original document size of 8.5x11)



Project Location
Comwallis Island,
Nunavut

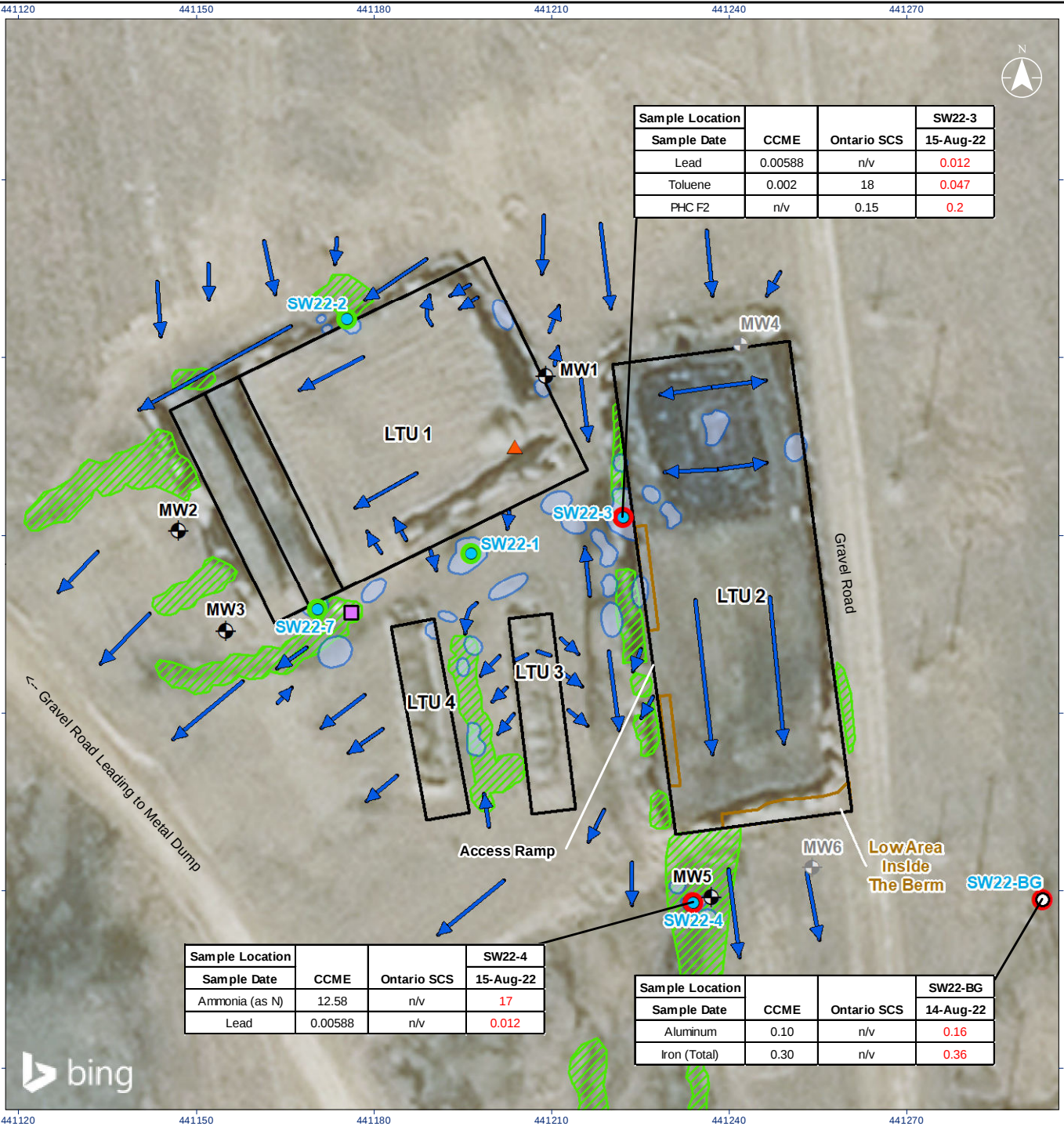
123514046
Prepared by MKuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

Client/Project
PSPC for Transport Canada
2022 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.

2

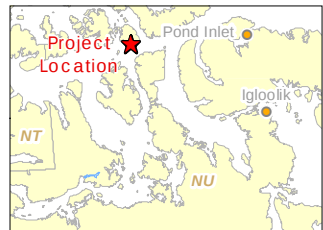
Title
Site Plan Showing Site Features and
Sample Locations



Sample Location	CCME	Ontario SCS	SW22-3
Sample Date			15-Aug-22
Lead	0.00588	n/v	0.012
Toluene	0.002	18	0.047
PHC F2	n/v	0.15	0.2

Sample Location	CCME	Ontario SCS	SW22-4
Sample Date			15-Aug-22
Ammonia (as N)	12.58	n/v	17
Lead	0.00588	n/v	0.012

Sample Location	CCME	Ontario SCS	SW22-BG
Sample Date			14-Aug-22
Aluminum	0.10	n/v	0.16
Iron (Total)	0.30	n/v	0.36



- Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
 2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
 3. Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.

- Monitoring Well Location
- Monitoring Well Location - Screen Heaved above surface, Not Suitable for Sample Collection
- Background Surface Water Sample Location
- Surface Water Sample Location
- Bag of Weathered Salt
- Soil and Construction Debris Pile
- Surface Drainage Flow
- Direction Based on Topography
- Concentrations Below Applicable Guidelines / Standards
- Concentrations Above Applicable Guidelines / Standards
- Land Treatment Unit (LTU)
- Vegetated Areas
- Approximate Areas of Accumulated Surface Water
- Approximate Low Berm Location

PSPC: Public Services and Procurement Canada



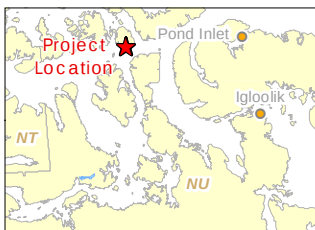
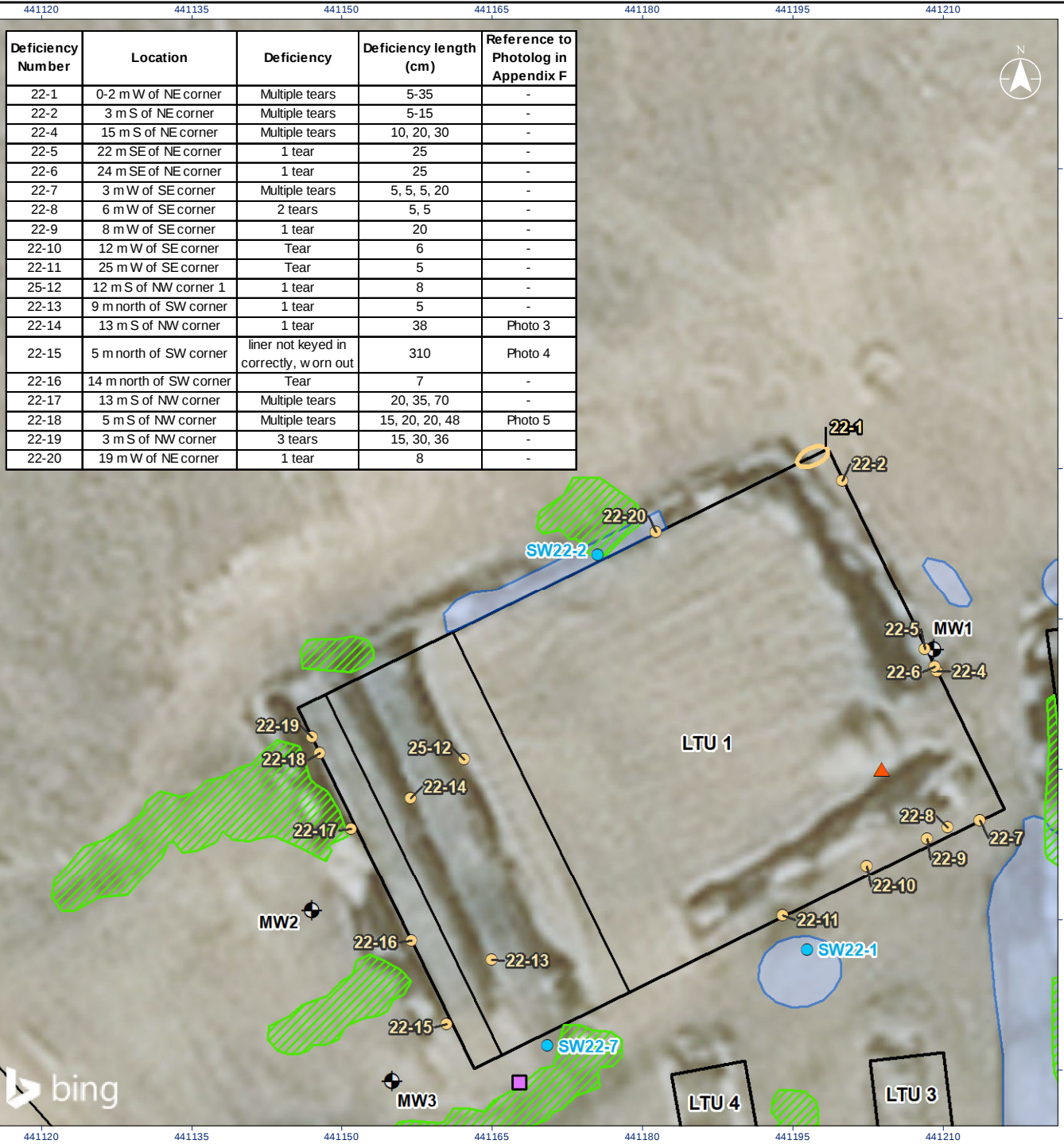
Project Location
Comwallis Island,
Nunavut

123514046
Prepared by MKuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

Client/Project
PSPC for Transport Canada
2022 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.
3

Title
Surface Water Sample Analytical
Results Summary



- Monitoring Well Location
 - Surface Water Sample Location
 - Liner Deficiency
 - Bag of Weathered Salt
 - Soil and Construction Debris Pile
 - Liner Deficiency Area
 - Land Treatment Unit (LTU)
 - Vegetated Areas
 - Accumulated Surface Water
- PSPC: Public Services and Procurement Canada

0 10 20 metres
1:600 (at original document size of 8.5x11)



Project Location
Comwallis Island,
Nunavut

123514046
Prepared by Mkuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

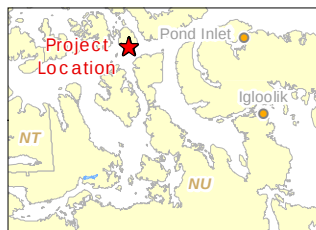
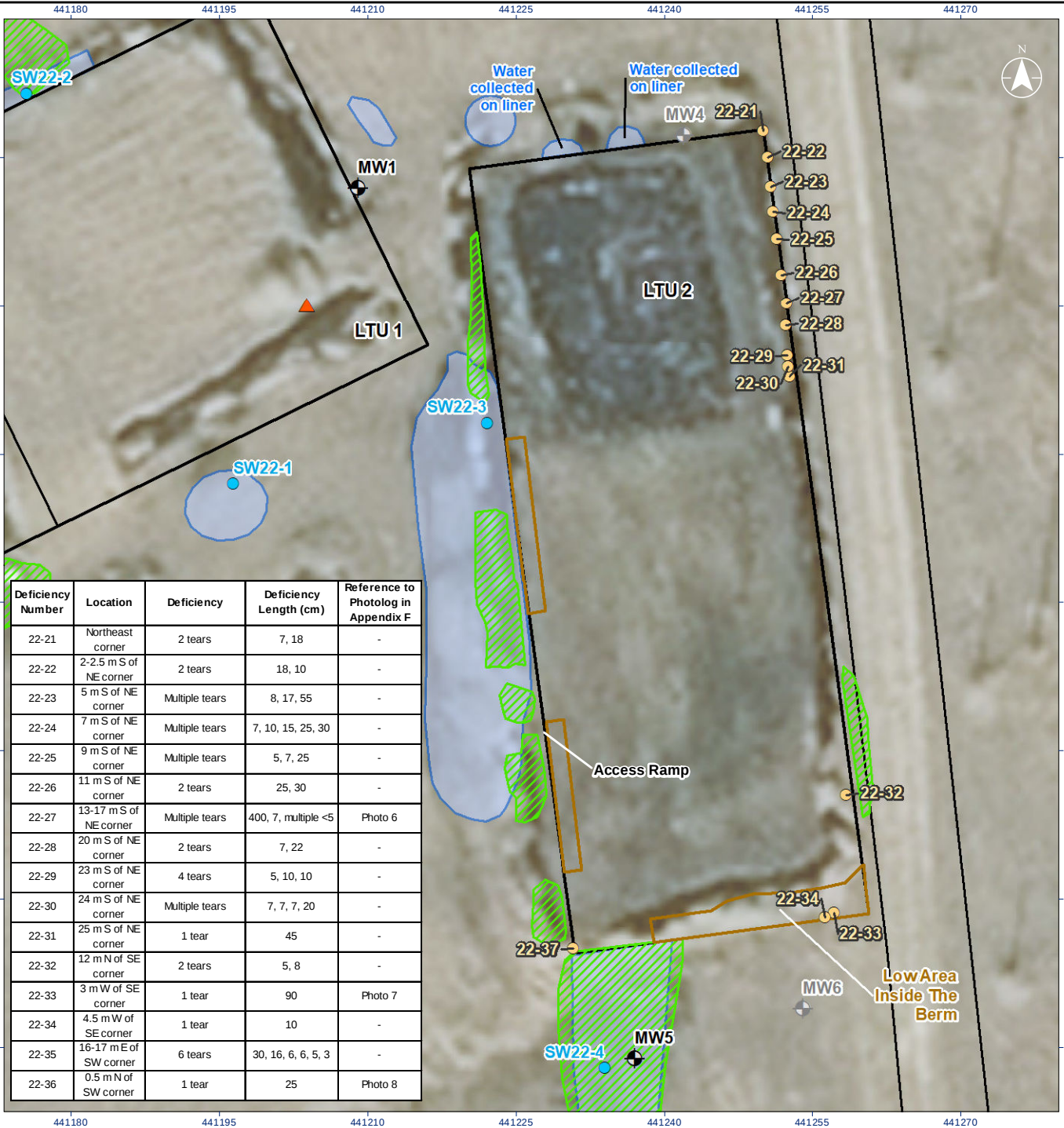
Client/Project
PSPC for Transport Canada
2022 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.
4

Title
Site Plan Showing LTU 1 Observed
Liner Deficiencies

- Notes
- Coordinate System: NAD 1983 UTM Zone 15N
 - Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
 - Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.

* Nunavut Water Board License No. 1BR-RLP1520 requirements for effluent discharged from a sump at the Landfarm Facility, Part D, Item 6.
* Ontario Ministry of the Environment and Climate Change (now referred to as the Ministry of Environment, Conservation, and Parks). Soil, Groundwater, and Sediment Standards for use under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition.



- Monitoring Well Location
- Monitoring Well Location - Screen Heaved above surface, Not Suitable for Sample Collection
- Surface Water Sample Location
- Liner Deficiency
- Soil and Construction Debris Pile

- Land Treatment Unit (LTU)
- Vegetated Areas
- Accumulated Surface Water
- Approximate Low Berm Location

0 10 20 metres
1:600 (at original document size of 8.5x11)



Project Location
Cornwallis Island,
Nunavut

123514046
Prepared by MKuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

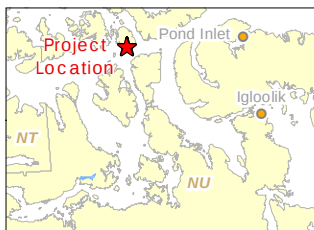
Client/Project
PSPC for Transport Canada
2021 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.
5

Site Plan Showing LTU 2 Observed
Liner and Berm Deficiencies

Notes
1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.

* Nunavut Water Board License No. 18R-RLP1520 requirements for effluent discharged from a sump at the Landfarm Facility, Part D, Item 6.
* Ontario Ministry of the Environment and Climate Change (now referred to as the Ministry of Environment, Conservation, and Parks), Soil, Groundwater, and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition.



- Surface Water Sample Location (2022)
- Surface Water Sample Location (2021)
- Surface Water Sample Location (2019)
- Surface Water Sample Location (2018)
- Land Treatment Unit (LTU)

Notes

1. Coordinate System: NAD 1983 UTM Zone 15N
2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
3. Imagery: Microsoft Bing product screen shot(s) reprinted with permission from Microsoft Corporation.

0 15 30 metres
1:1,000 (at original document size of 8.5x11)



Project Location
Comwallis Island,
Nunavut
123514046
Prepared by MKuhl on 2022-10-31
TR by MRedmond on 2022-11-xx
R by TShanoff on 2022-11-xx

Client/Project
PSPC for Transport Canada
2022 Environmental Monitoring Program
Resolute Bay Airport Land Treatment Unit

Figure No.
6

Site Plan Showing Historical Surface
Water Sampling Locations

PSPC: Public Services and
Procurement Canada

APPENDIX B

Laboratory Review of QA/QC Plan



2022/09/05

Stantec
10160 112 Street
Edmonton AB T5K 2L6 CA

Attn: Lindsay van Noortwyk , Associate / Project Manager

Re: Resolute Bay Airport Landfill Treatment Unit – Nunavut 2022 Environmental Monitoring Program (as provided by Stantec)

Dear Ms van Noortwyk

As requested, Bureau Veritas Environmental Laboratories has reviewed the Resolute Bay Airport Landfill Treatment Unit 2022 Sampling Plan (appended). In our opinion the Plan meets or exceeds the CCME requirements for field QC .

I trust this meets your needs. If anything further is required, please do not hesitate to contact me directly at barry.loescher@bureauveritas.com, 250 325-8887.

Sincerely,



Barry Loescher, PhD PChem QP
Quality Systems Specialist
Bureau Veritas Environmental Laboratories



3. 2022 Environmental Monitoring Program, Resolute Bay Airport Landfill Treatment Unit, Nunavut

Source	Location	Laboratory Analysis
Surface Water	Up to eight (8) samples (where possible) up and down gradient from LTUs 1 and 2 Field Duplicate Trip Blank Field Blank	Total Suspended Solids (TSS) Ammonia Nitrogen Oil and Grease Polycyclic Aromatic Hydrocarbons (PAH) Benzene, toluene, ethylbenzene, xylenes (BTEX) Total extractable hydrocarbons (TEH) Oil and Grease Total Phenols Total Metals (aluminum, cadmium, copper, lead, nickel, silver, zinc, arsenic, cobalt, iron, molybdenum, selenium, titanium) Dissolved Metals (aluminum, cadmium, copper, lead, nickel, silver, zinc, arsenic, cobalt, iron, molybdenum, selenium, titanium) Routine parameters (total hardness, conductivity, calcium, sodium, chloride, magnesium, potassium, sulphate, total alkalinity, nitrate-nitrite, ammonia nitrogen, and pH)

APPENDIX C

NWB Licence and Communication



NUNAVUT WATER BOARD WATER LICENCE

Licence No. 1BR-RLF2030

Pursuant to the Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

TRANSPORT CANADA

(Licensee)

3rd FLOOR, 344 EDMONTON STREET, WINNIPEG, MANITOBA R3C 0P6

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water or dispose of waste for a period subject to restrictions and conditions contained within this Licence renewal:

Licence Number/Type: **1BR-RLF2030 TYPE "B"**

Water Management Area: **BATHURST & CORNWALLIS ISLANDS WATERSHED (55)**

Location: **RESOLUTE BAY LANDFARM MAINTENANCE / MONITORING / DECOMMISSIONING PROJECT QIKIQTANI REGION, NUNAVUT**

Classification: **INDUSTRIAL UNDERTAKING**

Purpose: **USE OF WATER AND DEPOSIT OF WASTE**

Quantity of Water use not To Exceed: **FIVE (5) CUBIC METERS PER ANNUM**

Effective Date: **AUGUST 17, 2020**

Expiry of Licence: **AUGUST 16, 2030**

This Licence issued and recorded at Gjoa Haven, Nunavut includes and is subject to the annexed conditions.

**Lootie Toomasie,
Nunavut Water Board, Chair**

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the use of Water and the deposit of Waste for a Municipal undertaking classified as per Schedule 1 of the *Regulations* at the Resolute Bay Landfarm Maintenance/Monitoring/Decommissioning Project, located near Resolute Bay, within the Qikiqtani Region of Nunavut, generally at the following geographical coordinates:

Latitude: 74° 44' 34.28" N	Longitude: 95° 00' 17.18" W
Latitude: 74° 44' 34.58" N	Longitude: 95° 00' 02.78" W
Latitude: 74° 44' 30.04" N	Longitude: 95° 00' 01.46" W
Latitude: 74° 44' 30.52" N	Longitude: 95° 00' 15.23" W

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new *Regulations* are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such *Regulations*, to be subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

“**Act**” means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Addendum**” means the supplemental text that is added to a full plan or report usually included at the end of the document and is not intended to require a full resubmission of the revised report;

“**Amendment**” means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

“**Appurtenant Undertaking**” means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;

“**Board**” means the Nunavut Water Board established under the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond, landfarm or a treatment plant;

“**Engineer**” means a professional engineer registered to practice in Nunavut in accordance with the *Consolidation of Engineers and Geoscientists Act S. Nu 2008, c.2d* the *Engineering and Geoscience Professions Act S.N.W.T. 2006, c.16 Amended by S.N.W.T. 2009, c.12*;

“**Geotechnical Engineer**” means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments;

“**Grab Sample**” means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected;

“**High Water Mark**” means the usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land (ref. Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities);

“**Inspector**” means an Inspector designated by the Minister under Section 85 (1) of the *Act*;

“**Licensee**” means the holder of this Licence;

“**Modification**” means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

“**Monitoring Program**” means a monitoring program established to collect data on surface water and groundwater quality to assess impacts to the freshwater aquatic environment of an appurtenant undertaking;

“**Nunavut Agreement**” means the “*Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*”, including its preamble and schedules, and any amendments to that agreement made pursuant to it;

“**Regulations**” means the *Nunavut Waters Regulations SOR/2013-69 18th April, 2013*;

“Spill Contingency Plan” means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

“Treatment Objective” means the treatment objective for the Land Treatment Unit which is based on the Canadian Council of Ministers of the Environment (CCME) Canada – Wide Standard for Petroleum Hydrocarbon in Soil, revised January 2008; and as determined by the Government of Nunavut, Environmental Protection Service based on the 2009 Environmental Guideline for Site Remediation; See Table No. 1;

“Type B Soil” means soil contaminated with petroleum hydrocarbons in which the primary petroleum product present in the soil as determined by laboratory analysis consists of fuel oil and /or diesel fuel and /or gasoline; this soil does not contain polychlorinated biphenyl (PCB);

“Waste” means, as defined in S.4 of the *Act*, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

“Waste Disposal Facilities” means all facilities designated for the disposal of waste, and includes the Sewage Disposal Facilities and Solid Waste Disposal Facilities (including Bulky metal area), as described in the previous Application for Water Licence renewal filed by the Applicant on May 27, 2014;

“Water” or “Waters” means waters as defined in section 4 of the *Act*; and

3. Enforcement

- a. Failure to comply with this Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the *Act*;
- b. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the *Act*; and
- c. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge of waste by the Licensee, Inspectors appointed under the *Act*, hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable law.

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than the 31st March of the year following the calendar year being reported, containing the following information:
 - a. A summary report of water use and waste disposal activities;
 - i. Quantity of water used for sampling purposes;
 - ii. Quantity and quality of Effluent discharged from Landfarm;
 - iii. Quantity and characterization of soils placed within the Landfarm for treatment.
 - b. A list of unauthorized discharges and a summary of follow-up actions taken;
 - c. Any revisions to the Spill Contingency Plan, Abandonment and Restoration Plan, and other plans associated with the Licence, as required by Part B, Item 9, submitted in the form of an Addendum;
 - d. Description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
 - e. A summary of all information requested and results of the Monitoring Program;
 - f. Any other details on water use or waste disposal requested by the Board by the 1st November of the year being reported.
2. The Licensee shall comply with the Monitoring Program described in this Licence, and any amendments to the Monitoring Program as may be made from time to time, pursuant to the conditions of this Licence.
3. The Licensee shall post signs in the appropriate areas to identify the stations of the Monitoring Program associated with the Landfarm Facility. All signage postings shall be in the Official Languages of Nunavut.
4. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this Project at least thirty (30) days prior to any such change.
5. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted, cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.
6. The Licensee shall implement suitable methods required for measuring the volumes of soil and water associated with the project as required under Part J, Item 1 and Part J, Item 6, respectively.
7. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.

8. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
9. The Licensee shall review the Plans referred to in this Licence as required by changes in operation and/or technology and modify the Plans accordingly. Revisions to the Plans are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 1, complete with a revisions list detailing where significant content changes are made.
10. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:
 - (a) **Manager of Licensing:**
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369
Email: licensing@nwb-oen.ca
 - (b) **Inspector Contact:**
Manager of Field Operations, AANDC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445
11. The Licensee shall submit one (1) electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
12. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the NWB is received and acknowledged by the Manager of Licensing.
13. This Licence is assignable as provided for in Section 44 of the Act.
14. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, or any other regulatory requirement.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee is authorized to use up to five (5) cubic metres of Water annually for monitoring and related purposes.
2. The use of Water from streams or any Water bodies not identified in Part C, Item 1, is prohibited unless authorized and approved by the Board in writing.
3. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless authorized.
4. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
5. The Licensee shall implement and maintain sediment and erosion control measures prior to and during the operation to prevent entry of sediment and/or dust into Water.

PART D: CONDITIONS APPLYING TO WASTE AND WASTE MANAGEMENT

1. The Licensee shall locate areas designated for Waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of Water is not impaired, unless otherwise approved by the Board in writing.
2. All waste generated under the Licence shall be removed from site and disposed of in an approved waste disposal facility.
3. The Licensee shall treat Type B soil contained in the Landfarm Facility to meet relevant Treatment Objective, or as otherwise approved by the Board in writing.
4. The Licensee shall maintain the Landfarm to the satisfaction of the Inspector.
5. The Licensee shall provide at least ten (10) days' written notice to the Inspector and the Board prior to any planned discharges from the Landfarm Facility. The notice shall include the estimated discharge volume, Effluent quality or results of monitoring under Part D, Item 6, and the proposed location for the discharge.

6. All Effluent discharged from the sump of the Landfarm Facility, at monitoring station RLF-1, shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample (µg/L)
pH	6 to 9 (pH units)
Oil & Grease	5000
Lead (dissolved)	1
Benzene	370
Toluene	2
Ethyl-benzene	90

7. If Effluent from RLF-1 does not meet the Effluent quality limits in Part D, Item 6, it shall be treated to meet such limits, or it shall be considered hazardous waste and disposed off-site at an approved facility or as otherwise approved by the Board in writing.
8. The discharge location for the Effluent described in Part D, Item 6 shall be situated at a minimum of thirty-one (31) metres from the ordinary High Water Mark of any water body and where direct or indirect flow into a water body is not possible and no additional impacts are created.
9. The Licensee shall dispose of soils containing contaminants in excess of the Treatment Objectives, off site at an approved treatment facility or as otherwise approved by the Board in writing.
10. Licensee shall treat all Petroleum Hydrocarbon Contaminated (PHC) soil associated with the Project at the Landfarm Facility operated by the Licensee. The contaminated soil must be treated to meet appropriate Treatment Objective.
11. The Licensee shall, prior to the removal of any treated soil for future use, confirm with the Government of Nunavut, Environmental Protection Service that the soils have been treated to meet all legislatively-required treatment objectives.

PART E: CONDITIONS APPLYING TO OPERATIONS

1. The Licensee shall implement the Plan entitled *Resolute Bay, Land Farm Operation and Maintenance Plan*, dated January 2012 that was originally approved by the Board.
2. The Licensee shall, within six (6) months of issuance of this Licence submit to the Board for approval a Landfarm Integrity Assessment and Improvement Report to assess and propose engineering options for improving the berms and prevent accumulated surface water from overflowing or blowing over the berm of Landfarm Facility.

3. The Licensee shall implement appropriate measures prior to, during, and following excavation of soil from the Landfarm Facility, to prevent or minimize impact to water.
4. The Licensee shall not mix or blend PHC contaminated soils with non-contaminated soils for the expressed purpose of achieving the Treatment Objective.
5. The Licensee shall implement proper handling, storage and transportation procedures for the management of hazardous materials during execution of the Project.
6. The Licensee shall minimize disturbance to terrain, permafrost and drainage during extraction of granular material, movement of contractor's equipment and personnel around the site and removal of site debris.

PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. Drilling is not authorized under this Licence

PART G: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
 - a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
 - b. such Modifications do not place the Licensee in contravention of the Licence or the *Act*;
 - c. such Modifications are consistent with the NIRB Screening Decision;
 - d. the Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
 - e. the Board has not rejected the proposed Modifications.
2. Modifications for which all of the conditions referred to in Part G, Item 1 have not been met can be carried out only with written approval from the Board.
3. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Licensee shall implement the Plan entitled *Resolute Bay Land Farm Treatment Facility, Spill Contingency Plan*, dated January 2012 that was originally approved by the Board.
2. The Licensee shall update and submit for the NWB's review within the next Annual Report the Plan as referred to in Part H, Item 1, addressing the following issues:
 - a. To include updated project details, names of important entities such as CIRNA;
 - b. To update the effective date of the project to reflect the term of the Licence.
3. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering water. All sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent water body and inspected on a regular basis.
4. The Licensee shall carryout any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.
5. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a. Employ the approved Spill Contingency Plan;
 - b. Report the spill immediately to the NWT/NU 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
 - c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.

PART I: CONDITIONS APPLYING TO ABANDONEMENT AND RESTORATION

1. The Licensee shall implement the Plan entitled *Stand Alone Abandonment and Restoration Plan, Resolute Bay Airport Land Farm, Nunavut*, dated January 2012 that was originally approved by the Board.
2. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
3. The Licensee shall remove from the site, all infrastructure and site materials, including all fuel caches, drums, barrels, material and equipment prior to the expiry of this Licence.

4. The Licensee shall notify the Board of its intention to proceed with final abandonment of undertaking at least six (6) months prior to the planned dates of closure.
5. The Licensee shall backfill and restore, all temporary containment sumps, to the preexisting natural contours of the land.
6. Areas that have been contaminated by hydrocarbons shall be reclaimed to meet objectives as outlined in the Government of Nunavut's *Environmental Guideline for Site Remediation, January 2009* (Revised March 2009). The use of reclaimed soils for the purpose of backfill or general site grading may be carried out only upon consultation with and approval by the Government of Nunavut – Department of Environment and an Inspector.
7. All disturbed areas shall be stabilized and re-vegetated as required, upon completion of work, and restored as practically as possible to a pre-disturbed state

PART J: CONDITIONS APPLYING TO MONITORING PROGRAM

1. The Licensee shall measure and record the volume of all soil deposited and/or removed from the Landfarm Facility.
2. The Licensee shall maintain the Monitoring Program Stations, and conduct sampling and analysis requirements as described below:

Monitoring Station ID	Description	Frequency	Parameters
RLF-1	Discharge from Landfarm Facility Sump	Prior to discharge	(Volume) Quality in accordance to Parameters in Part D, Item 6)
SW-1	South (down gradient) of LTU 1	Twice/year (After Freshet and the end of treatment season) and runoff water is observed	(Quality) in accordance with Part J, Item 9
SW-2	North of LTU 1	Twice/year (After Freshet and the end of treatment season) and runoff water is observed	(Quality) in accordance with Part J, Item 9
SW-3	West of LTU 2	Twice/year (After Freshet and the end of treatment season)	(Quality) in accordance with Part J, Item 9

		and runoff water is observed	
SW-4	South (down gradient) of LTU 2	Twice/year (After Freshet and the end of treatment season) and runoff water is observed	(Quality) in accordance with Part J, Item 9

3. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where remediated soil is deposited.
4. The Licensee shall confirm the locations and GPS coordinates for all Monitoring Program Stations referred to in Part J, Item 2 with an Inspector.
5. The Licensee shall assess and record the concentration of F1 – F4 fractions in petroleum hydrocarbon contaminated soil, according to the CCME *Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil* that is entering and/or removed from the Landfarm Facility.
6. The Licensee shall measure and record the volume of water used for all purposes under this licence.
7. The Licensee shall sample and record the volume of all Effluent discharged from the Landfarm Facility at Monitoring Program Station RLF-1.
8. The Licensee shall sample prior to discharge at Monitoring Program Station RLF-1, to confirm compliance with the Effluent quality limits under Part D, Item 6.
9. The Licensee shall sample Monitoring Stations RLF-1, SW-1, SW-2, SW-3 and SW-4 in accordance with frequencies included under Part J, Item 2, giving consideration to adequate ground thaw and obtaining a representative surface runoff water sample. Samples shall be analyzed for the following parameters:

Total Suspended Solids	pH
Total Hardness	Total Alkalinity
Conductivity	Nitrate-Nitrite
Ammonia Nitrogen	Chloride
Oil and Grease	Total Phenols
Calcium	Magnesium
Sodium	Potassium
Chloride	Sulphate
Total Aluminum	Total Arsenic
Total Cadmium	Total Cobalt
Total Copper	Total Iron
Total Lead	Total Molybdenum
Total Nickel	Total Selenium

Total Silver

Total Titanium

Total Zinc

Total Extractable Hydrocarbons (TEH)

Polycyclic Aromatic Hydrocarbons (PAH)

Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

10. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the most recent edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board.
11. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
12. The Licensee shall implement the Quality Assurance and Quality Control Plan for Resolute Bay Landfarm Facility, Transport Canada, dated January 2016, as accepted by the Board.
13. Additional monitoring requirements may be requested by the Inspector.
14. The Licensee shall include in the Annual Report required under Part B, Item 1 all data, monitoring results and information required by this Part.
15. Modifications to the Monitoring Program may be made only upon written request and subsequent approval of the Board in writing.

TABLES

Table 1 Remediation Requirements

	Soil Texture	Agricultural Land Use	Residential or Parkland Land Use	Commercial Land Use	Industrial Land Use
Fraction 1	Fine	210 (170 ^a)	210 (170 ^a)	320 (170 ^a)	320 (170 ^a)
	Coarse	30 ^b	30 ^b	320 (240 ^a)	320 (240 ^a)
Fraction 2	Fine	150	150	260 (230 ^a)	260 (230 ^a)
	Coarse	150	150	260	260
Fraction 3	Fine	1300	1300	2500	2500
	Coarse	300	300	1700	1700
Fraction 4	Fine	5600	5600	6600	6600
	Coarse	2800	2800	3300	3300
Benzene	Fine	0.0068	0.0068	0.0068	0.0068
	Coarse	0.03	0.03	0.03	0.03
Toluene	Fine	0.08	0.08	0.08	0.08
	Coarse	0.37	0.37	0.37	0.37
Ethylbenzene	Fine	0.018	0.018	0.018	0.018
	Coarse	0.082	0.082	0.082	0.082
Xylene	Fine	2.4	2.4	2.4	2.4
	Coarse	11	11	11	11
Lead	Fine	70	140	260	600
	Coarse				
Polychlorinated Biphenyls	Fine	0.5	1.3	33	33
	Coarse				

Notes: All values are in parts per million (ppm)

a = Where applicable, for protection of potable groundwater

b = Assumes contamination near residence

Data from CCME *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil*, (2001) Revised January 2008 and the Government of Nunavut *Environmental Guideline for Site remediation* (2009).

From: [Karén Kharatyan](#)
To: [Barker, Jackie](#); [Assol Kubeisnova](#)
Cc: [Licensing Department](#)
Subject: Re: Clarifications requested regarding NWB Licence No. 1BR-FTA1828 - Transport Canada Cambridge Bay Land Treatment Units
Date: October 16, 2018 5:05:44 PM

Hi Jackie,

Thank you for pointing this out. The table included is from the Nunavut Guideline for Contaminated Sites Remediation that provides the requirements for soil remediation. However, I noticed that there are a few oversights of numbers within the table. The NWB will issue an errata letter some time in the next week.

Regarding the question related to groundwater monitoring results: as Nunavut does not have any guidelines the respective Ontario Soil, Groundwater and Sediment standards could be used for comparison and interpretation.

Regards,



On Tue, Oct 16, 2018 at 2:12 PM Barker, Jackie <Jackie.Barker@tc.gc.ca> wrote:

Good Afternoon,

While reviewing NWB Licence No. 1BR-FTA1828, Transport Canada's consultant noted that they require some clarification from NWB as follows and attached.

+++++

With respect to the Cambridge Bay Fire Training Area and Apron LTU's we are requesting clarification from the Board for the following:

1. While in the process of interpreting results, we noticed that the Remediation Requirements (Table 1 of the licence) do not match the Canada Wide Standards for Petroleum Hydrocarbons in Soil, The Canadian Soil Quality Guidelines, or the Nunavut Guideline for the Management of Contaminated Sites. Please see the attached file. Can you please provide clarification, or a revised table, as to which soil guidelines should be used in our annual report for Petroleum Hydrocarbons in Soil.
2. While in the process of interpreting results, we noticed that the licence does not specify the use of groundwater guidelines when interpreting the results from the groundwater monitoring wells. Please clarify which guidelines are appropriate for use for the groundwater monitoring wells.

Sincerely,

Jackie Barker

Environmental Officer, Prairie and Northern Region

Transport Canada / Government of Canada

jackie.barker@tc.gc.ca / Tel : 204-979-1739 / TTY : 1-888-675-6863

Agent en environnement, Région des Prairies et du Nord

Transports Canada / Gouvernement du Canada

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APPENDIX D

Tables

Table 1 - Summary of Groundwater Monitoring Results
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Monitoring Well ID	Date	Well Condition	CHV (ppm)	Top of Casing (m AGS)	Water Level (m BTOC)	Total Depth (m BTOC)
MW1	14-Aug-22	Good (no repairs required)	0	0.725	1.161	1.19
MW2	14-Aug-22	Good (no repairs required)	0	0.781	Dry	1.196
MW3	14-Aug-22	Poor (well is leaning due to heaving)	0	0.815	Dry	0.928
MW4	14-Aug-22	Poor (screen is above grade due to heaving, casing is leaning)	0	1.065	Dry	1.270
MW5	14-Aug-22	Good (no repairs required)	0	0.902	Dry	1.411
MW6	14-Aug-22	Poor (screen is above grade due to heaving)	0	1.022	Dry	0.938

Notes:

*Well was heaved so the screen was above the surface; therefore, groundwater monitoring and sampling was not completed.

CHV Combustible headspace vapour concentrations
m AGS Metres above ground surface
m BTOC Metres below top of casing
ppm parts per million

Table 2 - Summary of Surface Water Monitoring Results
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Monitoring Well ID	Date Monitored/Sampled	Temperature (°C)	Conductivity (mS/cm)	pH	ORP (mV)	DO (mg/L)
SW22-1	15-Aug-22	4.28	179	8.54	-203.2	13.58
SW22-2	14-Aug-22	5.7	391	8.03	6.9	14.02
SW22-3	15-Aug-22	4.16	340	8.02	-206.7	9.42
SW22-4	15-Aug-22	3.64	346	8.33	-211.9	13.79
SW22-7	14-Aug-22	4.35	133	8.24	7.2	15.88
SW22-BG	15-Aug-22	5.43	236	8.13	11.4	14.39

Notes:

°C Degrees Celsius
mS/cm milliSiemens per centimetre
ORP Oxidation Reduction Potential
mV milliVolts
DO Dissolved Oxygen
mg/L milligrams per litre

Parameters including Temperature, Conductivity, pH, ORP, and DO were measured at the time of sample collection.

Table 3
Summary of Surface Water Analytical Results - 2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW22-1	SW22-2	SW22-3			SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sample Date				15-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22		15-Aug-22	14-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22
Sample ID				SW22-1	SW22-2	SW22-3	SW22-DUP		SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV		BV	BV	BV	BV	BV
Laboratory Work Order				C267211	C267211	C267211	C267211		C267211	C267211	C267211	C267211	C267211
Laboratory Sample ID				BBD270	BBD271	BBD272	BBD275		BBD273	BBD274	BBD276	BBD269	BBD268
Sample Type	Units	CCME	Ontario SCS				Field Duplicate	RPD (%)				Field Blank	Trip Blank
General Chemistry													
Alkalinity (P as CaCO3)	mg/L	n/v	n/v	<1.0	<1.0	<1.0	<1.0	nc	<1.0	<1.0	-	<1.0	<1.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	170	160	290	280	4%	310	150	-	<1.0	<1.0
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	<1.0	<1.0	<1.0	<1.0	nc	<1.0	<1.0	-	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<1.0	<1.0	<1.0	<1.0	nc	<1.0	<1.0	-	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	140	130	230	230	0%	260	120	-	<1.0	<1.0
Ammonia (as N)	mg/L	12.58 ^{TBC2} ^B	n/v	0.019	<0.015	8.3	11	28%	17 ^B	0.018	-	<0.015	<0.015
Anion Sum	meq/L	n/v	n/v	3.2	5.4	5.8	5.7	nc	6.3	2.6	-	0.028	0.0000
Cation Sum	meq/L	n/v	n/v	3.3	5.5	5.6	5.8	nc	7.1	2.6	-	0.036	0.035
Chloride	mg/L	640 ^A 120 ^B	2,300 ^C	12	86	30	31	3%	26	4.7	-	<1.0	<1.0
Electrical Conductivity, Lab	µS/cm	n/v	n/a ^C	300	560	560	560	0%	600	250	-	<2.0	<2.0
Hardness (as CaCO3)	mg/L	n/v	n/v	140	180	200	200	0%	250	120	-	<0.50	<0.50
Ion Balance % Difference	%	n/v	n/v	0.76	0.85	1.8	0.27	nc	6.0	0.69	-	NC	NC
Nitrate	mg/L	550 ^A 13 ^B	n/v	<0.044	2.2	0.40	0.39	3%	13	<0.044	-	<0.044	<0.044
Nitrate (as N)	mg/L	124 ^A 3.0 ^B	n/v	<0.010	0.50	0.090	0.088	2%	2.9	<0.010	-	<0.010	<0.010
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	<0.010	0.50	0.090	0.088	2%	2.9	<0.010	-	<0.010	<0.010
Nitrite	mg/L	0.197 ^B	n/v	<0.033	<0.033	<0.033	<0.033	nc	0.11	<0.033	-	<0.033	<0.033
Nitrite (as N)	mg/L	0.060 ^B	n/v	<0.010	<0.010	<0.010	<0.010	nc	0.035	<0.010	-	<0.010	<0.010
pH, lab	S.U.	6.5-9.0 ^B	n/v	7.51	7.56	7.61	7.63	nc	7.91	7.09	-	4.45 ^B	4.46 ^B
Sulfate	mg/L	n/v	n/v	1.3	17	10	11	10%	12	1.3	-	1.4	<1.0
Total Dissolved Solids	mg/L	n/v	n/v	150	280	290	290	0%	330	120	-	<10	<10
Total Suspended Solids	mg/L	^{SN} ^B	n/v	3.9	3.7	3.3	2.7	nc	1.8	6.4	-	<1.0	<0.96
Metals, Dissolved													
Aluminum	mg/L	n/a	n/v	0.0062	<0.0030	0.0061	0.0056	nc	0.0035	0.0055	0.0064	<0.0030	<0.0030
Antimony	mg/L	n/a	20 ^C	<0.00060	<0.00060	<0.00060	<0.00060	nc	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic	mg/L	n/a	1.9 ^C	0.00079	<0.00020	0.00089	0.00080	nc	0.00058	0.00031	0.00049	<0.00020	<0.00020
Barium	mg/L	n/a	29 ^C	<0.010	0.017	0.019	0.019	nc	0.038	0.012	<0.010	<0.010	<0.010
Beryllium	mg/L	n/a	0.067 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	mg/L	n/a	45 ^C	<0.020	0.16	0.075	0.074	nc	0.064	<0.020	<0.020	<0.020	<0.020
Cadmium	mg/L	n/a	0.0027 ^C	<0.00002	<0.00002	<0.00002	<0.00002	nc	<0.00002	<0.00002	<0.000020	<0.00002	<0.00002
Calcium	mg/L	n/a	n/v	19	36	47	46	2%	61	28	40	<0.30	<0.30
Chromium	mg/L	n/a	0.81 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	mg/L	n/a	0.066 ^C	<0.00030	<0.00030	0.0012	0.0013	nc	0.00039	<0.00030	<0.00030	<0.00030	<0.00030
Copper	mg/L	n/a	0.087 ^C	0.0014	<0.0010	0.0016	0.0016	nc	0.0053	0.0013	0.0010	<0.0010	<0.0010
Iron	mg/L	n/a	n/v	<0.060	<0.060	0.087	0.092	nc	<0.060	0.062	<0.060	<0.060	<0.060
Lead	mg/L	n/a	0.025 ^C	0.00047	<0.00020	0.010	0.0098	2%	0.011	0.00085	<0.00020	<0.00020	<0.00020
Lithium	mg/L	n/a	n/v	<0.020	<0.020	<0.020	<0.020	nc	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium	mg/L	n/a	n/v	22	21	20	20	0%	23	12	15	<0.20	<0.20
Manganese	mg/L	10.6 ^{EQ3} ^A 0.40 ^{EQ4} ^B	n/v	<0.0040	<0.0040	0.17	0.17	0%	<0.0040	0.015	0.0040	<0.0040	<0.0040
Molybdenum	mg/L	n/a	9.2 ^C	0.00084	0.0023	0.0032	0.0031	3%	0.00079	0.0022	0.00063	<0.00020	<0.00020
Nickel	mg/L	n/a	0.49 ^C	0.0027	<0.00050	0.0059	0.0055	7%	0.0037	0.00090	0.00066	<0.00050	<0.00050
Phosphorus	mg/L	n/a	n/v	<0.10	<0.10	<0.10	<0.10	nc	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium	mg/L	n/a	n/v	1.3	3.3	6.3	6.2	2%	7.2	0.87	0.43	<0.30	<0.30
Selenium	mg/L	n/a	0.063 ^C	<0.00020	0.00078	0.00028	0.00028	nc	0.00036	<0.00020	<0.00020	<0.00020	<0.00020
Silicon	mg/L	n/a	n/v	0.99	0.81	0.62	0.60	nc	0.92	<0.50	<0.50	<0.50	<0.50
Silver	mg/L	n/a	0.0015 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	mg/L	n/a	2,300 ^C	10	42	19	19	0%	16	4.5	13	<0.50	<0.50
Strontium	mg/L	n/a	n/v	0.12	0.12	0.17	0.17	0%	0.25	0.12	0.078	<0.020	<0.020
Sulfur	mg/L	n/a	n/v	2.0	5.0	4.0	4.0	0%	4.4	1.0	1.1	<0.20	<0.20
Thallium	mg/L	n/a	0.51 ^C	<0.00020	<0.00020	<0.00020	<0.00020	nc	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	mg/L	n/a	n/v	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	mg/L	n/a	n/v	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	mg/L	n/a	0.42 ^C	0.00042	0.00035	0.0026	0.0025	4%	0.00064	<0.00010	0.00024	<0.00010	<0.00010
Vanadium	mg/L	n/a	0.25 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc	mg/L	0.103 ^{EQ1} ^A 0.015 ^{EQ2} ^B	1.1 ^C	<0.0030	<0.0030	<0.0030	<0.0030	nc	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

See notes on last page.



Table 3
Summary of Surface Water Analytical Results - 2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW22-1	SW22-2	SW22-3			SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sample Date				15-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22		15-Aug-22	14-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22
Sample ID				SW22-1	SW22-2	SW22-3	SW22-DUP		SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV		BV	BV	BV	BV	BV
Laboratory Work Order				C267211	C267211	C267211	C267211		C267211	C267211	C267211	C267211	C267211
Laboratory Sample ID				BBD270	BBD271	BBD272	BBD275		BBD273	BBD274	BBD276	BBD269	BBD268
Sample Type	Units	CCME	Ontario SCS				Field Duplicate	RPD (%)				Field Blank	Trip Blank
Metals, Total													
Aluminum	mg/L	0.10 _{VAR1} ^B	n/v	0.083	0.0047	0.025	0.023	8%	0.030	0.052	0.16 ^B	<0.0030	0.0032
Antimony	mg/L	n/v	20 ^C	<0.00060	<0.00060	<0.00060	<0.00060	nc	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic	mg/L	0.0050 ^B	1.9 ^C	0.00081	<0.00020	0.00085	0.00086	nc	0.00055	0.00046	0.00054	<0.00020	<0.00020
Barium	mg/L	n/v	29 ^C	<0.010	0.017	0.019	0.019	nc	0.035	0.013	<0.010	<0.010	<0.010
Beryllium	mg/L	n/v	0.067 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	mg/L	29 ^A 1.5 ^B	45 ^C	0.027	0.17	0.076	0.081	nc	0.069	0.025	<0.020	<0.020	<0.020
Cadmium	mg/L	0.0036 _{STB} ^A 0.00024 _{LTG} ^B	0.0027 ^C	<0.000020	<0.000020	<0.000020	<0.000020	nc	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium	mg/L	n/v	n/v	19	35	45	45	0%	64	30	43	<0.30	<0.30
Chromium	mg/L	n/v	0.81 ^C	<0.0010	<0.0010	<0.0010 RY	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	mg/L	n/v	0.066 ^C	<0.00030	<0.00030	0.0013	0.0013	nc	0.00042	<0.00030	<0.00030	<0.00030	<0.00030
Copper	mg/L	0.0037 _{TBC1} ^B	0.087 ^C	<0.0010	<0.0010	0.0016	0.0015	nc	0.0017	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.30 ^B	n/v	0.15	<0.060	0.12	0.12	nc	<0.060	0.20	0.36 ^B	<0.060	<0.060
Lead	mg/L	0.0062 _{TBC1} ^B	0.025 ^C	0.00097	<0.00020	0.012 ^B	0.011 ^B	9%	0.012 ^B	0.0028	0.00030	<0.00020	<0.00020
Lithium	mg/L	n/v	n/v	<0.020	<0.020	<0.020	<0.020	nc	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium	mg/L	n/v	n/v	22	20	19	19	0%	24	12	16	<0.20	<0.20
Manganese	mg/L	n/a	n/v	0.0080	<0.0040	0.17	0.16	6%	<0.0040	0.031	0.010	<0.0040	<0.0040
Molybdenum	mg/L	0.073 ^B	9.2 ^C	0.00094	0.0025	0.0032	0.0032	0%	0.00082	0.00053	0.00058	<0.00020	<0.00020
Nickel	mg/L	0.1424 _{TBC1} ^B	0.49 ^C	0.0030	<0.00050	0.0063	0.0059	7%	0.0040	0.0011	0.00079	<0.00050	<0.00050
Phosphorus	mg/L	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	nc	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium	mg/L	n/v	n/v	1.3	3.1	6.0	6.1	2%	7.4	0.90	0.54	<0.30	<0.30
Selenium	mg/L	0.0010 ^B	0.063 ^C	<0.00020	0.00050	<0.00020	0.00033	nc	0.00033	<0.00020	<0.00020	<0.00020	<0.00020
Silicon	mg/L	n/v	n/v	1.5	1.2	1.1	1.2	nc	1.3	0.67	1.0	<0.50	<0.50
Silver	mg/L	0.00025 ^B	0.0015 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	mg/L	n/v	2,300 ^C	9.8	41	18	18	0%	17	4.6	13	<0.50	<0.50
Strontium	mg/L	n/v	n/v	0.12	0.11	0.16	0.16	0%	0.25	0.12	0.080	<0.020	<0.020
Sulfur	mg/L	n/v	n/v	1.8	5.1	3.9	4.0	3%	4.8	1.2	0.88	<0.20	<0.20
Thallium	mg/L	0.00080 ^B	0.51 ^C	<0.00020	<0.00020	<0.00020	<0.00020	nc	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	mg/L	n/v	n/v	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	mg/L	n/v	n/v	0.0027	<0.0010	0.0014	0.0011	nc	<0.0010	0.0013	0.0063	<0.0010	<0.0010
Uranium	mg/L	0.033 ^A 0.015 ^B	0.42 ^C	0.00043	0.00037	0.0026	0.0025	4%	0.00073	0.00013	0.00017	<0.00010	<0.00010
Vanadium	mg/L	n/v	0.25 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc	mg/L	n/a	1.1 ^C	<0.0030	<0.0030	<0.0030	<0.0030	nc	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
BTEX and Petroleum Hydrocarbons													
Benzene	mg/L	0.37 ^B	0.044 ^C	<0.00040	<0.00040	0.013	0.012	8%	<0.00040	<0.00040	-	<0.00040	<0.00040
Toluene	mg/L	0.0020 ^B	18 ^C	<0.00040	<0.00040	0.047 ^B	0.046 ^B	2%	<0.00040	<0.00040	-	<0.00040	<0.00040
Ethylbenzene	mg/L	0.090 ^B	2.3 ^C	<0.00040	<0.00040	0.00096	0.00095	nc	<0.00040	<0.00040	-	<0.00040	<0.00040
Xylene, m & p-	mg/L	n/v	s1 ^C	<0.00080	<0.00080	0.012	0.012	0%	<0.00080	<0.00080	-	<0.00080	<0.00080
Xylene, o-	mg/L	n/v	s1 ^C	<0.00040	<0.00040	0.011	0.011	0%	<0.00040	<0.00040	-	<0.00040	<0.00040
Xylenes, Total	mg/L	n/v	4.2 _{s1} ^C	<0.00089	<0.00089	0.023	0.023	0%	<0.00089	<0.00089	-	<0.00089	<0.00089
PHC F1 (C6-C10 range)	mg/L	n/v	s7 ^C	<0.10	<0.10	0.19	0.20	nc	<0.10	<0.10	-	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	0.75 _{s7} ^C	<0.10	<0.10	0.10	0.12	nc	<0.10	<0.10	-	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	0.15 _{s15} ^C	<0.10	<0.10	0.20 ^C	0.17 ^C	nc	0.15	<0.10	-	<0.10	<0.10
Oil and Grease, Total	mg/L	n/v	n/v	<2.0	3.0	<2.0	3.0	nc	4.0	<2.0	-	2.0	<2.0
See notes on last page.													

Table 3
Summary of Surface Water Analytical Results - 2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW22-1	SW22-2	SW22-3			SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sample Date				15-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22		15-Aug-22	14-Aug-22	14-Aug-22	15-Aug-22	15-Aug-22
Sample ID				SW22-1	SW22-2	SW22-3	SW22-DUP		SW22-4	SW22-7	SW22-BG	FIELD BLANK	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV		BV	BV	BV	BV	BV
Laboratory Work Order				C267211	C267211	C267211	C267211		C267211	C267211	C267211	C267211	C267211
Laboratory Sample ID				BBD270	BBD271	BBD272	BBD275		BBD273	BBD274	BBD276	BBD269	BBD268
Sample Type	Units	CCME	Ontario SCS				Field Duplicate	RPD (%)				Field Blank	Trip Blank
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	mg/L	0.0058 ^B	0.60 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Acenaphthylene	mg/L	n/v	0.0018 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Acridine	mg/L	0.0044 ^B	n/v	<0.000040	<0.000040	<0.000040	<0.000040	nc	<0.000040	<0.000040	-	<0.000040	<0.000040
Anthracene	mg/L	0.000012 ^{A,B}	0.0024 ^C	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	-	<0.000010	<0.000010
Benzo(a)anthracene	mg/L	0.000018 ^B	0.0047 ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Benzo(a)pyrene	mg/L	0.000015 ^B	0.00081 ^C	<0.000075	<0.000075	<0.000075	<0.000075	nc	<0.000075	<0.000075	-	<0.000075	<0.000075
Benzo(b)pyridine (Quinoline)	mg/L	0.0034 ^B	n/v	<0.00020	<0.00020	<0.00020	<0.00020	nc	<0.00020	<0.00020	-	<0.00020	<0.00020
Benzo(b/f)fluoranthene	mg/L	n/v	0.00075 _{s2} ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Benzo(c)phenanthrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	-	<0.000050	<0.000050
Benzo(e)pyrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	-	<0.000050	<0.000050
Benzo(g,h,i)perylene	mg/L	n/v	0.00020 ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Benzo(k)fluoranthene	mg/L	n/v	0.00040 ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Chrysene	mg/L	n/v	0.0010 ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Dibenzo(a,h)anthracene	mg/L	n/v	0.00052 ^C	<0.000075	<0.000075	<0.000075	<0.000075	nc	<0.000075	<0.000075	-	<0.000075	<0.000075
Fluoranthene	mg/L	0.000040 ^B	0.13 ^C	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	-	<0.000010	<0.000010
Fluorene	mg/L	0.0030 ^B	0.40 ^C	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	-	<0.000050	<0.000050
Indeno(1,2,3-cd)pyrene	mg/L	n/v	0.00020 ^C	<0.000085	<0.000085	<0.000085	<0.000085	nc	<0.000085	<0.000085	-	<0.000085	<0.000085
Methylnaphthalene, 1-	mg/L	n/v	s3 ^C	<0.00010	<0.00010	0.00019	0.00020	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Methylnaphthalene, 2-	mg/L	n/v	s3 ^C	<0.00010	<0.00010	0.00013	0.00014	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Naphthalene	mg/L	0.0011 ^B	1.4 ^C	<0.00010	<0.00010	0.00052	0.00054	4%	<0.00010	<0.00010	-	<0.00010	<0.00010
Perylene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	-	<0.000050	<0.000050
Phenanthrene	mg/L	0.00040 ^B	0.58 ^C	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	-	<0.000050	<0.000050
Pyrene	mg/L	0.000025 ^B	0.068 ^C	<0.000020	<0.000020	<0.000020	<0.000020	nc	<0.000020	<0.000020	-	<0.000020	<0.000020
Benzo(a)pyrene Total Potency Equivalents	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	-	<0.000010	<0.000010
Phenols													
Chloro-3-methyl phenol, 4-	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Chlorophenol, 2- (ortho-Chlorophenol)	mg/L	0.0070 ^B	3.3 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Chlorophenol, 3 & 4-	mg/L	0.0070 ^B	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Cresol (All Isomers)	mg/L	n/v	n/v	<0.00014	<0.00014	0.0038	0.0036	5%	0.0011	0.00030	-	<0.00014	<0.00014
Cresol, m & p- (Methylphenol, 3&4-)	mg/L	0.0040 ^B	n/v	<0.00010	<0.00010	0.0023	0.0021	9%	0.00030	0.00030	-	<0.00010	<0.00010
Cresol, o- (Methylphenol, 2-)	mg/L	0.0040 ^B	n/v	<0.00010	<0.00010	0.0015	0.0015	0%	0.00080	<0.00010	-	<0.00010	<0.00010
Dichlorophenol, 2,4-	mg/L	0.00020 ^B	4.6 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Dichlorophenol, 2,6-	mg/L	0.00020 ^B	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Dimethylphenol, 2,4-	mg/L	n/v	39 ^C	<0.00010	<0.00010	0.00010	0.00020	nc	0.00010	<0.00010	-	<0.00010	<0.00010
Dinitro-o-cresol, 4,6-	mg/L	n/v	n/v	<0.00010	<0.00010	<0.0010	<0.0010	nc	<0.0010	<0.0010	-	<0.0010	<0.0010
Dinitrophenol, 2,4-	mg/L	n/v	11 ^C	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	-	<0.0010	<0.0010
Nitrophenol, 2-	mg/L	n/v	n/v	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	-	<0.0010	<0.0010
Nitrophenol, 4-	mg/L	n/v	n/v	<0.0010	<0.0010	<0.0010	<0.0010	nc	<0.0010	<0.0010	-	<0.0010	<0.0010
Pentachlorophenol	mg/L	0.00050 ^B	0.062 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Phenol	mg/L	0.0040 ^B	12 ^C	<0.00010	<0.00010	0.0018	0.0017	6%	<0.00010	<0.00010	-	<0.00010	<0.00010
Tetrachlorophenol, 2,3,4,6-	mg/L	0.0010 ^B	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Tetrachlorophenol, 2,3,5,6-	mg/L	0.0010 ^B	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Trichlorophenol, 2,3,4-	mg/L	0.018 ^B	n/v	<0.00010	<0.00010	<0.00010	n/v	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Trichlorophenol, 2,3,5-	mg/L	0.018 ^B	n/v	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Trichlorophenol, 2,4,5-	mg/L	0.018 ^B	1.6 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010
Trichlorophenol, 2,4,6-	mg/L	0.018 ^B	0.23 ^C	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	-	<0.00010	<0.00010

See notes on last page.

Table 3
Summary of Surface Water Analytical Results - 2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Notes:	
CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
C	Table 3 - All Types of Property Use - Coarse Textured Soils
6.5 ^A	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/V	No standard/guideline value.
-	Parameter not analyzed / not available.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L ⁻¹)] + 0.240[ln(DOC mg·L ⁻¹)] + 0.526). The value in the table is for surface water of 169 mg CaCO3 average) ·L ⁻¹ hardness (2019, 2021, and 2022) and 0.5 mg·L ⁻¹ dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L ⁻¹ and DOC 0.3 and 17.3 mg·L ⁻¹ .
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L ⁻¹)] - 0.815[pH] + 0.398[ln(DOC mg·L ⁻¹)] + 4.625). The value in the table is for surface water of 169 mg CaCO3±1 hardness, pH of 8 (2019, 2021, and 2022 averages) and 0.5 mg·L ⁻¹ DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L ⁻¹ , pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L ⁻¹ .
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 169 mg/L hardness (2019, 2021, and 2022 average). The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 169 mg/L hardness and pH of 8 (2019, 2021, and 2022 averages). The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L ⁻¹ is for waters of 50 mg CaCO3·L ⁻¹ hardness. The CWQG for cadmium is related to water hardness (as CaCO3): At hardness≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^(0.83(log[hardness]) – 2.46)); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
n/a	Not applicable.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
SN	see Narrative
STB	The short-term benchmark concentration value was calculated using <https://www.ccme.ca/en/summary-table> with a hardness of 169 mg/L (average of 2019, 2021, and 2022 samples). The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
TBC1	Value calculated using <https://www.ccme.ca/en/summary-table> with a hardness of 169 mg/L (average of 2019, 2021, and 2022 samples). The temperature is the average temperature measured.
TBC2	Value looked up using <https://www.ccme.ca/en/summary-table> with pH of 8 (average of 2019, 2021 and 2022 samples) and tempertaure of 11.7 deg C. The guideline (mg/L NH3) was then converted to mg/L total ammonia-N by multiplying by 0.8224.
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
RY	Duplicate exceeds acceptance criteria due to sample matrix. Reanalysis yields similar results
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 4
Summary of Surface Water Analytical Results - 2019-2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3			SW21-3			SW22-3		
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	26-Jul-19	25-Jul-21	14-Aug-22	26-Jul-19	26-Jul-19	26-Jul-19	25-Jul-21	25-Jul-21		15-Aug-22	15-Aug-22	
Sample ID				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3	QC19-01		SW21-3	SW21-DUP		SW22-3	SW22-DUP	
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV		BV	BV		BV	BV	
Laboratory Work Order				B9K9571	C154208	C267211	B9K9571	C154208	C267211	B9K9571	B9K9571		C154208	C154208		C267211	C267211	
Laboratory Sample ID				KJW017	ACS915	BBD270	KJW018	ACS916	BBD271	KJW019	KJW021	RPD	ACS917	ACS921	RPD	BBD272	BBD275	RPD
Sample Type	Units	CCME	Ontario SCS								Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)
General Chemistry																		
Alkalinity (P as CaCO3)	mg/L	n/v	n/v	-	3.1	<1.0	-	<1.0	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	<1.0	nc
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	-	240	170	-	150	160	-	-	-	170	170	0%	290	280	4%
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	-	3.7	<1.0	-	<1.0	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	<1.0	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	-	<1.0	<1.0	-	<1.0	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	<1.0	nc
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	180	200	140	110	120	130	180	180	0%	140	140	0%	230	230	0%
Ammonia (as N)	mg/L	12.58 _{BC2} ^B	n/v	0.051	<0.015	0.019	<0.050	<0.015	<0.015	0.48	0.46	4%	0.022	0.022	nc	8.3	11	28%
Anion Sum	meq/L	n/v	n/v	-	4.3	3.2	-	2.8	5.4	-	-	-	3.1	3.0	nc	5.8	5.7	nc
Cation Sum	meq/L	n/v	n/v	-	4.8	3.3	-	2.7	5.5	-	-	-	3.2	3.2	nc	5.6	5.8	nc
Chloride	mg/L	640 ^A 120 ^B	2,300 ^C	13	4.6	12	4.3	11	86	4.9	4.7	nc	6.8	6.7	1%	30	31	3%
Electrical Conductivity, Lab	µS/cm	n/v	n/a ^C	364	400	300	215	270	560	345	349	1%	280	280	0%	560	560	0%
Hardness (as CaCO3)	mg/L	n/v	n/v	188	220	140	96.3	110	180	174	173	1%	150	140	7%	200	200	0%
Ion Balance % Difference	%	n/v	n/v	-	5.0	0.76	-	3.2	0.85	-	-	-	1.9	3.1	nc	1.8	0.27	nc
Nitrate	mg/L	550 ^A 13 ^B	n/v	-	<0.044	<0.044	-	0.28	2.2	-	-	-	0.18	0.22	nc	0.40	0.39	3%
Nitrate (as N)	mg/L	124 ^A 3.0 ^B	n/v	<0.10	<0.010	<0.010	<0.10	0.062	0.50	<0.10	<0.10	nc	0.041	0.050	nc	0.090	0.088	2%
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	<0.10	<0.010	<0.010	<0.10	0.062	0.50	0.11	0.12	nc	0.041	0.050	nc	0.090	0.088	2%
Nitrite	mg/L	0.20 ^B	n/v	-	<0.033	<0.033	-	<0.033	<0.033	-	-	-	<0.033	<0.033	nc	<0.033	<0.033	nc
Nitrite (as N)	mg/L	0.060 ^B	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.032	0.033	nc	<0.010	<0.010	nc	<0.010	<0.010	nc
pH, lab	S.U.	6.5-9.0 ^B	n/v	8.71	8.35	7.51	7.87	7.88	7.56	7.96	8.03	nc	7.97	8.09	nc	7.61	7.63	nc
Sulfate	mg/L	n/v	n/v	11	6.1	1.3	2.9	5.6	17	1.7	1.7	nc	3.0	2.0	nc	10	11	10%
Total Dissolved Solids	mg/L	n/v	n/v	-	210	150	-	140	280	-	-	-	150	150	0%	290	290	0%
Total Suspended Solids	mg/L	^B _{SN}	n/v	2	1.3	3.9	13	6.7	3.7	<1	2	nc	6.1	16	90%	3.3	2.7	nc
Metals, Dissolved																		
Aluminum	mg/L	n/a	n/v	-	<0.0030	0.0062	-	<0.0030	<0.0030	-	-	-	<0.0030	<0.0030	nc	0.0061	0.0056	nc
Antimony	mg/L	n/a	20 ^C	-	<0.00060	<0.00060	-	<0.00060	<0.00060	-	-	-	<0.00060	<0.00060	nc	<0.00060	<0.00060	nc
Arsenic	mg/L	n/a	1.9 ^C	-	0.00060	0.00079	-	0.00048	<0.00020	-	-	-	0.00032	0.00036	nc	0.00089	0.00080	nc
Barium	mg/L	n/a	29 ^C	-	0.019	<0.010	-	<0.010	0.017	-	-	-	<0.010	<0.010	nc	0.019	0.019	nc
Beryllium	mg/L	n/a	0.067 ^C	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Boron	mg/L	n/a	45 ^C	-	0.045	<0.020	-	0.052	0.16	-	-	-	0.032	0.029	nc	0.075	0.074	nc
Cadmium	mg/L	n/a	0.0027 ^C	-	<0.000020	<0.00002	-	<0.000020	<0.00002	-	-	-	<0.000020	<0.000020	nc	<0.00002	<0.00002	nc
Calcium	mg/L	n/a	n/v	-	46	19	-	27	36	-	-	-	37	37	0%	47	46	2%
Chromium	mg/L	n/a	0.81 ^C	-	0.0011	<0.0010	-	0.0011	<0.0010	-	-	-	0.0014	0.0011	nc	<0.0010	<0.0010	nc
Cobalt	mg/L	n/a	0.066 ^C	-	<0.00030	<0.00030	-	<0.00030	<0.00030	-	-	-	<0.00030	<0.00030	nc	0.0012	0.0013	nc
Copper	mg/L	n/a	0.087 ^C	-	0.0049	0.0014	-	0.0043	0.0014	-	-	-	0.0042	0.00075	nc	0.0016	0.0016	nc
Iron	mg/L	n/a	n/v	-	<0.060	<0.060	-	<0.060	<0.060	-	-	-	<0.060	<0.060	nc	0.087	0.092	nc
Lead	mg/L	n/a	0.025 ^C	-	0.00096	0.00047	-	<0.00020	<0.00020	-	-	-	0.00090	0.00080	nc	0.010	0.0098	2%
Lithium	mg/L	n/a	n/v	-	<0.020	<0.020	-	<0.020	<0.020	-	-	-	<0.020	<0.020	nc	<0.020	<0.020	nc
Magnesium	mg/L	n/a	n/v	-	27	22	-	11	21	-	-	-	13	13	0%	20	20	0%
Manganese	mg/L	10.6 _{EQ3} ^A 0.40 _{EQ4} ^B	n/v	-	<0.0040	<0.0040	-	<0.0040	<0.0040	-	-	-	<0.0040	<0.0040	nc	0.17	0.17	0%
Molybdenum	mg/L	n/a	9.2 ^C	-	0.00058	0.00084	-	0.00087	0.0023	-	-	-	0.0011	0.0011	0%	0.0032	0.0031	3%
Nickel	mg/L	n/a	0.49 ^C	-	0.0019	0.0027	-	<0.00050	<0.00050	-	-	-	0.00051	<0.00050	nc	0.0059	0.0055	7%
Phosphorus	mg/L	n/a	n/v	-	<0.10	<0.10	-	<0.10	<0.10	-	-	-	<0.10	<0.10	nc	<0.10	<0.10	nc
Potassium	mg/L	n/a	n/v	-	1.4	1.3	-	1.3	3.3	-	-	-	1.2	1.2	nc	6.3	6.2	2%
Selenium	mg/L	n/a	0.063 ^C	-	<0.00020	<0.00020	-	<0.00020	0.00078	-	-	-	<0.00020	<0.00020	nc	0.00028	0.00028	nc
Silicon	mg/L	n/a	n/v	-	0.72	0.99	-	0.81	0.81	-	-	-	0.30	0.27	nc	0.62	0.60	nc
Silver	mg/L	n/a	0.0015 ^C	-	<0.00010	<0.00010	-	<0.00010	<0.00010	-	-	-	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Sodium	mg/L	n/a	2,300 ^C	-	6.1	10	-	8.3	42	-	-	-	5.4	5.3	2%	19	19	0%
Strontium	mg/L	n/a	n/v	-	0.21	0.12	-	0.080	0.12	-	-	-	0.11	0.11	0%	0.17	0.17	0%
Sulfur	mg/L	n/a	n/v	-	2.4	2.0	-	1.5	5.0	-	-	-	0.84	0.85	nc	4.0	4.0	0%
Thallium	mg/L	n/a	0.51 ^C	-	<0.00020	<0.00020	-	<0.00020	<0.00020	-	-	-	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Tin	mg/L	n/a	n/v	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Titanium	mg/L	n/a	n/v	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Uranium	mg/L	n/a	0.42 ^C	-	0.00050	0.00042	-	0.00020	0.00035	-	-	-	0.00041	0.00042	nc	0.0026	0.0025	4%
Vanadium	mg/L	n/a	0.25 ^C	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Zinc	mg/L	0.103 _{EQ1} ^A 0.015 _{EQ2} ^B	1.1 ^C	-	<0.0030	<0.0030	-	<0.0030	<0.0030	-	-	-	0.0045	<0.0030	nc	<0.0030	<0.0030	nc

See notes on last page.



Table 4
Summary of Surface Water Analytical Results - 2019-2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3			SW21-3			SW22-3		
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	26-Jul-19	25-Jul-21	14-Aug-22	26-Jul-19	26-Jul-19		25-Jul-21	25-Jul-21		15-Aug-22	15-Aug-22	
Sample ID				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3	QC19-01		SW21-3	SW21-DUP		SW22-3	SW22-DUP	
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV		BV	BV		BV	BV	
Laboratory Work Order				B9K9571	C154208	C267211	B9K9571	C154208	C267211	B9K9571	B9K9571		C154208	C154208		C267211	C267211	
Laboratory Sample ID				KJW017	ACS915	BBD270	KJW018	ACS916	BBD271	KJW019	KJW021	RPD	ACS917	ACS921	RPD	BBD272	BBD275	RPD
Sample Type	Units	CCME	Ontario SCS								Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)
Metals, Total																		
Aluminum	mg/L	0.10 _{VAR1} ^B	n/v	0.0156	0.010	0.083	0.0137	0.027	0.0047	0.0071	0.0074	nc	0.011 NH	0.046	nc	0.025	0.023	8%
Antimony	mg/L	n/v	20 ^C	-	<0.00060	<0.00060	-	<0.00060	<0.00060	-	-	-	<0.00060	<0.00060	nc	<0.00060	<0.00060	nc
Arsenic	mg/L	0.0050 ^B	1.9 ^C	0.00139	0.00054	0.00081	0.00012	<0.00020	<0.00020	0.00033	0.00032	nc	0.00025	0.00023	nc	0.00085	0.00086	nc
Barium	mg/L	n/v	29 ^C	-	0.015	<0.010	-	<0.010	0.017	-	-	-	<0.010	<0.010	nc	0.019	0.019	nc
Beryllium	mg/L	n/v	0.067 ^C	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Boron	mg/L	29 ^A 1.5 ^B	45 ^C	-	0.030	0.027	-	0.053	0.17	-	-	-	0.030	0.042	nc	0.076	0.081	nc
Cadmium	mg/L	0.0036 _{STB} ^A 0.00024 _{LTG} ^B	0.0027 ^C	<0.000010	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	0.000014	0.000018	nc	<0.000020	<0.000020	nc	<0.000020	<0.000020	nc
Calcium	mg/L	n/v	n/v	30.9	44	19	24.0	30	35	46.6	47.0	1%	35	36	3%	45	45	0%
Chromium	mg/L	n/v	0.81 ^C	-	<0.0010	<0.0010	-	0.0015	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010 RY	<0.0010	nc
Cobalt	mg/L	n/v	0.066 ^C	0.00064	<0.00030	<0.00030	<0.00020	<0.00030	<0.00030	<0.00020	<0.00020	nc	<0.00030	<0.00030	nc	0.0013	0.0013	nc
Copper	mg/L	0.0037 _{TBC1} ^B	0.087 ^C	0.00150	0.00081	<0.0010	<0.00050	0.00028	<0.0010	<0.00050	<0.00050	nc	0.00040 NH	0.00046	nc	0.0016	0.0015	nc
Iron	mg/L	0.30 ^B	n/v	0.287	<0.060	0.15	<0.010	<0.060	<0.060	0.012	0.012	nc	<0.060	<0.060	nc	0.12	0.12	nc
Lead	mg/L	0.0062 _{TBC1} ^B	0.025 ^C	0.0115 ^B	0.0011	0.00097	<0.00020	<0.00020	<0.00020	0.00689 ^B	0.00702 ^B	2%	0.00095	0.0011	nc	0.012 ^B	0.011 ^B	9%
Lithium	mg/L	n/v	n/v	-	<0.0020	<0.020	-	<0.020	<0.020	-	-	-	<0.020	0.022	nc	<0.020	<0.020	nc
Magnesium	mg/L	n/v	n/v	26.9	26	22	8.82	12	20	13.9	13.5	3%	13	13	0%	19	19	0%
Manganese	mg/L	n/a	n/v	-	<0.0040	0.0080	-	<0.0040	<0.0040	-	-	-	<0.0040	0.0042	nc	0.17	0.16	6%
Molybdenum	mg/L	0.073 ^B	9.2 ^C	0.0011	0.00064	0.00094	0.0010	0.00095	0.0010	0.0013	0.0013	nc	0.0010	0.0012	18%	0.0032	0.0032	0%
Nickel	mg/L	0.1424 _{TBC1} ^B	0.49 ^C	0.0068	0.0024	0.0030	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010	nc	0.0031	0.0016	nc	0.0063	0.0059	7%
Phosphorus	mg/L	n/v	n/v	-	<0.10	<0.10	-	<0.10	<0.10	-	-	-	<0.10	<0.10	nc	<0.10	<0.10	nc
Potassium	mg/L	n/v	n/v	1.57	1.4	1.3	1.05	1.6	3.1	1.67	1.63	2%	1.2	1.3	nc	6.0	6.1	2%
Selenium	mg/L	0.0010 ^B	0.063 ^C	0.00037	<0.00020	<0.00020	<0.00010	<0.00020	0.00050	0.00012	0.00011	nc	<0.00020	<0.00020	nc	<0.00020	0.00033	nc
Silicon	mg/L	n/v	n/v	-	0.78	1.5	-	0.60	1.2	-	-	-	0.38	0.43	nc	1.1	1.2	nc
Silver	mg/L	0.00025 ^B	0.0015 ^C	<0.000020	<0.00010	<0.00010	<0.000020	<0.00010	<0.00010	<0.000020	<0.000020	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Sodium	mg/L	n/v	2,300 ^C	11.4	5.7	9.8	6.46	8.9	4.1	4.84	4.72	3%	4.9	5.2	6%	18	18	0%
Strontium	mg/L	n/v	n/v	-	0.20	0.12	-	0.087	0.11	-	-	-	0.098	0.11	nc	0.16	0.16	0%
Sulfur	mg/L	n/v	n/v	-	2.6	1.8	-	1.8	5.1	-	-	-	0.93	0.92	nc	3.9	4.0	3%
Thallium	mg/L	0.00080 ^B	0.51 ^C	-	<0.00020	<0.00020	-	<0.00020	<0.00020	-	-	-	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Tin	mg/L	n/v	n/v	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Titanium	mg/L	n/v	n/v	<0.0050	<0.0010	0.0027	<0.0050	0.0014	<0.0010	<0.0050	<0.0050	nc	<0.0010	<0.0010	nc	0.0014	0.0011	nc
Uranium	mg/L	0.033 ^A 0.015 ^B	0.42 ^C	-	0.00048	0.00043	-	0.00020	0.00037	-	-	-	0.00038	0.00040	nc	0.0026	0.0025	4%
Vanadium	mg/L	n/v	0.25 ^C	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Zinc	mg/L	n/a	1.1 ^C	<0.0050	<0.0030	<0.0030	<0.0050	0.0064	<0.0030	<0.0050	<0.0050	nc	0.0054 NH	<0.0030	nc	<0.0030	<0.0030	nc
BTEX and Petroleum Hydrocarbons																		
Benzene	mg/L	0.37 ^B	0.044 ^C	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040	0.00047	0.00043	nc	<0.00040	<0.00040	nc	0.013	0.012	8%
Toluene	mg/L	0.0020 ^B	18 ^C	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040	0.0036 ^B	0.0036 ^B	0%	<0.00040	<0.00040	nc	0.047 ^B	0.046 ^B	2%
Ethylbenzene	mg/L	0.090 ^B	2.3 ^C	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040	<0.00020	<0.00020	nc	<0.00040	<0.00040	nc	0.00096	0.00095	nc
Xylene, m & p-	mg/L	n/v	s1 ^C	0.00073	<0.00080	<0.00080	<0.00040	<0.00080	<0.00080	0.0013	0.0012	nc	<0.00080	<0.00080	nc	0.012	0.012	0%
Xylene, o-	mg/L	n/v	s1 ^C	0.00029	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040	0.0024	0.0022	9%	<0.00040	<0.00040	nc	0.011	0.011	0%
Xylenes, Total	mg/L	n/v	4.2 _{s1} ^C	0.0010	<0.00089	<0.00089	<0.00040	<0.00089	<0.00089	0.0036	0.0035	3%	<0.00089	<0.00089	nc	0.023	0.023	0%
PHC F1 (C6-C10 range)	mg/L	n/v	s7 ^C	0.110	<0.10	<0.10	<0.025	<0.10	<0.10	0.034	0.033	nc	<0.10	<0.10	nc	0.19	0.20	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	0.75 _{s7} ^C	0.110	<0.10	<0.10	<0.025	<0.10	<0.10	0.026	0.026	nc	<0.10	<0.10	nc	0.10	0.12	nc
PHC F2 (>C10-C16 range)	mg/L	n/v	0.15 _{s15} ^C	0.120	<0.10	<0.10	<0.100	<0.10	<0.10	<0.100	<0.100	nc	<0.10	<0.10	nc	0.20 ^C	0.17 ^C	nc
Oil and Grease, Total	mg/L	n/v	n/v	0.80	<2.0	<2.0	<0.50	<2.0	3.0	<0.50	<0.50	nc	<2.0	<2.0	nc	<2.0	3.0	nc

See notes on last page.



Table 4
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2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3			SW21-3			SW22-3		
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	26-Jul-19	25-Jul-21	14-Aug-22	26-Jul-19	26-Jul-19		25-Jul-21	25-Jul-21		15-Aug-22	15-Aug-22	
Sample ID				SW1	SW21-1	SW22-1	SW2	SW21-2	SW22-2	SW3	QC19-01		SW21-3	SW21-DUP		SW22-3	SW22-DUP	
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV		BV	BV		BV	BV	
Laboratory Work Order				B9K9571	C154208	C267211	B9K9571	C154208	C267211	B9K9571	B9K9571		C154208	C154208		C267211	C267211	
Laboratory Sample ID				KJW017	ACS915	BBD270	KJW018	ACS916	BBD271	KJW019	KJW021	RPD (%)	ACS917	ACS921	RPD (%)	BBD272	BBD275	RPD (%)
Sample Type	Units	CCME	Ontario SCS								Field Duplicate			Field Duplicate			Field Duplicate	
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	mg/L	0.0058 ^B	0.60 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Acenaphthylene	mg/L	n/v	0.0018 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Acridine	mg/L	0.0044 ^B	n/v	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	nc	<0.000040	<0.000040	nc	<0.000040	<0.000040	nc
Anthracene	mg/L	0.000012 ^{AB}	0.0024 ^C	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Benzo(a)anthracene	mg/L	0.000018 ^B	0.0047 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Benzo(a)pyrene	mg/L	0.000015 ^B	0.00081 ^C	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	nc	<0.0000075	<0.0000075	nc	<0.0000075	<0.0000075	nc
Benzo(b)pyridine (Quinoline)	mg/L	0.0034 ^B	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Benzo(b,j)fluoranthene	mg/L	n/v	0.00075 _{s2} ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Benzo(c)phenanthrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Benzo(e)pyrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Benzo(g,h,i)perylene	mg/L	n/v	0.00020 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Benzo(k)fluoranthene	mg/L	n/v	0.00040 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Chrysene	mg/L	n/v	0.0010 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Dibenzo(a,h)anthracene	mg/L	n/v	0.00052 ^C	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	nc	<0.0000075	<0.0000075	nc	<0.0000075	<0.0000075	nc
Fluoranthene	mg/L	0.000040 ^B	0.13 ^C	<0.000010	<0.000010 MSP	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Fluorene	mg/L	0.0030 ^B	0.40 ^C	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Indeno(1,2,3-cd)pyrene	mg/L	n/v	0.00020 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc	<0.0000085	<0.0000085	nc
Methylnaphthalene, 1-	mg/L	n/v	_{s3} ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00014	nc	<0.00010	<0.00010	nc	0.00019	0.00020	nc
Methylnaphthalene, 2-	mg/L	n/v	_{s3} ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00011	nc	<0.00010	<0.00010	nc	0.00013	0.00014	nc
Naphthalene	mg/L	0.0011 ^B	1.4 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00013	nc	<0.00010	<0.00010	nc	0.00052	0.00054	4%
Perylene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Phenanthrene	mg/L	0.00040 ^B	0.58 ^C	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Pyrene	mg/L	0.000025 ^B	0.068 ^C	<0.000020	<0.000020 MSP	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	nc	<0.000020	<0.000020	nc	<0.000020	<0.000020	nc
Benzo(a)pyrene Total Potency Equivalents	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Phenols																		
Chloro-3-methyl phenol, 4-	mg/L	n/v	n/v	<0.0001	<0.00010	<0.00010	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Chlorophenol, 2- (ortho-Chlorophenol)	mg/L	0.0070 ^B	3.3 ^C	<0.0001	<0.00010	<0.00010	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Chlorophenol, 3 & 4-	mg/L	0.0070 ^B	n/v	<0.0001	<0.00010	<0.00010	<0.0001	<0.00010	<0.00010	<0.0003 MI	<0.0003 MI	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Cresol (All Isomers)	mg/L	n/v	n/v	-	<0.00014	<0.00014	-	<0.00014	<0.00014	-	-	nc	<0.00014	<0.00014	nc	0.0038	0.0036	5%
Cresol, m & p- (Methylphenol, 3&4-)	mg/L	0.0040 ^B	n/v	<0.0005	0.00010	<0.00010	<0.0005	<0.00010	<0.00010	<0.0005	<0.0005	nc	<0.00010	<0.00010	nc	0.0023	0.0021	9%
Cresol, o- (Methylphenol, 2-)	mg/L	0.0040 ^B	n/v	<0.0005	<0.00010	<0.00010	<0.0005	<0.00010	<0.00010	<0.0005	<0.0005	nc	<0.00010	<0.00010	nc	0.0015	0.0015	0%
Dichlorophenol, 2,3-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	<0.0001	-	-	<0.0001	<0.0001	nc	-	-	nc	-	-	-
Dichlorophenol, 2,4-	mg/L	0.00020 ^B	4.6 ^C	<0.0001	<0.00010	<0.00010	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Dichlorophenol, 2,5-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	<0.0001	-	-	<0.0001	<0.0001	nc	-</					

Table 4
Summary of Surface Water Analytical Results - 2019-2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	FIELD BLANK		TRIP BLANK	
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	25-Jul-21	14-Aug-22	14-Aug-22	26-Jul-19	15-Aug-22	26-Jul-19	15-Aug-22
Sample ID				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	QC19-03	FIELD BLANK	QC19-02	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order				B9K9571	C154208	C267211	C154208	C267211	C267211	B9K9571	C267211	B9K9571	C267211
Laboratory Sample ID				KJW020	ACS918	BBD273	ACS920	BBD274	BBD276	KJW023	BBD269	KJW022	BBD268
Sample Type	Units	CCME	Ontario SCS							Field Blank	Field Blank	Trip Blank	Trip Blank
General Chemistry													
Alkalinity (P as CaCO3)	mg/L	n/v	n/v	-	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	-	<1.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	-	300	310	150	150	-	-	<1.0	-	<1.0
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	-	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	-	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	-	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	-	<1.0
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	140	250	260	130	120	-	<1.0	<1.0	1.4	<1.0
Ammonia (as N)	mg/L	12.58 ^B _{BC2}	n/v	0.12	0.021	17 ^B	<0.015	0.018	-	<0.050	<0.015	0.063	<0.015
Anion Sum	meq/L	n/v	n/v	-	5.4	6.3	2.7	2.6	-	-	0.028	-	0.0000
Cation Sum	meq/L	n/v	n/v	-	5.7	7.1	2.6	2.6	-	-	0.036	-	0.035
Chloride	mg/L	640 ^A 120 ^B	2,300 ^C	6.3	11	26	5.7	4.7	-	<1.0	<1.0	<1.0	<1.0
Electrical Conductivity, Lab	µS/cm	n/v	n/a ^C	292	490	600	260	250	-	<1	<2.0	<1	<2.0
Hardness (as CaCO3)	mg/L	n/v	n/v	153	260	250	120	120	-	<0.50	<0.50	<0.50	<0.50
Ion Balance % Difference	%	n/v	n/v	-	2.7	6.0	1.6	0.69	-	-	NC	-	NC
Nitrate	mg/L	550 ^A 13 ^B	n/v	-	0.37	13	<0.044	<0.044	-	-	<0.044	-	<0.044
Nitrate (as N)	mg/L	124 ^A 3.0 ^B	n/v	0.30	0.083	2.9	<0.010	<0.010	-	<0.10	<0.010	<0.10	<0.010
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	0.31	0.083	2.9	<0.010	<0.010	-	<0.10	<0.010	<0.10	<0.010
Nitrite	mg/L	0.20 ^B	n/v	-	<0.033	0.11	<0.033	<0.033	-	-	<0.033	-	<0.033
Nitrite (as N)	mg/L	0.060 ^B	n/v	0.010	<0.010	0.035	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	6.5-9.0 ^B	n/v	8.38	8.27	7.91	7.93	7.09	-	5.85 ^B	4.45 ^B	6.27 ^B	4.46 ^B
Sulfate	mg/L	n/v	n/v	6.0	7.5	12	2.2	1.3	-	<1.0	1.4	<1.0	<1.0
Total Dissolved Solids	mg/L	n/v	n/v	-	270	330	130	120	-	-	<10	-	<10
Total Suspended Solids	mg/L	^B _{SN}	n/v	16	2.4	1.8	14	6.4	-	<1	<1.0	<1	<0.96
Metals, Dissolved													
Aluminum	mg/L	n/a	n/v	-	<0.0030	0.0035	0.0051	0.0055	0.0064	-	<0.0030	-	<0.0030
Antimony	mg/L	n/a	20 ^C	-	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	-	<0.00060	-	<0.00060
Arsenic	mg/L	n/a	1.9 ^C	-	0.00060	0.00058	0.00024	0.00031	0.00049	-	<0.00020	-	<0.00020
Barium	mg/L	n/a	29 ^C	-	0.025	0.038	<0.010	0.012	<0.010	-	<0.010	-	<0.010
Beryllium	mg/L	n/a	0.067 ^C	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Boron	mg/L	n/a	45 ^C	-	0.047	0.064	<0.020	<0.020	<0.020	-	<0.020	-	<0.020
Cadmium	mg/L	n/a	0.0027 ^C	-	<0.000020	<0.00002	<0.000020	<0.00002	<0.000020	-	<0.00002	-	<0.00002
Calcium	mg/L	n/a	n/v	-	72	61	26	28	40	-	<0.30	-	<0.30
Chromium	mg/L	n/a	0.81 ^C	-	0.0013	<0.0010	0.0011	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Cobalt	mg/L	n/a	0.066 ^C	-	<0.00030	0.00039	<0.00030	<0.00030	<0.00030	-	<0.00030	-	<0.00030
Copper	mg/L	n/a	0.087 ^C	-	0.0034	0.0053	0.0049	0.0013	0.0010	-	<0.0010	-	<0.0010
Iron	mg/L	n/a	n/v	-	<0.060	<0.060	<0.060	0.062	<0.060	-	<0.060	-	<0.060
Lead	mg/L	n/a	0.025 ^C	-	0.0054	0.011	<0.00020	0.00085	<0.00020	-	<0.00020	-	<0.00020
Lithium	mg/L	n/a	n/v	-	<0.020	<0.020	<0.020	<0.020	<0.020	-	<0.020	-	<0.020
Magnesium	mg/L	n/a	n/v	-	19	23	14	12	15	-	<0.20	-	<0.20
Manganese	mg/L	10.6 ^A _{EQ3} 0.40 ^B _{EQ4}	n/v	-	<0.0040	<0.0040	<0.0040	0.015	0.0040	-	<0.0040	-	<0.0040
Molybdenum	mg/L	n/a	9.2 ^C	-	0.00080	0.00079	0.00080	0.0022	0.00063	-	<0.00020	-	<0.00020
Nickel	mg/L	n/a	0.49 ^C	-	0.0015	0.0037	<0.00050	0.00090	0.00066	-	<0.00050	-	<0.00050
Phosphorus	mg/L	n/a	n/v	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	-	<0.10
Potassium	mg/L	n/a	n/v	-	2.7	7.2	0.46	0.87	0.43	-	<0.30	-	<0.30
Selenium	mg/L	n/a	0.063 ^C	-	<0.00020	0.00036	<0.00020	<0.00020	<0.00020	-	<0.00020	-	<0.00020
Silicon	mg/L	n/a	n/v	-	0.97	0.92	<0.10	<0.50	<0.50	-	<0.50	-	<0.50
Silver	mg/L	n/a	0.0015 ^C	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	-	<0.00010
Sodium	mg/L	n/a	2,300 ^C	-	9.5	16	4.1	4.5	13	-	<0.50	-	<0.50
Strontium	mg/L	n/a	n/v	-	0.24	0.25	0.069	0.12	0.078	-	<0.020	-	<0.020
Sulfur	mg/L	n/a	n/v	-	2.1	4.4	0.81	1.0	1.1	-	<0.20	-	<0.20
Thallium	mg/L	n/a	0.51 ^C	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	-	<0.00020
Tin	mg/L	n/a	n/v	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Titanium	mg/L	n/a	n/v	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Uranium	mg/L	n/a	0.42 ^C	-	0.00059	0.00064	0.00013	<0.00010	0.00024	-	<0.00010	-	<0.00010
Vanadium	mg/L	n/a	0.25 ^C	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Zinc	mg/L	0.103 ^A _{EQ1} 0.015 ^B _{EQ2}	1.1 ^C	-	<0.0030	<0.0030	0.0039	<0.0030	<0.0030	-	<0.0030	-	<0.0030

See notes on last page.

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2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
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Sample Location				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	FIELD BLANK		TRIP BLANK	
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	25-Jul-21	14-Aug-22	14-Aug-22	26-Jul-19	15-Aug-22	26-Jul-19	15-Aug-22
Sample ID				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	QC19-03	FIELD BLANK	QC19-02	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order				B9K9571	C154208	C267211	C154208	C267211	C267211	B9K9571	C267211	B9K9571	C267211
Laboratory Sample ID				KJW020	ACS918	BBD273	ACS920	BBD274	BBD276	KJW023	BBD269	KJW022	BBD268
Sample Type	Units	CCME	Ontario SCS							Field Blank	Field Blank	Trip Blank	Trip Blank
Metals, Total													
Aluminum	mg/L	0.10 _{VAR1} ^B	n/v	0.138 ^B	0.0047	0.030	0.067	0.052	0.16 ^B	<0.0030	<0.0030	<0.0030	0.0032
Antimony	mg/L	n/v	20 ^C	-	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	-	<0.00060	-	<0.00060
Arsenic	mg/L	0.0050 ^B	1.9 ^C	0.00063	0.00050	0.00055	<0.00020	0.00046	0.00054	<0.00010	<0.00020	<0.00010	<0.00020
Barium	mg/L	n/v	29 ^C	-	0.021	0.035	<0.010	0.013	<0.010	-	<0.010	-	<0.010
Beryllium	mg/L	n/v	0.067 ^C	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Boron	mg/L	29 ^A 1.5 ^B	45 ^C	-	0.045	0.069	0.022	0.025	<0.020	-	<0.020	-	<0.020
Cadmium	mg/L	0.0036 _{STB} ^A 0.00024 _{LTG} ^B	0.0027 ^C	0.000012	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010	<0.000020
Calcium	mg/L	n/v	n/v	34.5	71	64	28	30	43	<0.050	<0.30	<0.050	<0.30
Chromium	mg/L	n/v	0.81 ^C	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Cobalt	mg/L	n/v	0.066 ^C	0.00031	<0.00030	0.00042	<0.00030	<0.00030	<0.00030	<0.00020	<0.00030	<0.00020	<0.00030
Copper	mg/L	0.0037 _{TBC1} ^B	0.087 ^C	0.00128	0.0011	0.0017	0.00046	<0.0010	<0.0010	<0.00050	<0.0010	<0.00050	<0.0010
Iron	mg/L	0.30 ^B	n/v	0.191	<0.060	<0.060	<0.060	0.20	0.36 ^B	<0.010	<0.060	<0.010	<0.060
Lead	mg/L	0.0062 _{TBC1} ^B	0.025 ^C	0.00217	0.0062	0.012 ^B	<0.00020	0.0028	0.00030	<0.00020	<0.00020	<0.00020	<0.00020
Lithium	mg/L	n/v	n/v	-	<0.020	<0.020	<0.020	<0.020	<0.020	-	<0.020	-	<0.020
Magnesium	mg/L	n/v	n/v	16.1	19	24	16	12	16	<0.050	<0.20	<0.050	<0.20
Manganese	mg/L	n/a	n/v	-	<0.0040	<0.0040	<0.0040	0.031	0.010	-	<0.0040	-	<0.0040
Molybdenum	mg/L	0.073 ^B	9.2 ^C	<0.0010	0.00068	0.00082	0.00077	0.00053	0.00058	<0.0010	<0.00020	<0.0010	<0.00020
Nickel	mg/L	0.1424 _{TBC1} ^B	0.49 ^C	0.0020	0.0023	0.0040	<0.00050	0.0011	0.00079	<0.0010	<0.00050	<0.0010	<0.00050
Phosphorus	mg/L	n/v	n/v	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	-	<0.10
Potassium	mg/L	n/v	n/v	3.17	2.8	7.4	0.53	0.90	0.54	<0.050	<0.30	<0.050	<0.30
Selenium	mg/L	0.0010 ^B	0.063 ^C	0.00013	<0.00020	0.00033	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00020
Silicon	mg/L	n/v	n/v	-	1.1	1.3	<0.10	0.67	1.0	-	<0.50	-	<0.50
Silver	mg/L	0.00025 ^B	0.0015 ^C	<0.000020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000020	<0.00010	<0.000020 E J	<0.00010
Sodium	mg/L	n/v	2,300 ^C	7.37	9.0	17	4.4	13	4.6	<0.050	<0.50	<0.050	<0.50
Strontium	mg/L	n/v	n/v	-	0.23	0.25	0.073	0.12	0.080	-	<0.020	-	<0.020
Sulfur	mg/L	n/v	n/v	-	2.3	4.8	0.90	1.2	0.88	-	<0.20	-	<0.20
Thallium	mg/L	0.00080 ^B	0.51 ^C	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	-	<0.00020
Tin	mg/L	n/v	n/v	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Titanium	mg/L	n/v	n/v	0.0056	<0.0010	<0.0010	<0.0010	0.0013	0.0063	<0.0050	<0.0010	<0.0050	<0.0010
Uranium	mg/L	0.033 ^A 0.015 ^B	0.42 ^C	-	0.00061	0.00073	0.00014	0.00013	0.00017	-	<0.00010	-	<0.00010
Vanadium	mg/L	n/v	0.25 ^C	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010
Zinc	mg/L	n/a	1.1 ^C	<0.0050	0.0037	<0.0030	0.0041	<0.0030	<0.0030	<0.0050	<0.0030	<0.0050	<0.0030
BTEX and Petroleum Hydrocarbons													
Benzene	mg/L	0.37 ^B	0.044 ^C	<0.00020	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00020	<0.00040	<0.00020	<0.00040
Toluene	mg/L	0.0020 ^B	18 ^C	<0.00020	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00020	<0.00040	<0.00020	<0.00040
Ethylbenzene	mg/L	0.090 ^B	2.3 ^C	<0.00020	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00020	<0.00040	<0.00020	<0.00040
Xylene, m & p-	mg/L	n/v	s1 ^C	<0.00040	<0.00080	<0.00080	<0.00080	<0.00080	-	<0.00040	<0.00080	<0.00040	<0.00080
Xylene, o-	mg/L	n/v	s1 ^C	<0.00020	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00020	<0.00040	<0.00020	<0.00040
Xylenes, Total	mg/L	n/v	4.2 _{s1} ^C	<0.00040	<0.00089	<0.00089	<0.00089	<0.00089	-	<0.00040	<0.00089	<0.00040	<0.00089
PHC F1 (C6-C10 range)	mg/L	n/v	s7 ^C	<0.025	<0.10	<0.10	<0.10	<0.10	-	<0.025	<0.10	<0.025	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	0.75 _{s7} ^C	<0.025	<0.10	<0.10	<0.10	<0.10	-	<0.025	<0.10	<0.025	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	0.15 _{s15} ^C	<0.100	<0.10	0.15	<0.10	<0.10	-	<0.100	<0.10	<0.100	<0.10
Oil and Grease, Total	mg/L	n/v	n/v	0.70	<2.0	4.0	<2.0	<2.0	-	<0.50	2.0	<0.50	<2.0

See notes on last page.

Table 4
Summary of Surface Water Analytical Results - 2019-2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Sample Location				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	FIELD BLANK		TRIP BLANK	
Sample Date				26-Jul-19	25-Jul-21	15-Aug-22	25-Jul-21	14-Aug-22	14-Aug-22	26-Jul-19	15-Aug-22	26-Jul-19	15-Aug-22
Sample ID				SW4	SW21-4	SW22-4	SW21-6	SW22-7	SW22-BG	QC19-03	FIELD BLANK	QC19-02	TRIP BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				BV	BV	BV	BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order				B9K9571	C154208	C267211	C154208	C267211	C267211	B9K9571	C267211	B9K9571	C267211
Laboratory Sample ID				KJW020	ACS918	BBD273	ACS920	BBD274	BBD276	KJW023	BBD269	KJW022	BBD268
Sample Type	Units	CCME	Ontario SCS							Field Blank	Field Blank	Trip Blank	Trip Blank
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	mg/L	0.0058 ^B	0.60 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Acenaphthylene	mg/L	n/v	0.0018 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Acridine	mg/L	0.0044 ^B	n/v	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	-	<0.000040	<0.000040	<0.000040	<0.000040
Anthracene	mg/L	0.000012 ^{AB}	0.0024 ^C	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)anthracene	mg/L	0.000018 ^B	0.0047 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Benzo(a)pyrene	mg/L	0.000015 ^B	0.00081 ^C	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	-	<0.0000075	<0.0000075	<0.0000075	<0.0000075
Benzo(b)pyridine (Quinoline)	mg/L	0.0034 ^B	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020
Benzo(b/j)fluoranthene	mg/L	n/v	0.00075 _{s2} ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Benzo(c)phenanthrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050
Benzo(e)pyrene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050
Benzo(g,h,i)perylene	mg/L	n/v	0.00020 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Benzo(k)fluoranthene	mg/L	n/v	0.00040 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Chrysene	mg/L	n/v	0.0010 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Dibenzo(a,h)anthracene	mg/L	n/v	0.00052 ^C	<0.0000075	<0.0000075	<0.0000075	<0.0000075	<0.0000075	-	<0.0000075	<0.0000075	<0.0000075	<0.0000075
Fluoranthene	mg/L	0.000040 ^B	0.13 ^C	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.0030 ^B	0.40 ^C	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050
Indeno(1,2,3-cd)pyrene	mg/L	n/v	0.00020 ^C	<0.0000085	<0.0000085	<0.0000085	<0.0000085	<0.0000085	-	<0.0000085	<0.0000085	<0.0000085	<0.0000085
Methylnaphthalene, 1-	mg/L	n/v	_{s3} ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Methylnaphthalene, 2-	mg/L	n/v	_{s3} ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Naphthalene	mg/L	0.0011 ^B	1.4 ^C	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Perylene	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	0.00040 ^B	0.58 ^C	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050
Pyrene	mg/L	0.000025 ^B	0.068 ^C	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	-	<0.000020	<0.000020	<0.000020	<0.000020
Benzo(a)pyrene Total Potency Equivalents	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010
Phenols													
Chloro-3-methyl phenol, 4-	mg/L	n/v	n/v	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Chlorophenol, 2- (ortho-Chlorophenol)	mg/L	0.0070 ^B	3.3 ^C	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Chlorophenol, 3 & 4-	mg/L	0.0070 ^B	n/v	<0.002 MI	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Cresol (All Isomers)	mg/L	n/v	n/v	-	0.00040	0.0011	<0.00014	0.00030	-	-	<0.00014	-	<0.00014
Cresol, m & p- (Methylphenol, 3&4-)	mg/L	0.0040 ^B	n/v	<0.0005	0.00020	0.00030	<0.00010	0.00030	-	<0.0005	<0.00010	<0.0005	<0.00010
Cresol, o- (Methylphenol, 2-)	mg/L	0.0040 ^B	n/v	<0.0005	0.00020	0.00080	<0.00010	<0.00010	-	<0.0005	<0.00010	<0.0005	<0.00010
Dichlorophenol, 2,3-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Dichlorophenol, 2,4-	mg/L	0.00020 ^B	4.6 ^C	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Dichlorophenol, 2,5-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Dichlorophenol, 2,6-	mg/L	0.00020 ^B	n/v	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Dichlorophenol, 3,4-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Dichlorophenol, 3,5-	mg/L	0.00020 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Dimethylphenol, 2,4-	mg/L	n/v	39 ^C	<0.001	0.00050	0.00010	<0.00010	<0.00010	-	<0.001	<0.00010	<0.001	<0.00010
Dinitro-o-cresol, 4,6-	mg/L	n/v	n/v	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.001	<0.0010	<0.001	<0.0010
Dinitrophenol, 2,4-	mg/L	n/v	11 ^C	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.001	<0.0010	<0.001	<0.0010
Nitrophenol, 2-	mg/L	n/v	n/v	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.001	<0.0010	<0.001	<0.0010
Nitrophenol, 4-	mg/L	n/v	n/v	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.001	<0.0010	<0.001	<0.0010
Pentachlorophenol	mg/L	0.00050 ^B	0.062 ^C	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Phenol	mg/L	0.0040 ^B	12 ^C	<0.0005	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0005	<0.00010	<0.0005	<0.00010
Tetrachlorophenol, 2,3,4,5-	mg/L	0.0010 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Tetrachlorophenol, 2,3,4,6-	mg/L	0.0010 ^B	n/v	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Tetrachlorophenol, 2,3,5,6-	mg/L	0.0010 ^B	n/v	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Trichlorophenol, 2,3,4-	mg/L	0.018 ^B	n/v	<0.0002 MI	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Trichlorophenol, 2,3,5-	mg/L	0.018 ^B	n/v	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Trichlorophenol, 2,3,6-	mg/L	0.018 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-
Trichlorophenol, 2,4,5-	mg/L	0.018 ^B	1.6 ^C	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Trichlorophenol, 2,4,6-	mg/L	0.018 ^B	0.23 ^C	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.0001	<0.00010	<0.0001	<0.00010
Trichlorophenol, 3,4,5-	mg/L	0.018 ^B	n/v	<0.0001	-	-	-	-	-	<0.0001	-	<0.0001	-

See notes on last page.



Table 4
Summary of Surface Water Analytical Results - 2019-2022 Samples
2022 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Notes:	
CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
C	Table 3 - All Types of Property Use - Coarse Textured Soils
6.5 ^A	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L ⁻¹)] + 0.240[ln(DOC mg·L ⁻¹)] + 0.526). The value in the table is for surface water of 169 mg CaCO3 average) ·L ⁻¹ hardness (2019, 2021, and 2022) and 0.5 mg·L ⁻¹ dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L ⁻¹ and DOC 0.3 and 17.3 mg·L ⁻¹ .
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L ⁻¹)] - 0.815[pH] + 0.398[ln(DOC mg·L ⁻¹)] + 4.625). The value in the table is for surface water of 169 mg CaCO3·L ⁻¹ hardness, pH of 8 (2019, 2021, and 2022 averages) and 0.5 mg·L ⁻¹ DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L ⁻¹ , pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L ⁻¹ .
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 169 mg/L hardness (2019, 2021, and 2022 average). The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 169 mg/L hardness and pH of 8 (2019, 2021, and 2022 averages). The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
L7G	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L ⁻¹ is for waters of 50 mg CaCO3·L ⁻¹ hardness. The CWQG for cadmium is related to water hardness (as CaCO3): At hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^{0.83(log[hardness]) – 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
n/a	Not applicable.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
SN	see Narrative
STB	The short-term benchmark concentration value was calculated using <https://www.ccme.ca/en/summary-table> with a hardness of 169 mg/L (average of 2019, 2021, and 2022 samples). The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
TBC1	Value calculated using <https://www.ccme.ca/en/summary-table> with a hardness of 169 mg/L (average of 2019, 2021, and 2022 samples). The temperature is the average temperature measured.
TBC2	Value looked up using <https://www.ccme.ca/en/summary-table> with pH of 8 (average of 2019, 2021 and 2022 samples) and tempertaure of 11.7 deg C. The guideline (mg/L NH3) was then converted to mg/L total ammonia-N by multiplying by 0.8224.
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
EJ	Matrix Spike outside acceptance criteria due to sample matrix interference.
MI	Detection limit was raised due to matrix interferences.
MSP	Matrix spike outside acceptance limits, probable matrix interference.
NC	Not calculated.
NH	Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.
RY	Duplicate exceeds acceptance criteria due to sample matrix. Reanalysis yields similar results
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 5 - GPS Locations of Monitoring Wells and Sample Locations
2021 Environmental Monitoring Program
Resolute Bay Airport, Land Treatment Unit
Public Services and Procurement Canada for Transport Canada

Description	Easting	Northing
SW22-1	441197	8295862
SW22-2	441164	8295899
SW22-3	441221	8295873
SW22-4	441234	8295787
SW22-7	441176	8295854
SS22-BG	441297	8295794
MW1	441209	8295897
MW2	441147	8295871
MW3	441155	8295854
MW4	441424	8295902
MW5	441237	8295809
MW6	441254	8295814

Notes:

Latitude / Longitude expressed per NAD 83, Zone 15X

GPS Model: Garmin InReach Explorer+

Estimated Accuracy: ±3m

APPENDIX E

Applicable Standards and Guidelines

Ontario Ministry of the Environment (Now the Ontario Ministry of the Environment, Conservation and Parks)
Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act.
2011. Table 3 Site Condition Standards. Accessed from [<https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act>] on October 22, 2019.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Contaminant	Soil Standards (other than sediment) µg/g Residential/Parkland/ Institutional Property Use	Soil Standards (other than sediment) µg/g Industrial/Commercial/ Community Property Use	Non-potable ground water µg/L All Types of Property Use
Acenaphthene	(58) 7.9	96	(1700) 600
Acenaphthylene	(0.17) 0.15	(0.17) 0.15	1.8
Acetone	(28) 16	(28) 16	130000
Aldrin	0.05	(0.11) 0.088	8.5
Anthracene	(0.74) 0.67	(0.74) 0.67	2.4
Antimony	7.5	(50) 40	20000
Arsenic	18	18	1900
Barium	390	670	29000
Benzene	(0.17) 0.21	(0.4) 0.32	(430) 44
Benz[a]anthracene	(0.63) 0.5	0.96	4.7
Benzo[a]pyrene	0.3	0.3	0.81
Benzo[b]fluoranthene	0.78	0.96	0.75
Benzo[ghi]perylene	(7.8) 6.6	9.6	0.2
Benzo[k]fluoranthene	0.78	0.96	0.4
Beryllium	(5) 4	(10) 8	67
Biphenyl 1,1'-	(1.1) 0.31	(210) 52	(2200) 1000
Bis(2-chloroethyl)ether	0.5	0.5	300000
Bis(2-chloroisopropyl)ether	(1.8) 0.67	(14) 11	20000
Bis(2-ethylhexyl)phthalate	5	(35) 28	140
Boron (Hot Water Soluble) -	1.5	2	NA
Boron (total)	120	120	45000
Bromodichloromethane	13	18	85000
Bromoform	(0.26) 0.27	(1.7) 0.61	(770) 380
Bromomethane	0.05	0.05	(56) 5.6
Cadmium	1.2	1.9	2.7
Carbon Tetrachloride	(0.12) 0.05	(1.5) 0.21	(8.4) 0.79
Chlordane	0.05	0.05	28
Chloroaniline p-	(0.53) 0.5	(0.53) 0.5	400
Chlorobenzene	(2.7) 2.4	(2.7) 2.4	630
Chloroform	(0.18) 0.05	(0.18) 0.47	(22) 2.4
Chlorophenol, 2-	(2) 1.6	(3.9) 3.1	3300
Chromium Total	160	160	810
Chromium VI	(10) 8	(10) 8	140
Chrysene	(7.8) 7	9.6	1
Cobalt	22	(100) 80	66
Copper	(180) 140	(300) 230	87
Cyanide (CN-)	0.051	0.051	66
Dibenz[a h]anthracene	0.1	0.1	0.52
Dibromochloromethane	9.4	13	82000

Ontario Ministry of the Environment (Now the Ontario Ministry of the Environment, Conservation and Parks)
Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act.
2011. Table 3 Site Condition Standards. Accessed from [https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act] on October 22, 2019.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Contaminant	Soil Standards (other than sediment) µg/g Residential/Parkland/ Institutional Property Use	Soil Standards (other than sediment) µg/g Industrial/Commercial/ Community Property Use	Non-potable ground water µg/L All Types of Property Use
Dichlorobenzene, 1,2-	(4.3) 3.4	(8.5) 6.8	(9600) 4600
Dichlorobenzene, 1,3-	(6) 4.8	(12) 9.6	9600
Dichlorobenzene, 1,4-	(0.097) 0.083	(0.84) 0.2	(67) 8
Dichlorobenzidine, 3,3'-	1	1	640
Dichlorodifluoromethane	(25) 16	(25) 16	4400
DDD	3.3	4.6	45
DDE	(0.33) 0.26	(0.65) 0.52	20
DDT	1.4	1.4	2.8
Dichloroethane, 1,1-	(11) 3.5	(21) 17	(3100) 320
Dichloroethane, 1,2-	0.05	0.05	(12) 1.6
Dichloroethylene, 1,1-	0.05	(0.48) 0.064	(17) 1.6
Dichloroethylene, 1,2-cis-	(30) 3.4	(37) 55	(17) 1.6
Dichloroethylene, 1,2-trans-	(0.75) 0.084	(9.3) 1.3	(17) 1.6
Dichlorophenol, 2,4-	(2.1) 1.7	(4.2) 3.4	4600
Dichloropropane, 1,2-	(0.085) 0.05	(0.68) 0.16	(140) 16
Dichloropropene, 1,3-	(0.083) 0.05	(0.21) 0.18	(45) 5.2
Dieldrin	0.05	(0.11) 0.088	0.75
Diethyl Phthalate	0.5	0.5	38
Dimethylphthalate	0.5	0.5	38
Dimethylphenol, 2,4-	(420) 390	(440) 390	39000
Dinitrophenol, 2,4-	38	(66) 59	11000
Dinitrotoluene, 2,4 & 2,6-	0.92	1.2	2900
Dioxane, 1,4	1.8	1.8	(7300000)1900000
Dioxin/Furan (TEQ)	0.000013	0.000099	(0.023) 0.014
Endosulfan	0.04	(0.38) 0.3	1.5
Endrin	0.04	0.04	0.48
Ethylbenzene	(15) 2	(19) 9.5	2300
Ethylene dibromide	0.05	0.05	(0.83) 0.25
Fluoranthene	0.69	9.6	130
Fluorene	(69) 62	(69) 62	400
Heptachlor	0.15	0.19	2.5
Heptachlor Epoxide	0.05	0.05	0.048
Hexachlorobenzene	0.52	0.66	3.1
Hexachlorobutadiene	(0.014) 0.012	(0.095) 0.031	(4.5) 0.44
Hexachlorocyclohexane Gamma-	(0.063) 0.056	(0.063) 0.056	1.2
Hexachloroethane	(0.071) 0.089	(0.43) 0.21	(200) 94
Hexane (n)	(34) 2.8	(88) 46	(520) 51
Indeno[1 2 3-cd]pyrene	(0.48) 0.38	(0.95) 0.76	0.2
Lead	120	120	25

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Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act.
2011. Table 3 Site Condition Standards. Accessed from [https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act] on October 22, 2019.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Contaminant	Soil Standards (other than sediment) µg/g Residential/Parkland/ Institutional Property Use	Soil Standards (other than sediment) µg/g Industrial/Commercial/ Community Property Use	Non-potable ground water µg/L All Types of Property Use
Mercury	(1.8) 0.27	(20) 3.9	(2.8) 0.29
Methoxychlor	0.13	1.6	6.5
Methyl Ethyl Ketone	(44) 16	(88) 70	(1500000) 470000
Methyl Isobutyl Ketone	(4.3) 1.7	(210) 31	(580000) 140000
Methyl Mercury [—]	(0.0094) 0.0084	(0.0094) 0.0084	0.15
Methyl tert-Butyl Ether (MTBE)	(1.4) 0.75	(3.2) 11	(1400) 190
Methylene Chloride	(0.96) 0.1	(2) 1.6	(5500) 610
Methylnaphthalene, 2-(1-) [—]	(3.4) 0.99	(85) 76	1800
Molybdenum	6.9	40	9200
Naphthalene	(0.75) 0.6	(28) 9.6	(6400) 1400
Nickel	(130) 100	(340) 270	490
Pentachlorophenol	0.1	(3.3) 2.9	62
Petroleum Hydrocarbons F1 ^{****}	(65) 55	(65) 55	750
Petroleum Hydrocarbons F2	(150) 98	(250) 230	150
Petroleum Hydrocarbons F3	(1300) 300	(2500) 1700	500
Petroleum Hydrocarbons F4	(5600) 2800	(6600) 3300	500
Phenanthrene	(7.8) 6.2	(16) 12	580
Phenol	9.4	9.4	12000
Polychlorinated Biphenyls	0.35	1.1	(15) 7.8
Pyrene	78	96	68
Selenium	2.4	5.5	63
Silver	(25) 20	(50) 40	1.5
Styrene	(2.2) 0.7	(43) 34	(9100) 1300
Tetrachloroethane, 1,1,1,2-	(0.05) 0.058	(0.11) 0.087	(28) 3.3
Tetrachloroethane, 1,1,2,2-	0.05	(0.094) 0.05	(15) 3.2
Tetrachloroethylene	(2.3) 0.28	(21) 4.5	(17) 1.6
Thallium	1	3.3	510
Toluene	(6) 2.3	(78) 68	18000
Trichlorobenzene, 1,2,4-	(1.4) 0.36	(16) 3.2	(850) 180
Trichloroethane, 1,1,1-	(3.4) 0.38	(12) 6.1	(6700) 640
Trichloroethane, 1,1,2-	0.05	(0.11) 0.05	(30) 4.7
Trichloroethylene	(0.52) 0.061	(0.61) 0.91	(17) 1.6
Trichlorofluoromethane	(5.8) 4	(5.8) 4	2500
Trichlorophenol, 2,4,5-	(5.5) 4.4	10	1600
Trichlorophenol, 2,4,6-	(4.2) 3.8	(4.2) 3.8	230
Uranium	23	33	420
Vanadium	86	86	250
Vinyl Chloride	(0.022) 0.02	(0.25) 0.032	(1.7) 0.5

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 2011. Table 3 Site Condition Standards. Accessed from [<https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act>] on October 22, 2019.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Contaminant	Soil Standards (other than sediment) µg/g	Soil Standards (other than sediment) µg/g	Non-potable ground water µg/L
	Residential/Parkland/ Institutional Property Use	Industrial/Commercial/ Community Property Use	All Types of Property Use
Xylene Mixture	(25) 3.1	(30) 26	4200
Zinc	340	340	1100
Electrical Conductivity (mS/ cm)	0.7	1.4	#N/A
Chloride	NA	NA	2300000
Sodium Adsorption Ratio	5	12	NA
Sodium	NA	NA	2300000

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	

Acenaphthene
Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons
No data 5.8 1999 No data Insufficient data 1999

<u>Acenaphthylene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	No data	1999	No data	No data	1999
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Acridine
Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons
No data 4.4 1999 No data Insufficient data 1999

<u>Aluminium</u>	Inorganic Metals	No data	Variable	1987	No data	No data	No data
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Ammonia (total)
Inorganic Inorganic nitrogen compounds
No data Table 2001 No data No data No data

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	
<u>Anthracene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	<u>0.012</u>	1999	No data	Insufficient data	1999
<u>Arsenic</u>	Inorganic Metals	No data	<u>5</u>	1997	No data	<u>12.5</u>	1997
<u>Benz(a)anthracene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	<u>0.018</u>	1999	No data	Insufficient data	1999
<u>Benzene</u>	Organic Monocyclic aromatic compounds	No data	<u>370</u>	1999	No data	<u>110</u>	1999
<u>Benzo(a)pyrene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	<u>0.015</u>	1999	No data	Insufficient data	1999

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	

<u>Cadmium</u> <u>7440439</u>	<i>Inorganic Metals</i>	<u>1</u>	<u>0.09</u>	<u>2014</u>	<u>NRG</u>	<u>0.12</u>	<u>2014</u>
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<u>Chloride</u>	<i>Inorganic</i>	<u>640,000 µg/L or 640 mg/L</u>	<u>120,000 µg/L or 120 mg/L</u>	<u>2011</u>	<u>NRG</u>	<u>NRG</u>	<u>2011</u>
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<u>Chrysene</u>	<i>Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons</i>	<i>No data</i>	<i>Insufficient data</i>	<u>1999</u>	<i>No data</i>	<i>Insufficient data</i>	<u>1999</u>
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<u>Copper</u>	<i>Inorganic Metals</i>	<u>No data</u>	<u>Equation</u>	<u>1987</u>	<u>No data</u>	<u>No data</u>	<u>No data</u>
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<u>Ethylbenzene</u> <u>SRN 100414</u>	<i>Organic Monocyclic aromatic compounds</i>	<i>No data</i>	<u>90</u>	<u>1996</u>	<i>No data</i>	<u>25</u>	<u>1996</u>
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Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	
<u>Fluoranthene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	0.04	1999	No data	Insufficient data	1999
<u>Fluorene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	3	1999	No data	Insufficient data	1999
<u>Iron</u>	Inorganic Metals	No data	300	1987	No data	No data	No data
<u>Lead</u>	Inorganic Metals	No data	Equation	1987	No data	No data	No data
<u>Molybdenum</u>	Inorganic Metals	No data	73	1999	No data	No data	No data

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	
<u>Naphthalene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	<u>1.1</u>	1999	No data	<u>1.4</u>	1999
<u>Nickel</u>	Inorganic Metals	No data	Equation	1987	No data	No data	No data
<u>Nitrate</u> CASRN 14797-55-8	Inorganic Inorganic nitrogen compounds	<u>550,000 µg/L or 550 mg/L</u>	<u>13,000 µg/L or 13 mg/L</u>	2012	<u>1,500,000 µg/L or 1500 mg/L</u>	<u>200,000 µg/L or 200 mg/L</u>	2012
<u>Nitrite</u>	Inorganic Inorganic nitrogen compounds	No data	60 NO ₂ -N	1987	No data	No data	No data
<u>Phenanthrene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	<u>0.4</u>	1999	No data	Insufficient data	1999

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	
<u>Phenols (mono- & dihydric)</u> CASRN 108952	Organic Aromatic hydroxy compounds	No data	4	1999	No data	No data	No data
<u>Pyrene</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	0.025	1999	No data	Insufficient data	1999
<u>pH</u>	Inorganic Acidity, alkalinity and pH	No data	6.5 to 9.0	1987	No data	7.0 to 8.7 & Narrative	1996
<u>Quinoline</u>	Organic Polyaromatic compounds Polycyclic aromatic hydrocarbons	No data	3.4	1999	No data	Insufficient data	1999
<u>Selenium</u>	Inorganic Metals	No data	1	1987	No data	No data	No data

Canadian Environmental Quality Guidelines Summary Table		Water Quality Guidelines for the Protection of Aquatic Life					
		Freshwater			Marine		
		Concentration (ug/L)	Concentration (ug/L)	Date	Concentration (ug/L)	Concentration (ug/L)	Date
Chemical Name	Chemical Groups	Short Term	Long Term		Short Term	Long Term	

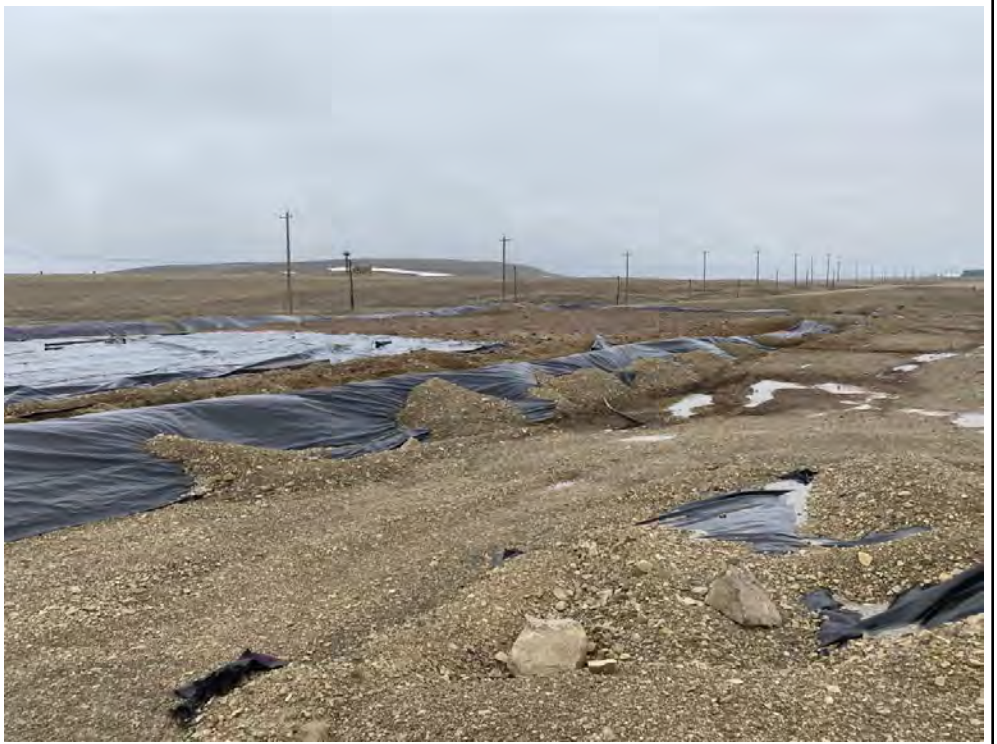
Silver
Inorganic Metals NRG 0.25 2015 7.5 NRG 2015

<u>Toluene</u> <u>CASRN 108883</u>	<i>Organic Monocyclic aromatic compounds</i>	<i>No data</i>	<u>2</u>	<i>1996</i>	<i>No data</i>	<u>215</u>	<i>1996</i>
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Zinc
Inorganic Metals 37 7 2018 Not assessed Not assessed 2018

APPENDIX F

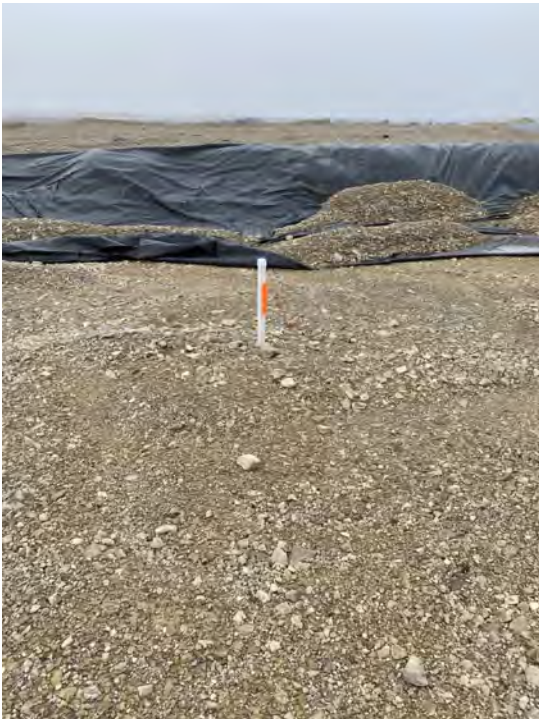
Photographic Log

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 1			
Photo Location: LTU1			
Direction: North			
Survey Date: 8/15/2022			
Comments: LTU1 facing north			
Photograph ID: 2			
Photo Location: LTU2			
Direction: Southeast			
Survey Date: 8/14/2022			
Comments: LTU2 facing southeast			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 3			
Photo Location: LTU1			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-14			
Photograph ID: 4			
Photo Location: LTU1			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-15			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 5			
Photo Location: LTU1			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-18			
Photograph ID: 6			
Photo Location: LTU2			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-27			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 7			
Photo Location: LTU2			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-33			
Photograph ID: 8			
Photo Location: LTU2			
Direction: Downward			
Survey Date: 8/15/2022			
Comments: Liner deficiency 22-36			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 9			
Photo Location: MW1			
Direction: Southwest			
Survey Date: 8/14/2022			
Comments: MW1 facing southwest			
Photograph ID: 10			
Photo Location: MW2			
Direction: Northeast			
Survey Date: 8/14/2022			
Comments: MW2 facing southwest			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 11			
Photo Location: MW3			
Direction: Northeast			
Survey Date: 8/14/2022			
Comments: MW3 facing northeast			
Photograph ID: 12			
Photo Location: MW5			
Direction: South			
Survey Date: 8/14/2022			
Comments: MW5 facing south			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 13			
Photo Location: SW22-1			
Direction: North			
Survey Date: 8/15/2022			
Comments: SW22-1 facing north			
Photograph ID: 14			
Photo Location: SW22-2			
Direction: South			
Survey Date: 8/14/2022			
Comments: SW22-2 facing south			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 15			
Photo Location: SW22-3			
Direction: North			
Survey Date: 8/15/2022			
Comments: SW22-3 facing north			
Photograph ID: 16			
Photo Location: SW22-4			
Direction: South			
Survey Date: 8/15/2022			
Comments: SW22-4 facing south			

Client:	Public Services and Procurement Canada on behalf of Transport Canada	Project:	2022 Environmental Monitoring Program
Site Name:	Resolute Bay Land Treatment Unit	Site Location:	Cornwallis Island, Nunavut
Photograph ID: 17			
Photo Location: SW22-7			
Direction: North			
Survey Date: 8/14/2022			
Comments: SW22-7 facing north			
Photograph ID: 18			
Photo Location: SW22-BG			
Direction: West			
Survey Date: 8/14/2022			
Comments: SW22-BG facing west with LTUs in background			

APPENDIX G

Copies of Laboratory Analytical Results

Your Project #: 123514046
Your C.O.C. #: 1 of 1

Attention: LINDSAY VAN NOORTWYK

STANTEC CONSULTING LTD
#400, 10220 - 103 Avenue NW
EDMONTON, AB
CANADA T5J 0K4

Report Date: 2022/09/15
Report #: R3233191
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C267211

Received: 2022/09/02, 16:00

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO ₃ ,HCO ₃ ,OH (1)	8	N/A	2022/09/08	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	6	N/A	2022/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID (1)	2	N/A	2022/09/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	8	N/A	2022/09/09		Auto Calc
Cadmium - low level CCME - Dissolved (1)	1	N/A	2022/09/10		Auto Calc
Cadmium - low level CCME - Dissolved (1)	7	N/A	2022/09/12		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	8	N/A	2022/09/08	AB SOP-00020	SM23-4500-Cl/SO4-E m
Total Cresols Calculation (1)	8	N/A	2022/09/12		Auto Calc
Conductivity @25C (1)	8	N/A	2022/09/08	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons in Water (F2; C10-C16) (1, 2)	8	2022/09/08	2022/09/09	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Hardness (1)	7	N/A	2022/09/09		Auto Calc
Hardness (1)	1	N/A	2022/09/10		Auto Calc
Elements by ICP - Dissolved (1, 3)	1	N/A	2022/09/08	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Dissolved (1, 3)	8	N/A	2022/09/09	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	9	2022/09/08	2022/09/08	AB SOP-00014 / AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Dissolved (1, 3)	2	N/A	2022/09/10	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Dissolved (1, 3)	7	N/A	2022/09/11	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Total (1)	9	2022/09/08	2022/09/09	AB SOP-00014 / AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	7	N/A	2022/09/09		Auto Calc
Ion Balance (1)	1	N/A	2022/09/10		Auto Calc
Sum of cations, anions (1)	7	N/A	2022/09/09		Auto Calc
Sum of cations, anions (1)	1	N/A	2022/09/10		Auto Calc
Ammonia-N (Total) (1)	8	N/A	2022/09/10	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate and Nitrite (1)	8	N/A	2022/09/08		Auto Calc
NO ₂ (N); NO ₂ (N) + NO ₃ (N) in Water (1)	8	N/A	2022/09/07	AB SOP-00091	SM 23 4500 NO3m
Nitrate (as N) (1)	8	2022/09/06	2022/09/08		Auto Calc
Oil and Grease (Gravimetric, n-Hexane) (1)	8	2022/09/10	2022/09/10	AB SOP-00092	SM 23 5520B/5520F m
Benzo[a]pyrene Equivalency (1, 4)	8	N/A	2022/09/09		Auto Calc



Your Project #: 123514046
Your C.O.C. #: 1 of 1

Attention: LINDSAY VAN NOORTWYK

STANTEC CONSULTING LTD
#400, 10220 - 103 Avenue NW
EDMONTON, AB
CANADA T5J 0K4

Report Date: 2022/09/15
Report #: R3233191
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C267211

Received: 2022/09/02, 16:00

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
PAH in Water by GC/MS (1)	2	2022/09/08	2022/09/08	AB SOP-00037 / AB SOP-00003	EPA 3510C/8270E m
PAH in Water by GC/MS (1)	6	2022/09/08	2022/09/09	AB SOP-00037 / AB SOP-00003	EPA 3510C/8270E m
pH @25°C (1, 5)	8	N/A	2022/09/08	AB SOP-00005	SM 23 4500-H+B m
Phenols (semivolatile) (1)	8	2022/09/09	2022/09/09	CAL SOP-00164	EPA 8270e m
Total Dissolved Solids (Calculated) (1)	7	N/A	2022/09/09		Auto Calc
Total Dissolved Solids (Calculated) (1)	1	N/A	2022/09/10		Auto Calc
Total Suspended Solids (NFR) (1)	8	2022/09/08	2022/09/08	AB SOP-00061	SM 23 2540 D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 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 CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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 samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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

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

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

(1) 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.



Your Project #: 123514046
Your C.O.C. #: 1 of 1

Attention: LINDSAY VAN NOORTWYK

STANTEC CONSULTING LTD
#400, 10220 - 103 Avenue NW
EDMONTON, AB
CANADA T5J 0K4

Report Date: 2022/09/15
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CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C267211

Received: 2022/09/02, 16:00

- (4) B[a]P TPE is calculated using 1/2 of the RDL for non detect results as per Alberta Environment instructions. This protocol may not apply in other jurisdictions.
(5) 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.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Geraldlyn Gouthro, Key Account Specialist
Email: geraldlyn.gouthro@bureauveritas.com
Phone# (780)577-7173

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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 Signature Page.

**AT1 BTEX AND F1-F2 IN WATER (WATER)**

Bureau Veritas ID		BBD268		BBD269		BBD270		BBD270			
Sampling Date		2022/08/15 17:30		2022/08/15 17:45		2022/08/15 10:46		2022/08/15 10:46			
COC Number		1 of 1		1 of 1		1 of 1		1 of 1			
	UNITS	TRIP BLANK	MU	FIELD BLANK	MU	SW22-1	MU	SW22-1 Lab-Dup	MU	RDL	QC Batch
Ext. Pet. Hydrocarbon											
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	N/A	<0.10	N/A	<0.10	N/A	N/A	N/A	0.10	A707699
Volatiles											
Benzene	mg/L	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Toluene	mg/L	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Ethylbenzene	mg/L	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
m & p-Xylene	mg/L	<0.00080	N/A	<0.00080	N/A	<0.00080	N/A	<0.00080	N/A	0.00080	A708204
o-Xylene	mg/L	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Xylenes (Total)	mg/L	<0.00089	N/A	<0.00089	N/A	<0.00089	N/A	N/A	N/A	0.00089	A706185
F1 (C6-C10) - BTEX	mg/L	<0.10	N/A	<0.10	N/A	<0.10	N/A	N/A	N/A	0.10	A706185
F1 (C6-C10)	mg/L	<0.10	N/A	<0.10	N/A	<0.10	N/A	<0.10	N/A	0.10	A708204
Surrogate Recovery (%)											
1,4-Difluorobenzene (sur.)	%	102	N/A	102	N/A	103	N/A	103	N/A	N/A	A708204
4-Bromofluorobenzene (sur.)	%	99	N/A	99	N/A	98	N/A	98	N/A	N/A	A708204
D4-1,2-Dichloroethane (sur.)	%	99	N/A	99	N/A	98	N/A	98	N/A	N/A	A708204
O-TERPHENYL (sur.)	%	101	N/A	100	N/A	101	N/A	N/A	N/A	N/A	A707699
RDL = Reportable Detection Limit											
Lab-Dup = Laboratory Initiated Duplicate											
MU = Measurement Uncertainty											
N/A = Not Applicable											



AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BBD271		BBD272		BBD273		BBD274			
Sampling Date		2022/08/14 14:50		2022/08/15 10:15		2022/08/15 09:16		2022/08/14 15:25			
COC Number		1 of 1		1 of 1		1 of 1		1 of 1			
	UNITS	SW22-2	MU	SW22-3	MU	SW22-4	MU	SW22-7	MU	RDL	QC Batch
Ext. Pet. Hydrocarbon											
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	N/A	0.20	+/- 0.11	0.15	+/- <RDL	<0.10	N/A	0.10	A707699
Volatiles											
Benzene	mg/L	<0.00040	N/A	0.013	+/- 0.0033	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Toluene	mg/L	<0.00040	N/A	0.047	+/- 0.0071	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Ethylbenzene	mg/L	<0.00040	N/A	0.00096	+/- <RDL	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
m & p-Xylene	mg/L	<0.00080	N/A	0.012	+/- 0.0040	<0.00080	N/A	<0.00080	N/A	0.00080	A708204
o-Xylene	mg/L	<0.00040	N/A	0.011	+/- 0.0037	<0.00040	N/A	<0.00040	N/A	0.00040	A708204
Xylenes (Total)	mg/L	<0.00089	N/A	0.023	N/A	<0.00089	N/A	<0.00089	N/A	0.00089	A706185
F1 (C6-C10) - BTEX	mg/L	<0.10	N/A	0.10	N/A	<0.10	N/A	<0.10	N/A	0.10	A706185
F1 (C6-C10)	mg/L	<0.10	N/A	0.19	+/- <RDL	<0.10	N/A	<0.10	N/A	0.10	A708204
Surrogate Recovery (%)											
1,4-Difluorobenzene (sur.)	%	102	N/A	101	N/A	103	N/A	102	N/A	N/A	A708204
4-Bromofluorobenzene (sur.)	%	98	N/A	97	N/A	98	N/A	98	N/A	N/A	A708204
D4-1,2-Dichloroethane (sur.)	%	98	N/A	99	N/A	103	N/A	99	N/A	N/A	A708204
O-TERPHENYL (sur.)	%	101	N/A	101	N/A	101	N/A	99	N/A	N/A	A707699
RDL = Reportable Detection Limit											
MU = Measurement Uncertainty											
N/A = Not Applicable											

**AT1 BTEX AND F1-F2 IN WATER (WATER)**

Bureau Veritas ID		BBD275		BBD275			
Sampling Date		2022/08/15 10:30		2022/08/15 10:30			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-DUP	MU	SW22-DUP Lab-Dup	MU	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	0.17	+/- 0.10	0.17	+/- 0.10	0.10	A707699
Volatiles							
Benzene	mg/L	0.012	+/- 0.0033	N/A	N/A	0.00040	A708204
Toluene	mg/L	0.046	+/- 0.0069	N/A	N/A	0.00040	A708204
Ethylbenzene	mg/L	0.00095	+/- <RDL	N/A	N/A	0.00040	A708204
m & p-Xylene	mg/L	0.012	+/- 0.0039	N/A	N/A	0.00080	A708204
o-Xylene	mg/L	0.011	+/- 0.0036	N/A	N/A	0.00040	A708204
Xylenes (Total)	mg/L	0.023	N/A	N/A	N/A	0.00089	A706185
F1 (C6-C10) - BTEX	mg/L	0.12	N/A	N/A	N/A	0.10	A706185
F1 (C6-C10)	mg/L	0.20	+/- <RDL	N/A	N/A	0.10	A708204
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	101	N/A	N/A	N/A	N/A	A708204
4-Bromofluorobenzene (sur.)	%	98	N/A	N/A	N/A	N/A	A708204
D4-1,2-Dichloroethane (sur.)	%	98	N/A	N/A	N/A	N/A	A708204
O-TERPHENYL (sur.)	%	102	N/A	100	N/A	N/A	A707699
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
MU = Measurement Uncertainty							
N/A = Not Applicable							

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD268		BBD269			
Sampling Date		2022/08/15 17:30		2022/08/15 17:45			
COC Number		1 of 1		1 of 1			
	UNITS	TRIP BLANK	MU	FIELD BLANK	MU	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	0.0000	N/A	0.028	N/A	N/A	A705432
Cation Sum	meq/L	0.035	N/A	0.036	N/A	N/A	A705432
Hardness (CaCO ₃)	mg/L	<0.50	N/A	<0.50	N/A	0.50	A705425
Ion Balance (% Difference)	%	NC	N/A	NC	N/A	N/A	A705427
Nitrate (N)	mg/L	<0.010	N/A	<0.010	N/A	0.010	A705869
Nitrate (NO ₃)	mg/L	<0.044	N/A	<0.044	N/A	0.044	A705438
Nitrite (NO ₂)	mg/L	<0.033	N/A	<0.033	N/A	0.033	A705438
Calculated Total Dissolved Solids	mg/L	<10	N/A	<10	N/A	10	A705444
Elements							
Dissolved Cadmium (Cd)	ug/L	<0.020	N/A	<0.020	N/A	0.020	A706410
Misc. Inorganics							
Conductivity	uS/cm	<2.0	N/A	<2.0	N/A	2.0	A708761
pH	pH	4.46	+/- 0.0442	4.45	+/- 0.0441	N/A	A708758
Anions							
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708755
Alkalinity (Total as CaCO ₃)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708755
Bicarbonate (HCO ₃)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708755
Carbonate (CO ₃)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708755
Hydroxide (OH)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708755
Chloride (Cl)	mg/L	<1.0	N/A	<1.0	N/A	1.0	A708348
Sulphate (SO ₄)	mg/L	<1.0	N/A	1.4	+/- 1.0	1.0	A708348
Nutrients							
Nitrite (N)	mg/L	<0.010	N/A	<0.010	N/A	0.010	A707840
Nitrate plus Nitrite (N)	mg/L	<0.010	N/A	<0.010	N/A	0.010	A707840
Elements							
Dissolved Aluminum (Al)	mg/L	<0.0030	N/A	<0.0030	N/A	0.0030	A708907
Dissolved Antimony (Sb)	mg/L	<0.00060	N/A	<0.00060	N/A	0.00060	A708907
Dissolved Arsenic (As)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708907
Dissolved Barium (Ba)	mg/L	<0.010	N/A	<0.010	N/A	0.010	A708888
Dissolved Beryllium (Be)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Boron (B)	mg/L	<0.020	N/A	<0.020	N/A	0.020	A708888
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable							

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD268		BBD269			
Sampling Date		2022/08/15 17:30		2022/08/15 17:45			
COC Number		1 of 1		1 of 1			
	UNITS	TRIP BLANK	MU	FIELD BLANK	MU	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	<0.30	N/A	<0.30	N/A	0.30	A708888
Dissolved Chromium (Cr)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Cobalt (Co)	mg/L	<0.00030	N/A	<0.00030	N/A	0.00030	A708907
Dissolved Copper (Cu)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Iron (Fe)	mg/L	<0.060	N/A	<0.060	N/A	0.060	A708888
Dissolved Lead (Pb)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708907
Dissolved Lithium (Li)	mg/L	<0.020	N/A	<0.020	N/A	0.020	A708888
Dissolved Magnesium (Mg)	mg/L	<0.20	N/A	<0.20	N/A	0.20	A708888
Dissolved Manganese (Mn)	mg/L	<0.0040	N/A	<0.0040	N/A	0.0040	A708888
Dissolved Molybdenum (Mo)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708907
Dissolved Nickel (Ni)	mg/L	<0.00050	N/A	<0.00050	N/A	0.00050	A708907
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	<0.10	N/A	0.10	A708888
Dissolved Potassium (K)	mg/L	<0.30	N/A	<0.30	N/A	0.30	A708888
Dissolved Selenium (Se)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708907
Dissolved Silicon (Si)	mg/L	<0.50	N/A	<0.50	N/A	0.50	A708888
Dissolved Silver (Ag)	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A708907
Dissolved Sodium (Na)	mg/L	<0.50	N/A	<0.50	N/A	0.50	A708888
Dissolved Strontium (Sr)	mg/L	<0.020	N/A	<0.020	N/A	0.020	A708888
Dissolved Sulphur (S)	mg/L	<0.20	N/A	<0.20	N/A	0.20	A708888
Dissolved Thallium (Tl)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708907
Dissolved Tin (Sn)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Titanium (Ti)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Uranium (U)	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A708907
Dissolved Vanadium (V)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708907
Dissolved Zinc (Zn)	mg/L	<0.0030	N/A	<0.0030	N/A	0.0030	A708907
RDL = Reportable Detection Limit							
MU = Measurement Uncertainty							
N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

ROUTINE WATER & DISS. REGULATED METALS (WATER)

Bureau Veritas ID		BBD270			BBD271			
Sampling Date		2022/08/15 10:46			2022/08/14 14:50			
COC Number		1 of 1			1 of 1			
	UNITS	SW22-1	MU	QC Batch	SW22-2	MU	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	3.2	N/A	A705432	5.4	N/A	N/A	A705432
Cation Sum	meq/L	3.3	N/A	A705432	5.5	N/A	N/A	A705432
Hardness (CaCO ₃)	mg/L	140	N/A	A705425	180	N/A	0.50	A705425
Ion Balance (% Difference)	%	0.76	N/A	A705427	0.85	N/A	N/A	A705427
Nitrate (N)	mg/L	<0.010	N/A	A705869	0.50	N/A	0.010	A705869
Nitrate (NO ₃)	mg/L	<0.044	N/A	A705438	2.2	N/A	0.044	A705438
Nitrite (NO ₂)	mg/L	<0.033	N/A	A705438	<0.033	N/A	0.033	A705438
Calculated Total Dissolved Solids	mg/L	150	N/A	A705444	280	N/A	10	A705444
Elements								
Dissolved Cadmium (Cd)	ug/L	<0.020	N/A	A706410	<0.020	N/A	0.020	A706410
Misc. Inorganics								
Conductivity	uS/cm	300	+/- 8.3	A708761	560	+/- 15	2.0	A708761
pH	pH	7.51	+/- 0.0744	A708758	7.56	+/- 0.0749	N/A	A708758
Anions								
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	A708755	<1.0	N/A	1.0	A708755
Alkalinity (Total as CaCO ₃)	mg/L	140	+/- 11	A708755	130	+/- 9.5	1.0	A708755
Bicarbonate (HCO ₃)	mg/L	170	+/- 2.9	A708755	160	+/- 2.7	1.0	A708755
Carbonate (CO ₃)	mg/L	<1.0	N/A	A708755	<1.0	N/A	1.0	A708755
Hydroxide (OH)	mg/L	<1.0	N/A	A708755	<1.0	N/A	1.0	A708755
Chloride (Cl)	mg/L	12	+/- 1.5	A708348	86	+/- 6.6	1.0	A708338
Sulphate (SO ₄)	mg/L	1.3	+/- 1.0	A708348	17	+/- 1.6	1.0	A708338
Nutrients								
Nitrite (N)	mg/L	<0.010	N/A	A707839	<0.010	N/A	0.010	A707840
Nitrate plus Nitrite (N)	mg/L	<0.010	N/A	A707839	0.50	+/- 0.048	0.010	A707840
Elements								
Dissolved Aluminum (Al)	mg/L	0.0062	+/- <RDL	A708907	<0.0030	N/A	0.0030	A708907
Dissolved Antimony (Sb)	mg/L	<0.00060	N/A	A708907	<0.00060	N/A	0.00060	A708907
Dissolved Arsenic (As)	mg/L	0.00079	+/- 0.00025	A708907	<0.00020	N/A	0.00020	A708907
Dissolved Barium (Ba)	mg/L	<0.010	N/A	A708888	0.017	+/- <RDL	0.010	A708888
Dissolved Beryllium (Be)	mg/L	<0.0010	N/A	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Boron (B)	mg/L	<0.020	N/A	A708888	0.16	+/- 0.024	0.020	A708888
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable								

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD270			BBD271			
Sampling Date		2022/08/15 10:46			2022/08/14 14:50			
COC Number		1 of 1			1 of 1			
	UNITS	SW22-1	MU	QC Batch	SW22-2	MU	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	19	+/- 1.6	A708888	36	+/- 3.0	0.30	A708888
Dissolved Chromium (Cr)	mg/L	<0.0010	N/A	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Cobalt (Co)	mg/L	<0.00030	N/A	A708907	<0.00030	N/A	0.00030	A708907
Dissolved Copper (Cu)	mg/L	0.0014	+/- <RDL	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Iron (Fe)	mg/L	<0.060	N/A	A708888	<0.060	N/A	0.060	A708888
Dissolved Lead (Pb)	mg/L	0.00047	+/- <RDL	A708907	<0.00020	N/A	0.00020	A708907
Dissolved Lithium (Li)	mg/L	<0.020	N/A	A708888	<0.020	N/A	0.020	A708888
Dissolved Magnesium (Mg)	mg/L	22	+/- 1.1	A708888	21	+/- 1.0	0.20	A708888
Dissolved Manganese (Mn)	mg/L	<0.0040	N/A	A708888	<0.0040	N/A	0.0040	A708888
Dissolved Molybdenum (Mo)	mg/L	0.00084	+/- <RDL	A708907	0.0023	+/- <RDL	0.00020	A708907
Dissolved Nickel (Ni)	mg/L	0.0027	+/- <RDL	A708907	<0.00050	N/A	0.00050	A708907
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	A708888	<0.10	N/A	0.10	A708888
Dissolved Potassium (K)	mg/L	1.3	+/- <RDL	A708888	3.3	+/- <RDL	0.30	A708888
Dissolved Selenium (Se)	mg/L	<0.00020	N/A	A708907	0.00078	+/- 0.00027	0.00020	A708907
Dissolved Silicon (Si)	mg/L	0.99	+/- <RDL	A708888	0.81	+/- <RDL	0.50	A708888
Dissolved Silver (Ag)	mg/L	<0.00010	N/A	A708907	<0.00010	N/A	0.00010	A708907
Dissolved Sodium (Na)	mg/L	10	+/- 1.0	A708888	42	+/- 4.0	0.50	A708888
Dissolved Strontium (Sr)	mg/L	0.12	+/- <RDL	A708888	0.12	+/- <RDL	0.020	A708888
Dissolved Sulphur (S)	mg/L	2.0	+/- 0.21	A708888	5.0	+/- 0.45	0.20	A708888
Dissolved Thallium (Tl)	mg/L	<0.00020	N/A	A708907	<0.00020	N/A	0.00020	A708907
Dissolved Tin (Sn)	mg/L	<0.0010	N/A	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Titanium (Ti)	mg/L	<0.0010	N/A	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Uranium (U)	mg/L	0.00042	+/- 0.00021	A708907	0.00035	+/- 0.00021	0.00010	A708907
Dissolved Vanadium (V)	mg/L	<0.0010	N/A	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Zinc (Zn)	mg/L	<0.0030	N/A	A708907	<0.0030	N/A	0.0030	A708907
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable								



ROUTINE WATER & DISS. REGULATED METALS (WATER)

Bureau Veritas ID		BBD272				BBD273			
Sampling Date		2022/08/15 10:15				2022/08/15 09:16			
COC Number		1 of 1				1 of 1			
	UNITS	SW22-3	MU	RDL	QC Batch	SW22-4	MU	RDL	QC Batch

Calculated Parameters									
Anion Sum	meq/L	5.8	N/A	N/A	A705432	6.3	N/A	N/A	A705432
Cation Sum	meq/L	5.6	N/A	N/A	A705432	7.1	N/A	N/A	A705432
Hardness (CaCO ₃)	mg/L	200	N/A	0.50	A705425	250	N/A	0.50	A705425
Ion Balance (% Difference)	%	1.8	N/A	N/A	A705427	6.0	N/A	N/A	A705427
Nitrate (N)	mg/L	0.090	N/A	0.010	A705869	2.9	N/A	0.050	A705869
Nitrate (NO ₃)	mg/L	0.40	N/A	0.044	A705438	13	N/A	0.22	A706938
Nitrite (NO ₂)	mg/L	<0.033	N/A	0.033	A705438	0.11	N/A	0.033	A706938
Calculated Total Dissolved Solids	mg/L	290	N/A	10	A705444	330	N/A	10	A705444

Elements									
Dissolved Cadmium (Cd)	ug/L	<0.020	N/A	0.020	A706410	<0.020	N/A	0.020	A706410

Misc. Inorganics									
Conductivity	uS/cm	560	+/- 15	2.0	A708761	600	+/- 16	2.0	A708761
pH	pH	7.61	+/- 0.0754	N/A	A708758	7.91	+/- 0.0784	N/A	A708758

Anions									
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	A708755	<1.0	N/A	1.0	A708755
Alkalinity (Total as CaCO ₃)	mg/L	230	+/- 17	1.0	A708755	260	+/- 19	1.0	A708755
Bicarbonate (HCO ₃)	mg/L	290	+/- 4.6	1.0	A708755	310	+/- 4.9	1.0	A708755
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	A708755	<1.0	N/A	1.0	A708755
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	A708755	<1.0	N/A	1.0	A708755
Chloride (Cl)	mg/L	30	+/- 2.7	1.0	A708338	26	+/- 2.3	1.0	A708338
Sulphate (SO ₄)	mg/L	10	+/- 1.2	1.0	A708338	12	+/- 1.3	1.0	A708338

Nutrients									
Nitrite (N)	mg/L	<0.010	N/A	0.010	A707840	0.035	+/- <RDL	0.010	A707840
Nitrate plus Nitrite (N)	mg/L	0.090	+/- 0.015	0.010	A707840	2.9	+/- 0.25	0.050	A707840

Elements									
Dissolved Aluminum (Al)	mg/L	0.0061	+/- <RDL	0.0030	A708907	0.0035	+/- <RDL	0.0030	A708907
Dissolved Antimony (Sb)	mg/L	<0.00060	N/A	0.00060	A708907	<0.00060	N/A	0.00060	A708907
Dissolved Arsenic (As)	mg/L	0.00089	+/- 0.00027	0.00020	A708907	0.00058	+/- 0.00021	0.00020	A708907
Dissolved Barium (Ba)	mg/L	0.019	+/- <RDL	0.010	A708888	0.038	+/- <RDL	0.010	A708890
Dissolved Beryllium (Be)	mg/L	<0.0010	N/A	0.0010	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Boron (B)	mg/L	0.075	+/- 0.020	0.020	A708888	0.064	+/- <RDL	0.020	A708890

RDL = Reportable Detection Limit

MU = Measurement Uncertainty

N/A = Not Applicable

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD272				BBD273			
Sampling Date		2022/08/15 10:15				2022/08/15 09:16			
COC Number		1 of 1				1 of 1			
	UNITS	SW22-3	MU	RDL	QC Batch	SW22-4	MU	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	47	+/- 3.8	0.30	A708888	61	+/- 5.0	0.30	A708890
Dissolved Chromium (Cr)	mg/L	<0.0010	N/A	0.0010	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Cobalt (Co)	mg/L	0.0012	+/- <RDL	0.00030	A708907	0.00039	+/- <RDL	0.00030	A708907
Dissolved Copper (Cu)	mg/L	0.0016	+/- <RDL	0.0010	A708907	0.0053	+/- <RDL	0.0010	A713777
Dissolved Iron (Fe)	mg/L	0.087	+/- <RDL	0.060	A708888	<0.060	N/A	0.060	A708890
Dissolved Lead (Pb)	mg/L	0.010	+/- 0.00070	0.00020	A708907	0.011	+/- 0.00076	0.00020	A708907
Dissolved Lithium (Li)	mg/L	<0.020	N/A	0.020	A708888	<0.020	N/A	0.020	A708890
Dissolved Magnesium (Mg)	mg/L	20	+/- 0.94	0.20	A708888	23	+/- 1.1	0.20	A708890
Dissolved Manganese (Mn)	mg/L	0.17	+/- 0.011	0.0040	A708888	<0.0040	N/A	0.0040	A708890
Dissolved Molybdenum (Mo)	mg/L	0.0032	+/- 0.00023	0.00020	A708907	0.00079	+/- <RDL	0.00020	A708907
Dissolved Nickel (Ni)	mg/L	0.0059	+/- 0.00073	0.00050	A708907	0.0037	+/- 0.00053	0.00050	A708907
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	0.10	A708888	<0.10	N/A	0.10	A708890
Dissolved Potassium (K)	mg/L	6.3	+/- 0.33	0.30	A708888	7.2	+/- 0.37	0.30	A708890
Dissolved Selenium (Se)	mg/L	0.00028	+/- <RDL	0.00020	A708907	0.00036	+/- 0.00020	0.00020	A708907
Dissolved Silicon (Si)	mg/L	0.62	+/- <RDL	0.50	A708888	0.92	+/- <RDL	0.50	A708890
Dissolved Silver (Ag)	mg/L	<0.00010	N/A	0.00010	A708907	<0.00010	N/A	0.00010	A708907
Dissolved Sodium (Na)	mg/L	19	+/- 1.9	0.50	A708888	16	+/- 1.6	0.50	A708890
Dissolved Strontium (Sr)	mg/L	0.17	+/- <RDL	0.020	A708888	0.25	+/- 0.023	0.020	A708890
Dissolved Sulphur (S)	mg/L	4.0	+/- 0.37	0.20	A708888	4.4	+/- 0.41	0.20	A708890
Dissolved Thallium (Tl)	mg/L	<0.00020	N/A	0.00020	A708907	<0.00020	N/A	0.00020	A708907
Dissolved Tin (Sn)	mg/L	<0.0010	N/A	0.0010	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Titanium (Ti)	mg/L	<0.0010	N/A	0.0010	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Uranium (U)	mg/L	0.0026	+/- 0.00045	0.00010	A708907	0.00064	+/- 0.00022	0.00010	A708907
Dissolved Vanadium (V)	mg/L	<0.0010	N/A	0.0010	A708907	<0.0010	N/A	0.0010	A708907
Dissolved Zinc (Zn)	mg/L	<0.0030	N/A	0.0030	A708907	<0.0030	N/A	0.0030	A708907
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable									



BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

ROUTINE WATER & DISS. REGULATED METALS (WATER)

Bureau Veritas ID		BBD273				BBD274		BBD274			
Sampling Date		2022/08/15 09:16				2022/08/14 15:25		2022/08/14 15:25			
COC Number		1 of 1				1 of 1		1 of 1			
	UNITS	SW22-4 Lab-Dup	MU	RDL	QC Batch	SW22-7	MU	SW22-7 Lab-Dup	MU	RDL	QC Batch

Calculated Parameters

Anion Sum	meq/L	N/A	N/A	N/A	A705432	2.6	N/A	N/A	N/A	N/A	A705432
Cation Sum	meq/L	N/A	N/A	N/A	A705432	2.6	N/A	N/A	N/A	N/A	A705432
Hardness (CaCO ₃)	mg/L	N/A	N/A	0.50	A705425	120	N/A	N/A	N/A	0.50	A705425
Ion Balance (% Difference)	%	N/A	N/A	N/A	A705427	0.69	N/A	N/A	N/A	N/A	A705427
Nitrate (N)	mg/L	N/A	N/A	0.050	A705869	<0.010	N/A	N/A	N/A	0.010	A705869
Nitrate (NO ₃)	mg/L	N/A	N/A	0.22	A706938	<0.044	N/A	N/A	N/A	0.044	A706938
Nitrite (NO ₂)	mg/L	N/A	N/A	0.033	A706938	<0.033	N/A	N/A	N/A	0.033	A706938
Calculated Total Dissolved Solids	mg/L	N/A	N/A	10	A705444	120	N/A	N/A	N/A	10	A705444

Elements

Dissolved Cadmium (Cd)	ug/L	N/A	N/A	0.020	A706410	<0.020	N/A	N/A	N/A	0.020	A706410
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Misc. Inorganics

Conductivity	uS/cm	N/A	N/A	2.0	A708761	250	+/- 7.2	N/A	N/A	2.0	A708761
pH	pH	N/A	N/A	N/A	A708758	7.09	+/- 0.0702	N/A	N/A	N/A	A708758

Anions

Alkalinity (PP as CaCO ₃)	mg/L	N/A	N/A	1.0	A708755	<1.0	N/A	N/A	N/A	1.0	A708755
Alkalinity (Total as CaCO ₃)	mg/L	N/A	N/A	1.0	A708755	120	+/- 8.9	N/A	N/A	1.0	A708755
Bicarbonate (HCO ₃)	mg/L	N/A	N/A	1.0	A708755	150	+/- 2.5	N/A	N/A	1.0	A708755
Carbonate (CO ₃)	mg/L	N/A	N/A	1.0	A708755	<1.0	N/A	N/A	N/A	1.0	A708755
Hydroxide (OH)	mg/L	N/A	N/A	1.0	A708755	<1.0	N/A	N/A	N/A	1.0	A708755
Chloride (Cl)	mg/L	N/A	N/A	1.0	A708338	4.7	+/- 1.2	N/A	N/A	1.0	A708338
Sulphate (SO ₄)	mg/L	N/A	N/A	1.0	A708338	1.3	+/- 1.0	N/A	N/A	1.0	A708338

Nutrients

Nitrite (N)	mg/L	N/A	N/A	0.010	A707840	<0.010	N/A	<0.010	N/A	0.010	A707840
Nitrate plus Nitrite (N)	mg/L	N/A	N/A	0.050	A707840	<0.010	N/A	<0.010	N/A	0.010	A707840

Elements

Dissolved Aluminum (Al)	mg/L	N/A	N/A	0.0030	A708907	0.0055	+/- <RDL	N/A	N/A	0.0030	A710371
Dissolved Antimony (Sb)	mg/L	N/A	N/A	0.00060	A708907	<0.00060	N/A	N/A	N/A	0.00060	A710371
Dissolved Arsenic (As)	mg/L	N/A	N/A	0.00020	A708907	0.00031	+/- <RDL	N/A	N/A	0.00020	A710371
Dissolved Barium (Ba)	mg/L	0.038	+/- <RDL	0.010	A708890	0.012	+/- <RDL	N/A	N/A	0.010	A708888
Dissolved Beryllium (Be)	mg/L	N/A	N/A	0.0010	A708907	<0.0010	N/A	N/A	N/A	0.0010	A710371
Dissolved Boron (B)	mg/L	0.066	+/- <RDL	0.020	A708890	<0.020	N/A	N/A	N/A	0.020	A708888

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

MU = Measurement Uncertainty

N/A = Not Applicable



ROUTINE WATER & DISS. REGULATED METALS (WATER)

Bureau Veritas ID		BBD273				BBD274		BBD274			
Sampling Date		2022/08/15 09:16				2022/08/14 15:25		2022/08/14 15:25			
COC Number		1 of 1				1 of 1		1 of 1			
	UNITS	SW22-4 Lab-Dup	MU	RDL	QC Batch	SW22-7	MU	SW22-7 Lab-Dup	MU	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	62	+/- 5.1	0.30	A708890	28	+/- 2.3	N/A	N/A	0.30	A708888
Dissolved Chromium (Cr)	mg/L	N/A	N/A	0.0010	A708907	<0.0010	N/A	N/A	N/A	0.0010	A710371
Dissolved Cobalt (Co)	mg/L	N/A	N/A	0.00030	A708907	<0.00030	N/A	N/A	N/A	0.00030	A710371
Dissolved Copper (Cu)	mg/L	N/A	N/A	0.0010	A713777	0.0013	+/- <RDL	N/A	N/A	0.0010	A710371
Dissolved Iron (Fe)	mg/L	<0.060	N/A	0.060	A708890	0.062	+/- <RDL	N/A	N/A	0.060	A708888
Dissolved Lead (Pb)	mg/L	N/A	N/A	0.00020	A708907	0.00085	+/- <RDL	N/A	N/A	0.00020	A710371
Dissolved Lithium (Li)	mg/L	<0.020	N/A	0.020	A708890	<0.020	N/A	N/A	N/A	0.020	A708888
Dissolved Magnesium (Mg)	mg/L	24	+/- 1.1	0.20	A708890	12	+/- 0.58	N/A	N/A	0.20	A708888
Dissolved Manganese (Mn)	mg/L	<0.0040	N/A	0.0040	A708890	0.015	+/- <RDL	N/A	N/A	0.0040	A708888
Dissolved Molybdenum (Mo)	mg/L	N/A	N/A	0.00020	A708907	0.0022	+/- <RDL	N/A	N/A	0.00020	A713777
Dissolved Nickel (Ni)	mg/L	N/A	N/A	0.00050	A708907	0.00090	+/- <RDL	N/A	N/A	0.00050	A710371
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	0.10	A708890	<0.10	N/A	N/A	N/A	0.10	A708888
Dissolved Potassium (K)	mg/L	7.3	+/- 0.37	0.30	A708890	0.87	+/- <RDL	N/A	N/A	0.30	A708888
Dissolved Selenium (Se)	mg/L	N/A	N/A	0.00020	A708907	<0.00020	N/A	N/A	N/A	0.00020	A710371
Dissolved Silicon (Si)	mg/L	0.93	+/- <RDL	0.50	A708890	<0.50	N/A	N/A	N/A	0.50	A708888
Dissolved Silver (Ag)	mg/L	N/A	N/A	0.00010	A708907	<0.00010	N/A	N/A	N/A	0.00010	A710371
Dissolved Sodium (Na)	mg/L	16	+/- 1.6	0.50	A708890	4.5	+/- 0.52	N/A	N/A	0.50	A708888
Dissolved Strontium (Sr)	mg/L	0.25	+/- 0.023	0.020	A708890	0.12	+/- <RDL	N/A	N/A	0.020	A708888
Dissolved Sulphur (S)	mg/L	4.5	+/- 0.41	0.20	A708890	1.0	+/- <RDL	N/A	N/A	0.20	A708888
Dissolved Thallium (Tl)	mg/L	N/A	N/A	0.00020	A708907	<0.00020	N/A	N/A	N/A	0.00020	A710371
Dissolved Tin (Sn)	mg/L	N/A	N/A	0.0010	A708907	<0.0010	N/A	N/A	N/A	0.0010	A710371
Dissolved Titanium (Ti)	mg/L	N/A	N/A	0.0010	A708907	<0.0010	N/A	N/A	N/A	0.0010	A710371
Dissolved Uranium (U)	mg/L	N/A	N/A	0.00010	A708907	<0.00010	N/A	N/A	N/A	0.00010	A710371
Dissolved Vanadium (V)	mg/L	N/A	N/A	0.0010	A708907	<0.0010	N/A	N/A	N/A	0.0010	A710371
Dissolved Zinc (Zn)	mg/L	N/A	N/A	0.0030	A708907	<0.0030	N/A	N/A	N/A	0.0030	A710371

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

MU = Measurement Uncertainty

N/A = Not Applicable

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD275			
Sampling Date		2022/08/15 10:30			
COC Number		1 of 1			
	UNITS	SW22-DUP	MU	RDL	QC Batch
Calculated Parameters					
Anion Sum	meq/L	5.7	N/A	N/A	A705432
Cation Sum	meq/L	5.8	N/A	N/A	A705432
Hardness (CaCO ₃)	mg/L	200	N/A	0.50	A706939
Ion Balance (% Difference)	%	0.27	N/A	N/A	A705427
Nitrate (N)	mg/L	0.088	N/A	0.010	A705869
Nitrate (NO ₃)	mg/L	0.39	N/A	0.044	A706938
Nitrite (NO ₂)	mg/L	<0.033	N/A	0.033	A706938
Calculated Total Dissolved Solids	mg/L	290	N/A	10	A705444
Elements					
Dissolved Cadmium (Cd)	ug/L	<0.020	N/A	0.020	A706410
Misc. Inorganics					
Conductivity	uS/cm	560	+/- 15	2.0	A708761
pH	pH	7.63	+/- 0.0756	N/A	A708758
Anions					
Alkalinity (PP as CaCO ₃)	mg/L	<1.0	N/A	1.0	A708755
Alkalinity (Total as CaCO ₃)	mg/L	230	+/- 17	1.0	A708755
Bicarbonate (HCO ₃)	mg/L	280	+/- 4.5	1.0	A708755
Carbonate (CO ₃)	mg/L	<1.0	N/A	1.0	A708755
Hydroxide (OH)	mg/L	<1.0	N/A	1.0	A708755
Chloride (Cl)	mg/L	31	+/- 2.7	1.0	A708348
Sulphate (SO ₄)	mg/L	11	+/- 1.3	1.0	A708348
Nutrients					
Nitrite (N)	mg/L	<0.010	N/A	0.010	A707839
Nitrate plus Nitrite (N)	mg/L	0.088	+/- 0.015	0.010	A707839
Elements					
Dissolved Aluminum (Al)	mg/L	0.0056	+/- <RDL	0.0030	A708907
Dissolved Antimony (Sb)	mg/L	<0.00060	N/A	0.00060	A708907
Dissolved Arsenic (As)	mg/L	0.00080	+/- 0.00025	0.00020	A708907
Dissolved Barium (Ba)	mg/L	0.019	+/- <RDL	0.010	A708888
Dissolved Beryllium (Be)	mg/L	<0.0010	N/A	0.0010	A708907
Dissolved Boron (B)	mg/L	0.074	+/- 0.020	0.020	A708888
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable					

**ROUTINE WATER & DISS. REGULATED METALS (WATER)**

Bureau Veritas ID		BBD275			
Sampling Date		2022/08/15 10:30			
COC Number		1 of 1			
	UNITS	SW22-DUP	MU	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	46	+/- 3.8	0.30	A708888
Dissolved Chromium (Cr)	mg/L	<0.0010	N/A	0.0010	A708907
Dissolved Cobalt (Co)	mg/L	0.0013	+/- <RDL	0.00030	A708907
Dissolved Copper (Cu)	mg/L	0.0016	+/- <RDL	0.0010	A708907
Dissolved Iron (Fe)	mg/L	0.092	+/- <RDL	0.060	A708888
Dissolved Lead (Pb)	mg/L	0.0098	+/- 0.00069	0.00020	A708907
Dissolved Lithium (Li)	mg/L	<0.020	N/A	0.020	A708888
Dissolved Magnesium (Mg)	mg/L	20	+/- 0.94	0.20	A708888
Dissolved Manganese (Mn)	mg/L	0.17	+/- 0.011	0.0040	A708888
Dissolved Molybdenum (Mo)	mg/L	0.0031	+/- 0.00023	0.00020	A708907
Dissolved Nickel (Ni)	mg/L	0.0055	+/- 0.00069	0.00050	A708907
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	0.10	A708888
Dissolved Potassium (K)	mg/L	6.2	+/- 0.33	0.30	A708888
Dissolved Selenium (Se)	mg/L	0.00028	+/- <RDL	0.00020	A708907
Dissolved Silicon (Si)	mg/L	0.60	+/- <RDL	0.50	A708888
Dissolved Silver (Ag)	mg/L	<0.00010	N/A	0.00010	A708907
Dissolved Sodium (Na)	mg/L	19	+/- 1.9	0.50	A708888
Dissolved Strontium (Sr)	mg/L	0.17	+/- <RDL	0.020	A708888
Dissolved Sulphur (S)	mg/L	4.0	+/- 0.37	0.20	A708888
Dissolved Thallium (Tl)	mg/L	<0.00020	N/A	0.00020	A708907
Dissolved Tin (Sn)	mg/L	<0.0010	N/A	0.0010	A708907
Dissolved Titanium (Ti)	mg/L	<0.0010	N/A	0.0010	A708907
Dissolved Uranium (U)	mg/L	0.0025	+/- 0.00044	0.00010	A708907
Dissolved Vanadium (V)	mg/L	<0.0010	N/A	0.0010	A708907
Dissolved Zinc (Zn)	mg/L	<0.0030	N/A	0.0030	A708907
RDL = Reportable Detection Limit					
MU = Measurement Uncertainty					
N/A = Not Applicable					

**REGULATED METALS (CCME/AT1) - DISSOLVED**

Bureau Veritas ID		BBD276			
Sampling Date		2022/08/14 16:10			
COC Number		1 of 1			
	UNITS	SW22-BG	MU	RDL	QC Batch
Elements					
Dissolved Aluminum (Al)	mg/L	0.0064	+/- <RDL	0.0030	A708902
Dissolved Antimony (Sb)	mg/L	<0.00060	N/A	0.00060	A708902
Dissolved Arsenic (As)	mg/L	0.00049	+/- <RDL	0.00020	A708902
Dissolved Barium (Ba)	mg/L	<0.010	N/A	0.010	A708887
Dissolved Beryllium (Be)	mg/L	<0.0010	N/A	0.0010	A708902
Dissolved Boron (B)	mg/L	<0.020	N/A	0.020	A708887
Dissolved Cadmium (Cd)	mg/L	<0.000020	N/A	0.000020	A708902
Dissolved Calcium (Ca)	mg/L	40	+/- 3.3	0.30	A708887
Dissolved Chromium (Cr)	mg/L	<0.0010	N/A	0.0010	A708902
Dissolved Cobalt (Co)	mg/L	<0.00030	N/A	0.00030	A708902
Dissolved Copper (Cu)	mg/L	0.0010	+/- <RDL	0.0010	A708902
Dissolved Iron (Fe)	mg/L	<0.060	N/A	0.060	A708887
Dissolved Lead (Pb)	mg/L	<0.00020	N/A	0.00020	A708902
Dissolved Lithium (Li)	mg/L	<0.020	N/A	0.020	A708887
Dissolved Magnesium (Mg)	mg/L	15	+/- 0.69	0.20	A708887
Dissolved Manganese (Mn)	mg/L	0.0040	+/- <RDL	0.0040	A708887
Dissolved Molybdenum (Mo)	mg/L	0.00063	+/- <RDL	0.00020	A708902
Dissolved Nickel (Ni)	mg/L	0.00066	+/- <RDL	0.00050	A708902
Dissolved Phosphorus (P)	mg/L	<0.10	N/A	0.10	A708887
Dissolved Potassium (K)	mg/L	0.43	+/- <RDL	0.30	A708887
Dissolved Selenium (Se)	mg/L	<0.00020	N/A	0.00020	A708902
Dissolved Silicon (Si)	mg/L	<0.50	N/A	0.50	A708887
Dissolved Silver (Ag)	mg/L	<0.00010	N/A	0.00010	A708902
Dissolved Sodium (Na)	mg/L	13	+/- 1.3	0.50	A708887
Dissolved Strontium (Sr)	mg/L	0.078	+/- <RDL	0.020	A708887
Dissolved Sulphur (S)	mg/L	1.1	+/- <RDL	0.20	A708887
Dissolved Thallium (Tl)	mg/L	<0.00020	N/A	0.00020	A708902
Dissolved Tin (Sn)	mg/L	<0.0010	N/A	0.0010	A708902
Dissolved Titanium (Ti)	mg/L	<0.0010	N/A	0.0010	A708902
Dissolved Uranium (U)	mg/L	0.00024	+/- 0.00020	0.00010	A708902
Dissolved Vanadium (V)	mg/L	<0.0010	N/A	0.0010	A708902
RDL = Reportable Detection Limit					
MU = Measurement Uncertainty					
N/A = Not Applicable					



REGULATED METALS (CCME/AT1) - DISSOLVED

Bureau Veritas ID		BBD276			
Sampling Date		2022/08/14 16:10			
COC Number		1 of 1			
	UNITS	SW22-BG	MU	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.0030	N/A	0.0030	A708902
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable					

**REGULATED METALS (CCME/AT1) - TOTAL**

Bureau Veritas ID		BBD268			BBD269			
Sampling Date		2022/08/15 17:30			2022/08/15 17:45			
COC Number		1 of 1			1 of 1			
	UNITS	TRIP BLANK	MU	QC Batch	FIELD BLANK	MU	RDL	QC Batch

Elements								
Total Aluminum (Al)	mg/L	0.0032	+/- <RDL	A708049	<0.0030	N/A	0.0030	A708060
Total Antimony (Sb)	mg/L	<0.00060	N/A	A708049	<0.00060	N/A	0.00060	A708060
Total Arsenic (As)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Barium (Ba)	mg/L	<0.010	N/A	A708053	<0.010	N/A	0.010	A708064
Total Beryllium (Be)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Boron (B)	mg/L	<0.020	N/A	A708053	<0.020	N/A	0.020	A708064
Total Cadmium (Cd)	mg/L	<0.000020	N/A	A708049	<0.000020	N/A	0.000020	A708060
Total Calcium (Ca)	mg/L	<0.30	N/A	A708053	<0.30	N/A	0.30	A708064
Total Chromium (Cr)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Cobalt (Co)	mg/L	<0.00030	N/A	A708049	<0.00030	N/A	0.00030	A708060
Total Copper (Cu)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Iron (Fe)	mg/L	<0.060	N/A	A708053	<0.060	N/A	0.060	A708064
Total Lead (Pb)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Lithium (Li)	mg/L	<0.020	N/A	A708053	<0.020	N/A	0.020	A708064
Total Magnesium (Mg)	mg/L	<0.20	N/A	A708053	<0.20	N/A	0.20	A708064
Total Manganese (Mn)	mg/L	<0.0040	N/A	A708053	<0.0040	N/A	0.0040	A708064
Total Molybdenum (Mo)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Nickel (Ni)	mg/L	<0.00050	N/A	A708049	<0.00050	N/A	0.00050	A708060
Total Phosphorus (P)	mg/L	<0.10	N/A	A708053	<0.10	N/A	0.10	A708064
Total Potassium (K)	mg/L	<0.30	N/A	A708053	<0.30	N/A	0.30	A708064
Total Selenium (Se)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Silicon (Si)	mg/L	<0.50	N/A	A708053	<0.50	N/A	0.50	A708064
Total Silver (Ag)	mg/L	<0.00010	N/A	A708049	<0.00010	N/A	0.00010	A708060
Total Sodium (Na)	mg/L	<0.50	N/A	A708053	<0.50	N/A	0.50	A708064
Total Strontium (Sr)	mg/L	<0.020	N/A	A708053	<0.020	N/A	0.020	A708064
Total Sulphur (S)	mg/L	<0.20	N/A	A708053	<0.20	N/A	0.20	A708064
Total Thallium (Tl)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Tin (Sn)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Titanium (Ti)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Uranium (U)	mg/L	<0.00010	N/A	A708049	<0.00010	N/A	0.00010	A708060
Total Vanadium (V)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060

RDL = Reportable Detection Limit

MU = Measurement Uncertainty

N/A = Not Applicable



REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD268			BBD269			
Sampling Date		2022/08/15 17:30			2022/08/15 17:45			
COC Number		1 of 1			1 of 1			
	UNITS	TRIP BLANK	MU	QC Batch	FIELD BLANK	MU	RDL	QC Batch
Total Zinc (Zn)	mg/L	<0.0030	N/A	A708049	<0.0030	N/A	0.0030	A708060
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable								

BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD270			BBD271			
Sampling Date		2022/08/15 10:46			2022/08/14 14:50			
COC Number		1 of 1			1 of 1			
	UNITS	SW22-1	MU	QC Batch	SW22-2	MU	RDL	QC Batch
Elements								
Total Aluminum (Al)	mg/L	0.083	+/- 0.016	A708049	0.0047	+/- <RDL	0.0030	A708060
Total Antimony (Sb)	mg/L	<0.00060	N/A	A708049	<0.00060	N/A	0.00060	A708060
Total Arsenic (As)	mg/L	0.00081	+/- <RDL	A708049	<0.00020	N/A	0.00020	A708060
Total Barium (Ba)	mg/L	<0.010	N/A	A708053	0.017	+/- <RDL	0.010	A708064
Total Beryllium (Be)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Boron (B)	mg/L	0.027	+/- <RDL	A708053	0.17	+/- 0.021	0.020	A708064
Total Cadmium (Cd)	mg/L	<0.000020	N/A	A708049	<0.000020	N/A	0.000020	A708060
Total Calcium (Ca)	mg/L	19	+/- 1.9	A708053	35	+/- 3.4	0.30	A708064
Total Chromium (Cr)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Cobalt (Co)	mg/L	<0.00030	N/A	A708049	<0.00030	N/A	0.00030	A708060
Total Copper (Cu)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Iron (Fe)	mg/L	0.15	+/- <RDL	A708053	<0.060	N/A	0.060	A708064
Total Lead (Pb)	mg/L	0.00097	+/- <RDL	A708049	<0.00020	N/A	0.00020	A708060
Total Lithium (Li)	mg/L	<0.020	N/A	A708053	<0.020	N/A	0.020	A708064
Total Magnesium (Mg)	mg/L	22	+/- 1.5	A708053	20	+/- 1.4	0.20	A708064
Total Manganese (Mn)	mg/L	0.0080	+/- <RDL	A708053	<0.0040	N/A	0.0040	A708064
Total Molybdenum (Mo)	mg/L	0.00094	+/- <RDL	A708049	0.0025	+/- 0.00046	0.00020	A708060
Total Nickel (Ni)	mg/L	0.0030	+/- <RDL	A708049	<0.00050	N/A	0.00050	A708060
Total Phosphorus (P)	mg/L	<0.10	N/A	A708053	<0.10	N/A	0.10	A708064
Total Potassium (K)	mg/L	1.3	+/- <RDL	A708053	3.1	+/- <RDL	0.30	A708064
Total Selenium (Se)	mg/L	<0.00020	N/A	A708049	0.00050	+/- <RDL	0.00020	A708060
Total Silicon (Si)	mg/L	1.5	+/- <RDL	A708053	1.2	+/- <RDL	0.50	A708064
Total Silver (Ag)	mg/L	<0.00010	N/A	A708049	<0.00010	N/A	0.00010	A708060
Total Sodium (Na)	mg/L	9.8	+/- 0.68	A708053	41	+/- 2.6	0.50	A708064
Total Strontium (Sr)	mg/L	0.12	+/- <RDL	A708053	0.11	+/- <RDL	0.020	A708064
Total Sulphur (S)	mg/L	1.8	+/- 0.24	A708053	5.1	+/- 0.57	0.20	A708064
Total Thallium (Tl)	mg/L	<0.00020	N/A	A708049	<0.00020	N/A	0.00020	A708060
Total Tin (Sn)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
Total Titanium (Ti)	mg/L	0.0027	+/- 0.0010	A708049	<0.0010	N/A	0.0010	A708060
Total Uranium (U)	mg/L	0.00043	+/- <RDL	A708049	0.00037	+/- <RDL	0.00010	A708060
Total Vanadium (V)	mg/L	<0.0010	N/A	A708049	<0.0010	N/A	0.0010	A708060
RDL = Reportable Detection Limit								
MU = Measurement Uncertainty								
N/A = Not Applicable								



BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD270			BBD271			
Sampling Date		2022/08/15 10:46			2022/08/14 14:50			
COC Number		1 of 1			1 of 1			
	UNITS	SW22-1	MU	QC Batch	SW22-2	MU	RDL	QC Batch
Total Zinc (Zn)	mg/L	<0.0030	N/A	A708049	<0.0030	N/A	0.0030	A708060
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable								

**REGULATED METALS (CCME/AT1) - TOTAL**

Bureau Veritas ID		BBD272		BBD272			
Sampling Date		2022/08/15 10:15		2022/08/15 10:15			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-3	MU	SW22-3 Lab-Dup	MU	RDL	QC Batch
Elements							
Total Aluminum (Al)	mg/L	0.025	+/- 0.0048	0.024	+/- 0.0047	0.0030	A708060
Total Antimony (Sb)	mg/L	<0.00060	N/A	<0.00060	N/A	0.00060	A708060
Total Arsenic (As)	mg/L	0.00085	+/- 0.00020	0.00080	+/- <RDL	0.00020	A708060
Total Barium (Ba)	mg/L	0.019	+/- <RDL	0.019	+/- <RDL	0.010	A708064
Total Beryllium (Be)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
Total Boron (B)	mg/L	0.076	+/- <RDL	0.078	+/- <RDL	0.020	A708064
Total Cadmium (Cd)	mg/L	<0.000020	N/A	<0.000020	N/A	0.000020	A708060
Total Calcium (Ca)	mg/L	45	+/- 4.5	46	+/- 4.6	0.30	A708064
Total Chromium (Cr)	mg/L	<0.0010 (1)	N/A	0.0040 (2)	+/- <RDL	0.0010	A708060
Total Cobalt (Co)	mg/L	0.0013	+/- <RDL	0.0013	+/- <RDL	0.00030	A708060
Total Copper (Cu)	mg/L	0.0016	+/- <RDL	0.0014	+/- <RDL	0.0010	A708060
Total Iron (Fe)	mg/L	0.12	+/- <RDL	0.13	+/- <RDL	0.060	A708064
Total Lead (Pb)	mg/L	0.012	+/- 0.0021	0.012	+/- 0.0021	0.00020	A708060
Total Lithium (Li)	mg/L	<0.020	N/A	<0.020	N/A	0.020	A708064
Total Magnesium (Mg)	mg/L	19	+/- 1.3	20	+/- 1.4	0.20	A708064
Total Manganese (Mn)	mg/L	0.17	+/- 0.012	0.17	+/- 0.012	0.0040	A708064
Total Molybdenum (Mo)	mg/L	0.0032	+/- 0.00059	0.0031	+/- 0.00056	0.00020	A708060
Total Nickel (Ni)	mg/L	0.0063	+/- 0.00093	0.0060	+/- 0.00089	0.00050	A708060
Total Phosphorus (P)	mg/L	<0.10	N/A	<0.10	N/A	0.10	A708064
Total Potassium (K)	mg/L	6.0	+/- 0.41	6.2	+/- 0.43	0.30	A708064
Total Selenium (Se)	mg/L	<0.00020	N/A	0.00021	+/- <RDL	0.00020	A708060
Total Silicon (Si)	mg/L	1.1	+/- <RDL	1.2	+/- <RDL	0.50	A708064
Total Silver (Ag)	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A708060
Total Sodium (Na)	mg/L	18	+/- 1.2	19	+/- 1.3	0.50	A708064
Total Strontium (Sr)	mg/L	0.16	+/- <RDL	0.17	+/- <RDL	0.020	A708064
Total Sulphur (S)	mg/L	3.9	+/- 0.45	4.1	+/- 0.47	0.20	A708064
Total Thallium (Tl)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708060
Total Tin (Sn)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							
MU = Measurement Uncertainty							
N/A = Not Applicable							
(1) Duplicate exceeds acceptance criteria due to sample matrix. Reanalysis yields similar results.							
(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.							



REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD272		BBD272			
Sampling Date		2022/08/15 10:15		2022/08/15 10:15			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-3	MU	SW22-3 Lab-Dup	MU	RDL	QC Batch
Total Titanium (Ti)	mg/L	0.0014	+/- <RDL	0.0013	+/- <RDL	0.0010	A708060
Total Uranium (U)	mg/L	0.0026	+/- 0.00017	0.0025	+/- 0.00017	0.00010	A708060
Total Vanadium (V)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
Total Zinc (Zn)	mg/L	<0.0030	N/A	<0.0030	N/A	0.0030	A708060
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate MU = Measurement Uncertainty N/A = Not Applicable							



REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD273		BBD274		BBD274			
Sampling Date		2022/08/15 09:16		2022/08/14 15:25		2022/08/14 15:25			
COC Number		1 of 1		1 of 1		1 of 1			
	UNITS	SW22-4	MU	SW22-7	MU	SW22-7 Lab-Dup	MU	RDL	QC Batch

Elements									
Total Aluminum (Al)	mg/L	0.030	+/- 0.0058	0.052	+/- 0.010	0.052	+/- 0.010	0.0030	A708049
Total Antimony (Sb)	mg/L	<0.00060	N/A	<0.00060	N/A	<0.00060	N/A	0.00060	A708049
Total Arsenic (As)	mg/L	0.00055	+/- <RDL	0.00046	+/- <RDL	0.00054	+/- <RDL	0.00020	A708049
Total Barium (Ba)	mg/L	0.035	+/- <RDL	0.013	+/- <RDL	0.013	+/- <RDL	0.010	A708053
Total Beryllium (Be)	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A708049
Total Boron (B)	mg/L	0.069	+/- <RDL	0.025	+/- <RDL	0.025	+/- <RDL	0.020	A708053
Total Cadmium (Cd)	mg/L	<0.000020	N/A	<0.000020	N/A	<0.000020	N/A	0.000020	A708049
Total Calcium (Ca)	mg/L	64	+/- 6.3	30	+/- 2.9	29	+/- 2.9	0.30	A708053
Total Chromium (Cr)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0018	+/- <RDL	0.0010	A708049
Total Cobalt (Co)	mg/L	0.00042	+/- <RDL	<0.00030	N/A	<0.00030	N/A	0.00030	A708049
Total Copper (Cu)	mg/L	0.0017	+/- <RDL	<0.0010	N/A	<0.0010	N/A	0.0010	A708049
Total Iron (Fe)	mg/L	<0.060	N/A	0.20	+/- <RDL	0.18	+/- <RDL	0.060	A708053
Total Lead (Pb)	mg/L	0.012	+/- 0.0022	0.0028	+/- 0.00051	0.0027	+/- 0.00049	0.00020	A708049
Total Lithium (Li)	mg/L	<0.020	N/A	<0.020	N/A	<0.020	N/A	0.020	A708053
Total Magnesium (Mg)	mg/L	24	+/- 1.6	12	+/- 0.85	12	+/- 0.85	0.20	A708053
Total Manganese (Mn)	mg/L	<0.0040	N/A	0.031	+/- <RDL	0.029	+/- <RDL	0.0040	A708053
Total Molybdenum (Mo)	mg/L	0.00082	+/- <RDL	0.00053	+/- <RDL	0.00044	+/- <RDL	0.00020	A708049
Total Nickel (Ni)	mg/L	0.0040	+/- 0.00059	0.0011	+/- <RDL	0.0015	+/- <RDL	0.00050	A708049
Total Phosphorus (P)	mg/L	<0.10	N/A	<0.10	N/A	<0.10	N/A	0.10	A708053
Total Potassium (K)	mg/L	7.4	+/- 0.50	0.90	+/- <RDL	0.87	+/- <RDL	0.30	A708053
Total Selenium (Se)	mg/L	0.00033	+/- <RDL	<0.00020	N/A	<0.00020	N/A	0.00020	A708049
Total Silicon (Si)	mg/L	1.3	+/- <RDL	0.67	+/- <RDL	0.63	+/- <RDL	0.50	A708053
Total Silver (Ag)	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A708049
Total Sodium (Na)	mg/L	17	+/- 1.1	4.6	+/- <RDL	4.6	+/- <RDL	0.50	A708053
Total Strontium (Sr)	mg/L	0.25	+/- 0.025	0.12	+/- <RDL	0.12	+/- <RDL	0.020	A708053
Total Sulphur (S)	mg/L	4.8	+/- 0.54	1.2	+/- <RDL	1.2	+/- <RDL	0.20	A708053
Total Thallium (Tl)	mg/L	<0.00020	N/A	<0.00020	N/A	<0.00020	N/A	0.00020	A708049
Total Tin (Sn)	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A708049
Total Titanium (Ti)	mg/L	<0.0010	N/A	0.0013	+/- <RDL	0.0021	+/- <RDL	0.0010	A708049
Total Uranium (U)	mg/L	0.00073	+/- <RDL	0.00013	+/- <RDL	0.00012	+/- <RDL	0.00010	A708049
Total Vanadium (V)	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A708049

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

MU = Measurement Uncertainty

N/A = Not Applicable



REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD273		BBD274		BBD274			
Sampling Date		2022/08/15 09:16		2022/08/14 15:25		2022/08/14 15:25			
COC Number		1 of 1		1 of 1		1 of 1			
	UNITS	SW22-4	MU	SW22-7	MU	SW22-7 Lab-Dup	MU	RDL	QC Batch
Total Zinc (Zn)	mg/L	<0.0030	N/A	<0.0030	N/A	<0.0030	N/A	0.0030	A708049

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

MU = Measurement Uncertainty

N/A = Not Applicable

**REGULATED METALS (CCME/AT1) - TOTAL**

Bureau Veritas ID		BBD275		BBD276			
Sampling Date		2022/08/15 10:30		2022/08/14 16:10			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-DUP	MU	SW22-BG	MU	RDL	QC Batch
Elements							
Total Aluminum (Al)	mg/L	0.023	+/- 0.0045	0.16	+/- 0.030	0.0030	A708060
Total Antimony (Sb)	mg/L	<0.00060	N/A	<0.00060	N/A	0.00060	A708060
Total Arsenic (As)	mg/L	0.00086	+/- 0.00020	0.00054	+/- <RDL	0.00020	A708060
Total Barium (Ba)	mg/L	0.019	+/- <RDL	<0.010	N/A	0.010	A708064
Total Beryllium (Be)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
Total Boron (B)	mg/L	0.081	+/- <RDL	<0.020	N/A	0.020	A708064
Total Cadmium (Cd)	mg/L	<0.000020	N/A	<0.000020	N/A	0.000020	A708060
Total Calcium (Ca)	mg/L	45	+/- 4.5	43	+/- 4.2	0.30	A708064
Total Chromium (Cr)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
Total Cobalt (Co)	mg/L	0.0013	+/- <RDL	<0.00030	N/A	0.00030	A708060
Total Copper (Cu)	mg/L	0.0015	+/- <RDL	<0.0010	N/A	0.0010	A708060
Total Iron (Fe)	mg/L	0.12	+/- <RDL	0.36	+/- <RDL	0.060	A708064
Total Lead (Pb)	mg/L	0.011	+/- 0.0020	0.00030	+/- <RDL	0.00020	A708060
Total Lithium (Li)	mg/L	<0.020	N/A	<0.020	N/A	0.020	A708064
Total Magnesium (Mg)	mg/L	19	+/- 1.3	16	+/- 1.1	0.20	A708064
Total Manganese (Mn)	mg/L	0.16	+/- 0.012	0.010	+/- <RDL	0.0040	A708064
Total Molybdenum (Mo)	mg/L	0.0032	+/- 0.00059	0.00058	+/- <RDL	0.00020	A708060
Total Nickel (Ni)	mg/L	0.0059	+/- 0.00087	0.00079	+/- <RDL	0.00050	A708060
Total Phosphorus (P)	mg/L	<0.10	N/A	<0.10	N/A	0.10	A708064
Total Potassium (K)	mg/L	6.1	+/- 0.42	0.54	+/- <RDL	0.30	A708064
Total Selenium (Se)	mg/L	0.00033	+/- <RDL	<0.00020	N/A	0.00020	A708060
Total Silicon (Si)	mg/L	1.2	+/- <RDL	1.0	+/- <RDL	0.50	A708064
Total Silver (Ag)	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A708060
Total Sodium (Na)	mg/L	18	+/- 1.2	13	+/- 0.87	0.50	A708064
Total Strontium (Sr)	mg/L	0.16	+/- <RDL	0.080	+/- <RDL	0.020	A708064
Total Sulphur (S)	mg/L	4.0	+/- 0.45	0.88	+/- <RDL	0.20	A708064
Total Thallium (Tl)	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A708060
Total Tin (Sn)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
Total Titanium (Ti)	mg/L	0.0011	+/- <RDL	0.0063	+/- 0.0014	0.0010	A708060
Total Uranium (U)	mg/L	0.0025	+/- 0.00017	0.00017	+/- <RDL	0.00010	A708060
Total Vanadium (V)	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A708060
RDL = Reportable Detection Limit							
MU = Measurement Uncertainty							
N/A = Not Applicable							



REGULATED METALS (CCME/AT1) - TOTAL

Bureau Veritas ID		BBD275		BBD276			
Sampling Date		2022/08/15 10:30		2022/08/14 16:10			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-DUP	MU	SW22-BG	MU	RDL	QC Batch
Total Zinc (Zn)	mg/L	<0.0030	N/A	<0.0030	N/A	0.0030	A708060
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BBD268		BBD268				BBD269			
Sampling Date		2022/08/15 17:30		2022/08/15 17:30				2022/08/15 17:45			
COC Number		1 of 1		1 of 1				1 of 1			
	UNITS	TRIP BLANK	MU	TRIP BLANK Lab-Dup	MU	RDL	QC Batch	FIELD BLANK	MU	RDL	QC Batch

Misc. Inorganics											
Total Suspended Solids	mg/L	<0.96	N/A	N/A	N/A	0.96	A708068	<1.0	N/A	1.0	A708068
Nutrients											
Total Ammonia (N)	mg/L	<0.015	N/A	<0.015	N/A	0.015	A710780	<0.015	N/A	0.015	A710781
Misc. Organics											
Total Oil and grease	mg/L	<2.0	N/A	N/A	N/A	2.0	A707794	2.0	+/- <RDL	2.0	A707794
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate MU = Measurement Uncertainty N/A = Not Applicable											

Bureau Veritas ID		BBD269					BBD270				
Sampling Date		2022/08/15 17:45					2022/08/15 10:46				
COC Number		1 of 1					1 of 1				
	UNITS	FIELD BLANK Lab-Dup	MU	RDL	QC Batch	SW22-1	MU	RDL	QC Batch		

Misc. Inorganics											
Total Suspended Solids	mg/L	N/A	N/A	1.0	A708068	3.9	+/- <RDL	0.99	A708068		
Nutrients											
Total Ammonia (N)	mg/L	<0.015	N/A	0.015	A710781	0.019	+/- <RDL	0.015	A710780		
Misc. Organics											
Total Oil and grease	mg/L	N/A	N/A	2.0	A707794	<2.0	N/A	2.0	A707794		
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate MU = Measurement Uncertainty N/A = Not Applicable											



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BBD271				BBD272			BBD273			
Sampling Date		2022/08/14 14:50				2022/08/15 10:15			2022/08/15 09:16			
COC Number		1 of 1				1 of 1			1 of 1			
	UNITS	SW22-2	MU	RDL	QC Batch	SW22-3	MU	RDL	SW22-4	MU	RDL	QC Batch

Misc. Inorganics

Total Suspended Solids	mg/L	3.7	+/- <RDL	1.0	A708068	3.3	+/- <RDL	0.99	1.8	+/- <RDL	0.95	A708068
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Nutrients

Total Ammonia (N)	mg/L	<0.015	N/A	0.015	A710781	8.3	+/- 0.89	0.075	17	+/- 1.9	0.15	A710780
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Misc. Organics

Total Oil and grease	mg/L	3.0	+/- <RDL	2.0	A707794	<2.0	N/A	2.0	4.0	+/- <RDL	2.0	A707794
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RDL = Reportable Detection Limit

MU = Measurement Uncertainty

N/A = Not Applicable

Bureau Veritas ID		BBD274				BBD274			BBD275			
Sampling Date		2022/08/14 15:25				2022/08/14 15:25			2022/08/15 10:30			
COC Number		1 of 1				1 of 1			1 of 1			
	UNITS	SW22-7	MU	RDL	SW22-7 Lab-Dup	MU	SW22-DUP	MU	RDL	QC Batch		

Misc. Inorganics

Total Suspended Solids	mg/L	6.4	+/- 1.2	0.97	7.7	+/- 1.4	2.7	+/- <RDL	1.0	A708068
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Nutrients

Total Ammonia (N)	mg/L	0.018	+/- <RDL	0.015	N/A	N/A	11	+/- 1.2	0.15	A710780
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Misc. Organics

Total Oil and grease	mg/L	<2.0	N/A	2.0	N/A	N/A	3.0	+/- <RDL	2.0	A707794
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

MU = Measurement Uncertainty

N/A = Not Applicable



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD268		BBD269		BBD270			
Sampling Date		2022/08/15 17:30		2022/08/15 17:45		2022/08/15 10:46			
COC Number		1 of 1		1 of 1		1 of 1			
	UNITS	TRIP BLANK	MU	FIELD BLANK	MU	SW22-1	MU	RDL	QC Batch
Polycyclic Aromatics									
B[a]P TPE Total Potency Equivalents	mg/L	<0.000010	N/A	<0.000010	N/A	<0.000010	N/A	0.000010	A705404
Acenaphthene	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acenaphthylene	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acridine	mg/L	<0.000040	N/A	<0.000040	N/A	<0.000040	N/A	0.000040	A707697
Anthracene	mg/L	<0.000010	N/A	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Benzo(a)anthracene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(b&j)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(k)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(g,h,i)perylene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(c)phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Benzo(a)pyrene	mg/L	<0.0000075	N/A	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Benzo(e)pyrene	mg/L	<0.000050	N/A	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Chrysene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Dibenz(a,h)anthracene	mg/L	<0.0000075	N/A	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Fluoranthene	mg/L	<0.000010	N/A	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Fluorene	mg/L	<0.000050	N/A	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Indeno(1,2,3-cd)pyrene	mg/L	<0.0000085	N/A	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
1-Methylnaphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
2-Methylnaphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Naphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Perylene	mg/L	<0.000050	N/A	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Pyrene	mg/L	<0.000020	N/A	<0.000020	N/A	<0.000020	N/A	0.000020	A707697
Quinoline	mg/L	<0.00020	N/A	<0.00020	N/A	<0.00020	N/A	0.00020	A707697
Phenols									
2,3,4-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Cresols	mg/L	<0.00014	N/A	<0.00014	N/A	<0.00014	N/A	0.00014	A705512
Phenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
3 & 4-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,4,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
RDL = Reportable Detection Limit									
MU = Measurement Uncertainty									
N/A = Not Applicable									



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD268		BBD269		BBD270			
Sampling Date		2022/08/15 17:30		2022/08/15 17:45		2022/08/15 10:46			
COC Number		1 of 1		1 of 1		1 of 1			
	UNITS	TRIP BLANK	MU	FIELD BLANK	MU	SW22-1	MU	RDL	QC Batch
2,4,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4,6-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dimethylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dinitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
2,6-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-methylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
3 & 4-methylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
4,6-dinitro-2-methylphenol	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
4-chloro-3-methylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
4-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
Pentachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	103	N/A	106	N/A	109	N/A	N/A	A707697
D8-ACENAPHTHYLENE (sur.)	%	84	N/A	84	N/A	65	N/A	N/A	A707697
D8-NAPHTHALENE (sur.)	%	78	N/A	79	N/A	36 (1)	N/A	N/A	A707697
TERPHENYL-D14 (sur.)	%	123	N/A	126	N/A	123	N/A	N/A	A707697
2,4,6-TRIBROMOPHENOL (sur.)	%	107	N/A	109	N/A	116	N/A	N/A	A709273
2,4-DIBROMOPHENOL (sur.)	%	103	N/A	106	N/A	109	N/A	N/A	A709273
RDL = Reportable Detection Limit									
MU = Measurement Uncertainty									
N/A = Not Applicable									
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.									



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD271		BBD272			
Sampling Date		2022/08/14 14:50		2022/08/15 10:15			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-2	MU	SW22-3	MU	RDL	QC Batch
Polycyclic Aromatics							
B[a]P TPE Total Potency Equivalents	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A705404
Acenaphthene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acenaphthylene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acridine	mg/L	<0.000040	N/A	<0.000040	N/A	0.000040	A707697
Anthracene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Benzo(a)anthracene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(b&j)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(k)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(g,h,i)perylene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(c)phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Benzo(a)pyrene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Benzo(e)pyrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Chrysene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Dibenz(a,h)anthracene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Fluoranthene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Fluorene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Indeno(1,2,3-cd)pyrene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
1-Methylnaphthalene	mg/L	<0.00010	N/A	0.00019	+/- <RDL	0.00010	A707697
2-Methylnaphthalene	mg/L	<0.00010	N/A	0.00013	+/- <RDL	0.00010	A707697
Naphthalene	mg/L	<0.00010	N/A	0.00052	+/- 0.00014	0.00010	A707697
Phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Perylene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Pyrene	mg/L	<0.000020	N/A	<0.000020	N/A	0.000020	A707697
Quinoline	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A707697
Phenols							
2,3,4-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Cresols	mg/L	<0.00014	N/A	0.0038	N/A	0.00014	A705512
Phenol	mg/L	<0.00010	N/A	0.0018	+/- 0.00055	0.00010	A709273
3 & 4-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,4,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable							



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD271		BBD272			
Sampling Date		2022/08/14 14:50		2022/08/15 10:15			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-2	MU	SW22-3	MU	RDL	QC Batch
2,4,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4,6-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dimethylphenol	mg/L	<0.00010	N/A	0.00010	+/- <RDL	0.00010	A709273
2,4-dinitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
2,6-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-methylphenol	mg/L	<0.00010	N/A	0.0015	+/- 0.00046	0.00010	A709273
2-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
3 & 4-methylphenol	mg/L	<0.00010	N/A	0.0023	+/- 0.00070	0.00010	A709273
4,6-dinitro-2-methylphenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
4-chloro-3-methylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
4-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
Pentachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Surrogate Recovery (%)							
D10-ANTHRACENE (sur.)	%	104	N/A	105	N/A	N/A	A707697
D8-ACENAPHTHYLENE (sur.)	%	81	N/A	74	N/A	N/A	A707697
D8-NAPHTHALENE (sur.)	%	71	N/A	49 (1)	N/A	N/A	A707697
TERPHENYL-D14 (sur.)	%	124	N/A	129	N/A	N/A	A707697
2,4,6-TRIBROMOPHENOL (sur.)	%	110	N/A	128	N/A	N/A	A709273
2,4-DIBROMOPHENOL (sur.)	%	106	N/A	98	N/A	N/A	A709273
RDL = Reportable Detection Limit MU = Measurement Uncertainty N/A = Not Applicable (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.							



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD273		BBD274			
Sampling Date		2022/08/15 09:16		2022/08/14 15:25			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-4	MU	SW22-7	MU	RDL	QC Batch

Polycyclic Aromatics

B[a]P TPE Total Potency Equivalents	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A705404
Acenaphthene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acenaphthylene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acridine	mg/L	<0.000040	N/A	<0.000040	N/A	0.000040	A707697
Anthracene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Benzo(a)anthracene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(b&j)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(k)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(g,h,i)perylene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(c)phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Benzo(a)pyrene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Benzo(e)pyrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Chrysene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Dibenz(a,h)anthracene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Fluoranthene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Fluorene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Indeno(1,2,3-cd)pyrene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
1-Methylnaphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
2-Methylnaphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Naphthalene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Perylene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Pyrene	mg/L	<0.000020	N/A	<0.000020	N/A	0.000020	A707697
Quinoline	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A707697

Phenols

2,3,4-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Cresols	mg/L	0.0011	N/A	0.00030	N/A	0.00014	A705512
Phenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
3 & 4-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,4,6-tetrachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273

RDL = Reportable Detection Limit

MU = Measurement Uncertainty

N/A = Not Applicable



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD273		BBD274			
Sampling Date		2022/08/15 09:16		2022/08/14 15:25			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-4	MU	SW22-7	MU	RDL	QC Batch
2,4,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4,6-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,3,5-trichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2,4-dimethylphenol	mg/L	0.00010	+/- <RDL	<0.00010	N/A	0.00010	A709273
2,4-dinitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
2,6-dichlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-chlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
2-methylphenol	mg/L	0.00080	+/- 0.00025	<0.00010	N/A	0.00010	A709273
2-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
3 & 4-methylphenol	mg/L	0.00030	+/- 0.00011	0.00030	+/- 0.00011	0.00010	A709273
4,6-dinitro-2-methylphenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
4-chloro-3-methylphenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
4-nitrophenol	mg/L	<0.0010	N/A	<0.0010	N/A	0.0010	A709273
Pentachlorophenol	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A709273
Surrogate Recovery (%)							
D10-ANTHRACENE (sur.)	%	109	N/A	78	N/A	N/A	A707697
D8-ACENAPHTHYLENE (sur.)	%	76	N/A	53	N/A	N/A	A707697
D8-NAPHTHALENE (sur.)	%	44 (1)	N/A	37 (1)	N/A	N/A	A707697
TERPHENYL-D14 (sur.)	%	125	N/A	92	N/A	N/A	A707697
2,4,6-TRIBROMOPHENOL (sur.)	%	119	N/A	118	N/A	N/A	A709273
2,4-DIBROMOPHENOL (sur.)	%	111	N/A	113	N/A	N/A	A709273
RDL = Reportable Detection Limit							
MU = Measurement Uncertainty							
N/A = Not Applicable							
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.							



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD275		BBD275			
Sampling Date		2022/08/15 10:30		2022/08/15 10:30			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-DUP	MU	SW22-DUP Lab-Dup	MU	RDL	QC Batch
Polycyclic Aromatics							
B[a]P TPE Total Potency Equivalents	mg/L	<0.000010	N/A	N/A	N/A	0.000010	A705404
Acenaphthene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acenaphthylene	mg/L	<0.00010	N/A	<0.00010	N/A	0.00010	A707697
Acridine	mg/L	<0.000040	N/A	<0.000040	N/A	0.000040	A707697
Anthracene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Benzo(a)anthracene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(b&j)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(k)fluoranthene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(g,h,i)perylene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Benzo(c)phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Benzo(a)pyrene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Benzo(e)pyrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Chrysene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
Dibenz(a,h)anthracene	mg/L	<0.0000075	N/A	<0.0000075	N/A	0.0000075	A707697
Fluoranthene	mg/L	<0.000010	N/A	<0.000010	N/A	0.000010	A707697
Fluorene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Indeno(1,2,3-cd)pyrene	mg/L	<0.0000085	N/A	<0.0000085	N/A	0.0000085	A707697
1-Methylnaphthalene	mg/L	0.00020	+/- <RDL	0.00019	+/- <RDL	0.00010	A707697
2-Methylnaphthalene	mg/L	0.00014	+/- <RDL	0.00014	+/- <RDL	0.00010	A707697
Naphthalene	mg/L	0.00054	+/- 0.00014	0.00052	+/- 0.00014	0.00010	A707697
Phenanthrene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Perylene	mg/L	<0.000050	N/A	<0.000050	N/A	0.000050	A707697
Pyrene	mg/L	<0.000020	N/A	<0.000020	N/A	0.000020	A707697
Quinoline	mg/L	<0.00020	N/A	<0.00020	N/A	0.00020	A707697
Phenols							
2,3,4-trichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
Cresols	mg/L	0.0036	N/A	N/A	N/A	0.00014	A705512
Phenol	mg/L	0.0017	+/- 0.00052	N/A	N/A	0.00010	A709273
3 & 4-chlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,3,5,6-tetrachlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,3,4,6-tetrachlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate MU = Measurement Uncertainty N/A = Not Applicable							



SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BBD275		BBD275			
Sampling Date		2022/08/15 10:30		2022/08/15 10:30			
COC Number		1 of 1		1 of 1			
	UNITS	SW22-DUP	MU	SW22-DUP Lab-Dup	MU	RDL	QC Batch
2,4,5-trichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,4,6-trichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,3,5-trichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,4-dichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2,4-dimethylphenol	mg/L	0.00020	+/- <RDL	N/A	N/A	0.00010	A709273
2,4-dinitrophenol	mg/L	<0.0010	N/A	N/A	N/A	0.0010	A709273
2,6-dichlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2-chlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
2-methylphenol	mg/L	0.0015	+/- 0.00046	N/A	N/A	0.00010	A709273
2-nitrophenol	mg/L	<0.0010	N/A	N/A	N/A	0.0010	A709273
3 & 4-methylphenol	mg/L	0.0021	+/- 0.00064	N/A	N/A	0.00010	A709273
4,6-dinitro-2-methylphenol	mg/L	<0.0010	N/A	N/A	N/A	0.0010	A709273
4-chloro-3-methylphenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
4-nitrophenol	mg/L	<0.0010	N/A	N/A	N/A	0.0010	A709273
Pentachlorophenol	mg/L	<0.00010	N/A	N/A	N/A	0.00010	A709273
Surrogate Recovery (%)							
D10-ANTHRACENE (sur.)	%	120	N/A	113	N/A	N/A	A707697
D8-ACENAPHTHYLENE (sur.)	%	81	N/A	76	N/A	N/A	A707697
D8-NAPHTHALENE (sur.)	%	51	N/A	48 (1)	N/A	N/A	A707697
TERPHENYL-D14 (sur.)	%	131 (1)	N/A	125	N/A	N/A	A707697
2,4,6-TRIBROMOPHENOL (sur.)	%	117	N/A	N/A	N/A	N/A	A709273
2,4-DIBROMOPHENOL (sur.)	%	91	N/A	N/A	N/A	N/A	A709273
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate MU = Measurement Uncertainty N/A = Not Applicable (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.							



GENERAL COMMENTS

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

Package 1	10.3°C
Package 2	12.7°C

Sample BBD268 [TRIP BLANK] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD269 [FIELD BLANK] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD270 [SW22-1] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for Phenols (semivolatile). Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID.

Sample BBD271 [SW22-2] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD272 [SW22-3] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD273 [SW22-4] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD274 [SW22-7] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

Sample BBD275 [SW22-DUP] : Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16). Sample was analyzed past method specified hold time for PAH in Water by GC/MS. 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 was analyzed past method specified hold time for NO₂ (N); NO₂ (N) + NO₃ (N) in Water. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO₃,HCO₃,OH. Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for Phenols (semivolatile).

The estimate of uncertainty has been reported as an expanded uncertainty and calculated using a coverage factor of 2, which gives a level of confidence of 95%.

Sample BBD273, Elements by ICPMS - Dissolved: Test repeated.

Sample BBD274, Elements by ICPMS - Dissolved: Test repeated.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C267211

Report Date: 2022/09/15

STANTEC CONSULTING LTD

Client Project #: 123514046

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A707697	NK3	Matrix Spike [BBD268-03]	D10-ANTHRACENE (sur.)	2022/09/09		111	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2022/09/09		88	%	50 - 130
			D8-NAPHTHALENE (sur.)	2022/09/09		84	%	50 - 130
			TERPHENYL-D14 (sur.)	2022/09/09		124	%	50 - 130
			Acenaphthene	2022/09/09		84	%	50 - 130
			Acenaphthylene	2022/09/09		85	%	50 - 130
			Acridine	2022/09/09		87	%	50 - 130
			Anthracene	2022/09/09		86	%	50 - 130
			Benzo(a)anthracene	2022/09/09		104	%	50 - 130
			Benzo(b&j)fluoranthene	2022/09/09		100	%	50 - 130
			Benzo(k)fluoranthene	2022/09/09		101	%	50 - 130
			Benzo(g,h,i)perylene	2022/09/09		116	%	50 - 130
			Benzo(c)phenanthrene	2022/09/09		110	%	50 - 130
			Benzo(a)pyrene	2022/09/09		97	%	50 - 130
			Benzo(e)pyrene	2022/09/09		93	%	50 - 130
			Chrysene	2022/09/09		105	%	50 - 130
			Dibenz(a,h)anthracene	2022/09/09		110	%	50 - 130
			Fluoranthene	2022/09/09		116	%	50 - 130
			Fluorene	2022/09/09		87	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2022/09/09		108	%	50 - 130
			1-Methylnaphthalene	2022/09/09		70	%	50 - 130
			2-Methylnaphthalene	2022/09/09		88	%	50 - 130
			Naphthalene	2022/09/09		85	%	50 - 130
			Phenanthrene	2022/09/09		91	%	50 - 130
			Perylene	2022/09/09		96	%	50 - 130
			Pyrene	2022/09/09		113	%	50 - 130
			Quinoline	2022/09/09		90	%	50 - 130
A707697	NK3	Spiked Blank	D10-ANTHRACENE (sur.)	2022/09/08		106	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2022/09/08		85	%	50 - 130
			D8-NAPHTHALENE (sur.)	2022/09/08		73	%	50 - 130
			TERPHENYL-D14 (sur.)	2022/09/08		125	%	50 - 130
			Acenaphthene	2022/09/08		78	%	50 - 130
			Acenaphthylene	2022/09/08		83	%	50 - 130
			Acridine	2022/09/08		83	%	50 - 130
			Anthracene	2022/09/08		84	%	50 - 130
			Benzo(a)anthracene	2022/09/08		107	%	50 - 130
			Benzo(b&j)fluoranthene	2022/09/08		102	%	50 - 130
			Benzo(k)fluoranthene	2022/09/08		102	%	50 - 130
			Benzo(g,h,i)perylene	2022/09/08		119	%	50 - 130
			Benzo(c)phenanthrene	2022/09/08		111	%	50 - 130
			Benzo(a)pyrene	2022/09/08		96	%	50 - 130
			Benzo(e)pyrene	2022/09/08		97	%	50 - 130
			Chrysene	2022/09/08		106	%	50 - 130
			Dibenz(a,h)anthracene	2022/09/08		113	%	50 - 130
			Fluoranthene	2022/09/08		112	%	50 - 130
			Fluorene	2022/09/08		81	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2022/09/08		111	%	50 - 130
			1-Methylnaphthalene	2022/09/08		65	%	50 - 130
			2-Methylnaphthalene	2022/09/08		79	%	50 - 130
			Naphthalene	2022/09/08		81	%	50 - 130
A707697	NK3	Method Blank	Phenanthrene	2022/09/08		85	%	50 - 130
			Perylene	2022/09/08		99	%	50 - 130
			Pyrene	2022/09/08		106	%	50 - 130
			Quinoline	2022/09/08		91	%	50 - 130
			D10-ANTHRACENE (sur.)	2022/09/08		106	%	50 - 130



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A707697	NK3	RPD [BBD275-03]	D8-ACENAPHTHYLENE (sur.)	2022/09/08		71	%	50 - 130
			D8-NAPHTHALENE (sur.)	2022/09/08		56	%	50 - 130
			TERPHENYL-D14 (sur.)	2022/09/08		129	%	50 - 130
			Acenaphthene	2022/09/08	<0.00010		mg/L	
			Acenaphthylene	2022/09/08	<0.00010		mg/L	
			Acridine	2022/09/08	<0.000040		mg/L	
			Anthracene	2022/09/08	<0.000010		mg/L	
			Benzo(a)anthracene	2022/09/08	<0.0000085		mg/L	
			Benzo(b&j)fluoranthene	2022/09/08	<0.0000085		mg/L	
			Benzo(k)fluoranthene	2022/09/08	<0.0000085		mg/L	
			Benzo(g,h,i)perylene	2022/09/08	<0.0000085		mg/L	
			Benzo(c)phenanthrene	2022/09/08	<0.000050		mg/L	
			Benzo(a)pyrene	2022/09/08	<0.0000075		mg/L	
			Benzo(e)pyrene	2022/09/08	<0.000050		mg/L	
			Chrysene	2022/09/08	<0.0000085		mg/L	
			Dibenz(a,h)anthracene	2022/09/08	<0.0000075		mg/L	
			Fluoranthene	2022/09/08	<0.000010		mg/L	
			Fluorene	2022/09/08	<0.000050		mg/L	
			Indeno(1,2,3-cd)pyrene	2022/09/08	<0.0000085		mg/L	
			1-Methylnaphthalene	2022/09/08	<0.00010		mg/L	
			2-Methylnaphthalene	2022/09/08	<0.00010		mg/L	
			Naphthalene	2022/09/08	<0.00010		mg/L	
			Phenanthrene	2022/09/08	<0.000050		mg/L	
			Perylene	2022/09/08	<0.000050		mg/L	
			Pyrene	2022/09/08	<0.000020		mg/L	
			Quinoline	2022/09/08	<0.00020		mg/L	
			Acenaphthene	2022/09/09	NC		%	30
			Acenaphthylene	2022/09/09	NC		%	30
			Acridine	2022/09/09	NC		%	30
			Anthracene	2022/09/09	NC		%	30
			Benzo(a)anthracene	2022/09/09	NC		%	30
			Benzo(b&j)fluoranthene	2022/09/09	NC		%	30
			Benzo(k)fluoranthene	2022/09/09	NC		%	30
			Benzo(g,h,i)perylene	2022/09/09	NC		%	30
			Benzo(c)phenanthrene	2022/09/09	NC		%	30
			Benzo(a)pyrene	2022/09/09	NC		%	30
			Benzo(e)pyrene	2022/09/09	NC		%	30
			Chrysene	2022/09/09	NC		%	30
			Dibenz(a,h)anthracene	2022/09/09	NC		%	30
			Fluoranthene	2022/09/09	NC		%	30
			Fluorene	2022/09/09	NC		%	30
			Indeno(1,2,3-cd)pyrene	2022/09/09	NC		%	30
			1-Methylnaphthalene	2022/09/09	3.1		%	30
			2-Methylnaphthalene	2022/09/09	1.5		%	30
			Naphthalene	2022/09/09	3.8		%	30
			Phenanthrene	2022/09/09	NC		%	30
			Perylene	2022/09/09	NC		%	30
			Pyrene	2022/09/09	NC		%	30
			Quinoline	2022/09/09	NC		%	30
A707699	CAU	Matrix Spike [BBD269-03]	O-TERPHENYL (sur.)	2022/09/09		102	%	60 - 140
A707699	CAU	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2022/09/09		84	%	60 - 140
A707699	CAU	Method Blank	O-TERPHENYL (sur.)	2022/09/09		101	%	60 - 140
A707699	CAU	Method Blank	F2 (C10-C16 Hydrocarbons)	2022/09/09		84	%	60 - 140
A707699	CAU	Method Blank	O-TERPHENYL (sur.)	2022/09/09		101	%	60 - 140
A707699	CAU	Method Blank	F2 (C10-C16 Hydrocarbons)	2022/09/09	<0.10		mg/L	



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A707699	CAU	RPD [BBD275-03]	F2 (C10-C16 Hydrocarbons)	2022/09/09	1.6		%	30
A707794	RSX	Matrix Spike	Total Oil and grease	2022/09/10		NC	%	70 - 130
A707794	RSX	Spiked Blank	Total Oil and grease	2022/09/10		105	%	70 - 130
A707794	RSX	Method Blank	Total Oil and grease	2022/09/10	<2.0		mg/L	
A707794	RSX	RPD	Total Oil and grease	2022/09/10	NC		%	40
A707839	SKM	Matrix Spike	Nitrite (N)	2022/09/07		NC	%	80 - 120
			Nitrate plus Nitrite (N)	2022/09/07		NC	%	80 - 120
A707839	SKM	Spiked Blank	Nitrite (N)	2022/09/07		101	%	80 - 120
			Nitrate plus Nitrite (N)	2022/09/07		102	%	80 - 120
A707839	SKM	Method Blank	Nitrite (N)	2022/09/07	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2022/09/07	<0.010		mg/L	
A707839	SKM	RPD	Nitrite (N)	2022/09/07	0.033		%	20
			Nitrate plus Nitrite (N)	2022/09/07	1.6		%	20
A707840	SKM	Matrix Spike [BBD274-05]	Nitrite (N)	2022/09/07		104	%	80 - 120
			Nitrate plus Nitrite (N)	2022/09/07		120	%	80 - 120
A707840	SKM	Spiked Blank	Nitrite (N)	2022/09/07		102	%	80 - 120
			Nitrate plus Nitrite (N)	2022/09/07		105	%	80 - 120
A707840	SKM	Method Blank	Nitrite (N)	2022/09/07	<0.010		mg/L	
			Nitrate plus Nitrite (N)	2022/09/07	<0.010		mg/L	
A707840	SKM	RPD [BBD274-05]	Nitrite (N)	2022/09/07	NC		%	20
			Nitrate plus Nitrite (N)	2022/09/07	NC		%	20
A708049	RY3	Matrix Spike [BBD270-07]	Total Aluminum (Al)	2022/09/09		96	%	80 - 120
			Total Antimony (Sb)	2022/09/09		95	%	80 - 120
			Total Arsenic (As)	2022/09/09		89	%	80 - 120
			Total Beryllium (Be)	2022/09/09		93	%	80 - 120
			Total Cadmium (Cd)	2022/09/09		95	%	80 - 120
			Total Chromium (Cr)	2022/09/09		92	%	80 - 120
			Total Cobalt (Co)	2022/09/09		92	%	80 - 120
			Total Copper (Cu)	2022/09/09		92	%	80 - 120
			Total Lead (Pb)	2022/09/09		91	%	80 - 120
			Total Molybdenum (Mo)	2022/09/09		96	%	80 - 120
			Total Nickel (Ni)	2022/09/09		91	%	80 - 120
			Total Selenium (Se)	2022/09/09		96	%	80 - 120
			Total Silver (Ag)	2022/09/09		95	%	80 - 120
			Total Thallium (Tl)	2022/09/09		92	%	80 - 120
			Total Tin (Sn)	2022/09/09		98	%	80 - 120
			Total Titanium (Ti)	2022/09/09		99	%	80 - 120
			Total Uranium (U)	2022/09/09		92	%	80 - 120
			Total Vanadium (V)	2022/09/09		94	%	80 - 120
			Total Zinc (Zn)	2022/09/09		89	%	80 - 120
A708049	RY3	Spiked Blank	Total Aluminum (Al)	2022/09/09		91	%	80 - 120
			Total Antimony (Sb)	2022/09/09		93	%	80 - 120
			Total Arsenic (As)	2022/09/09		89	%	80 - 120
			Total Beryllium (Be)	2022/09/09		91	%	80 - 120
			Total Cadmium (Cd)	2022/09/09		97	%	80 - 120
			Total Chromium (Cr)	2022/09/09		91	%	80 - 120
			Total Cobalt (Co)	2022/09/09		93	%	80 - 120
			Total Copper (Cu)	2022/09/09		93	%	80 - 120
			Total Lead (Pb)	2022/09/09		91	%	80 - 120
			Total Molybdenum (Mo)	2022/09/09		93	%	80 - 120
			Total Nickel (Ni)	2022/09/09		92	%	80 - 120
			Total Selenium (Se)	2022/09/09		91	%	80 - 120
			Total Silver (Ag)	2022/09/09		94	%	80 - 120
			Total Thallium (Tl)	2022/09/09		91	%	80 - 120
			Total Tin (Sn)	2022/09/09		95	%	80 - 120



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708049	RY3	Method Blank	Total Titanium (Ti)	2022/09/09		91	%	80 - 120
			Total Uranium (U)	2022/09/09		92	%	80 - 120
			Total Vanadium (V)	2022/09/09		94	%	80 - 120
			Total Zinc (Zn)	2022/09/09		90	%	80 - 120
			Total Aluminum (Al)	2022/09/09	<0.0030		mg/L	
			Total Antimony (Sb)	2022/09/09	<0.00060		mg/L	
			Total Arsenic (As)	2022/09/09	<0.00020		mg/L	
			Total Beryllium (Be)	2022/09/09	<0.0010		mg/L	
			Total Cadmium (Cd)	2022/09/09	<0.000020		mg/L	
			Total Chromium (Cr)	2022/09/09	<0.0010		mg/L	
			Total Cobalt (Co)	2022/09/09	<0.00030		mg/L	
			Total Copper (Cu)	2022/09/09	<0.0010		mg/L	
			Total Lead (Pb)	2022/09/09	<0.00020		mg/L	
			Total Molybdenum (Mo)	2022/09/09	<0.00020		mg/L	
			Total Nickel (Ni)	2022/09/09	<0.00050		mg/L	
			Total Selenium (Se)	2022/09/09	<0.00020		mg/L	
			Total Silver (Ag)	2022/09/09	<0.00010		mg/L	
			Total Thallium (Tl)	2022/09/09	<0.00020		mg/L	
			Total Tin (Sn)	2022/09/09	<0.0010		mg/L	
			Total Titanium (Ti)	2022/09/09	<0.0010		mg/L	
			Total Uranium (U)	2022/09/09	<0.00010		mg/L	
			Total Vanadium (V)	2022/09/09	<0.0010		mg/L	
			Total Zinc (Zn)	2022/09/09	<0.0030		mg/L	
A708049	RY3	RPD [BBD274-07]	Total Aluminum (Al)	2022/09/09	0.27		%	20
			Total Antimony (Sb)	2022/09/09	NC		%	20
			Total Arsenic (As)	2022/09/09	16		%	20
			Total Beryllium (Be)	2022/09/09	NC		%	20
			Total Cadmium (Cd)	2022/09/09	NC		%	20
			Total Chromium (Cr)	2022/09/09	NC		%	20
			Total Cobalt (Co)	2022/09/09	NC		%	20
			Total Copper (Cu)	2022/09/09	NC		%	20
			Total Lead (Pb)	2022/09/09	3.4		%	20
			Total Molybdenum (Mo)	2022/09/09	17		%	20
			Total Nickel (Ni)	2022/09/09	NC		%	20
			Total Selenium (Se)	2022/09/09	NC		%	20
			Total Silver (Ag)	2022/09/09	NC		%	20
			Total Thallium (Tl)	2022/09/09	NC		%	20
			Total Tin (Sn)	2022/09/09	NC		%	20
			Total Titanium (Ti)	2022/09/09	NC		%	20
			Total Uranium (U)	2022/09/09	6.4		%	20
			Total Vanadium (V)	2022/09/09	NC		%	20
			Total Zinc (Zn)	2022/09/09	NC		%	20
A708053	PC5	Matrix Spike [BBD273-07]	Total Barium (Ba)	2022/09/08		100	%	80 - 120
			Total Boron (B)	2022/09/08		97	%	80 - 120
			Total Calcium (Ca)	2022/09/08		NC	%	80 - 120
			Total Iron (Fe)	2022/09/08		103	%	80 - 120
			Total Lithium (Li)	2022/09/08		100	%	80 - 120
			Total Magnesium (Mg)	2022/09/08		96	%	80 - 120
			Total Manganese (Mn)	2022/09/08		103	%	80 - 120
			Total Phosphorus (P)	2022/09/08		97	%	80 - 120
			Total Potassium (K)	2022/09/08		102	%	80 - 120
			Total Silicon (Si)	2022/09/08		96	%	80 - 120
			Total Sodium (Na)	2022/09/08		99	%	80 - 120
			Total Strontium (Sr)	2022/09/08		96	%	80 - 120
			Total Sulphur (S)	2022/09/08		96	%	80 - 120



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708053	PC5	Spiked Blank	Total Barium (Ba)	2022/09/08		101	%	80 - 120
			Total Boron (B)	2022/09/08		97	%	80 - 120
			Total Calcium (Ca)	2022/09/08		99	%	80 - 120
			Total Iron (Fe)	2022/09/08		106	%	80 - 120
			Total Lithium (Li)	2022/09/08		99	%	80 - 120
			Total Magnesium (Mg)	2022/09/08		99	%	80 - 120
			Total Manganese (Mn)	2022/09/08		106	%	80 - 120
			Total Phosphorus (P)	2022/09/08		97	%	80 - 120
			Total Potassium (K)	2022/09/08		103	%	80 - 120
			Total Silicon (Si)	2022/09/08		98	%	80 - 120
			Total Sodium (Na)	2022/09/08		100	%	80 - 120
			Total Strontium (Sr)	2022/09/08		96	%	80 - 120
			Total Sulphur (S)	2022/09/08		93	%	80 - 120
			Total Barium (Ba)	2022/09/08	<0.010		mg/L	
A708053	PC5	Method Blank	Total Boron (B)	2022/09/08	<0.020		mg/L	
			Total Calcium (Ca)	2022/09/08	<0.30		mg/L	
			Total Iron (Fe)	2022/09/08	<0.060		mg/L	
			Total Lithium (Li)	2022/09/08	<0.020		mg/L	
			Total Magnesium (Mg)	2022/09/08	<0.20		mg/L	
			Total Manganese (Mn)	2022/09/08	<0.0040		mg/L	
			Total Phosphorus (P)	2022/09/08	<0.10		mg/L	
			Total Potassium (K)	2022/09/08	<0.30		mg/L	
			Total Silicon (Si)	2022/09/08	<0.50		mg/L	
			Total Sodium (Na)	2022/09/08	<0.50		mg/L	
			Total Strontium (Sr)	2022/09/08	<0.020		mg/L	
			Total Sulphur (S)	2022/09/08	<0.20		mg/L	
A708053	PC5	RPD [BBD274-07]	Total Barium (Ba)	2022/09/08	0.75		%	20
			Total Boron (B)	2022/09/08	2.8		%	20
			Total Calcium (Ca)	2022/09/08	1.0		%	20
			Total Iron (Fe)	2022/09/08	13		%	20
			Total Lithium (Li)	2022/09/08	NC		%	20
			Total Magnesium (Mg)	2022/09/08	0.50		%	20
			Total Manganese (Mn)	2022/09/08	7.6		%	20
			Total Phosphorus (P)	2022/09/08	NC		%	20
			Total Potassium (K)	2022/09/08	4.0		%	20
			Total Silicon (Si)	2022/09/08	6.0		%	20
			Total Sodium (Na)	2022/09/08	0.55		%	20
			Total Strontium (Sr)	2022/09/08	0.65		%	20
			Total Sulphur (S)	2022/09/08	2.9		%	20
A708060	RY3	Matrix Spike [BBD275-07]	Total Aluminum (Al)	2022/09/08		87	%	80 - 120
			Total Antimony (Sb)	2022/09/08		94	%	80 - 120
			Total Arsenic (As)	2022/09/08		86	%	80 - 120
			Total Beryllium (Be)	2022/09/08		86	%	80 - 120
			Total Cadmium (Cd)	2022/09/08		87	%	80 - 120
			Total Chromium (Cr)	2022/09/08		87	%	80 - 120
			Total Cobalt (Co)	2022/09/08		88	%	80 - 120
			Total Copper (Cu)	2022/09/08		87	%	80 - 120
			Total Lead (Pb)	2022/09/08		87	%	80 - 120
			Total Molybdenum (Mo)	2022/09/08		96	%	80 - 120
			Total Nickel (Ni)	2022/09/08		87	%	80 - 120
			Total Selenium (Se)	2022/09/08		87	%	80 - 120
			Total Silver (Ag)	2022/09/08		89	%	80 - 120
			Total Thallium (Tl)	2022/09/08		88	%	80 - 120
			Total Tin (Sn)	2022/09/08		96	%	80 - 120
			Total Titanium (Ti)	2022/09/08		94	%	80 - 120



BUREAU
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STANTEC CONSULTING LTD

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708060	RY3	Spiked Blank	Total Uranium (U)	2022/09/08		88	%	80 - 120
			Total Vanadium (V)	2022/09/08		89	%	80 - 120
			Total Zinc (Zn)	2022/09/08		86	%	80 - 120
			Total Aluminum (Al)	2022/09/08		94	%	80 - 120
			Total Antimony (Sb)	2022/09/08		96	%	80 - 120
			Total Arsenic (As)	2022/09/08		91	%	80 - 120
			Total Beryllium (Be)	2022/09/08		91	%	80 - 120
			Total Cadmium (Cd)	2022/09/08		93	%	80 - 120
			Total Chromium (Cr)	2022/09/08		94	%	80 - 120
			Total Cobalt (Co)	2022/09/08		94	%	80 - 120
			Total Copper (Cu)	2022/09/08		93	%	80 - 120
			Total Lead (Pb)	2022/09/08		92	%	80 - 120
			Total Molybdenum (Mo)	2022/09/08		98	%	80 - 120
			Total Nickel (Ni)	2022/09/08		93	%	80 - 120
			Total Selenium (Se)	2022/09/08		92	%	80 - 120
			Total Silver (Ag)	2022/09/08		95	%	80 - 120
			Total Thallium (Tl)	2022/09/08		93	%	80 - 120
			Total Tin (Sn)	2022/09/08		96	%	80 - 120
			Total Titanium (Ti)	2022/09/08		94	%	80 - 120
			Total Uranium (U)	2022/09/08		92	%	80 - 120
A708060	RY3	Method Blank	Total Vanadium (V)	2022/09/08		94	%	80 - 120
			Total Zinc (Zn)	2022/09/08		91	%	80 - 120
			Total Aluminum (Al)	2022/09/09	<0.0030		mg/L	
			Total Antimony (Sb)	2022/09/09	<0.00060		mg/L	
			Total Arsenic (As)	2022/09/09	<0.00020		mg/L	
			Total Beryllium (Be)	2022/09/09	<0.0010		mg/L	
			Total Cadmium (Cd)	2022/09/09	<0.000020		mg/L	
			Total Chromium (Cr)	2022/09/09	<0.0010		mg/L	
			Total Cobalt (Co)	2022/09/09	<0.00030		mg/L	
			Total Copper (Cu)	2022/09/09	<0.0010		mg/L	
			Total Lead (Pb)	2022/09/09	<0.00020		mg/L	
			Total Molybdenum (Mo)	2022/09/09	<0.00020		mg/L	
			Total Nickel (Ni)	2022/09/09	<0.00050		mg/L	
			Total Selenium (Se)	2022/09/09	<0.00020		mg/L	
			Total Silver (Ag)	2022/09/09	<0.00010		mg/L	
			Total Thallium (Tl)	2022/09/09	<0.00020		mg/L	
			Total Tin (Sn)	2022/09/09	<0.0010		mg/L	
			Total Titanium (Ti)	2022/09/09	<0.0010		mg/L	
			Total Uranium (U)	2022/09/09	<0.00010		mg/L	
			Total Vanadium (V)	2022/09/09	<0.0010		mg/L	
A708060	RY3	RPD [BBD272-07]	Total Zinc (Zn)	2022/09/09	<0.0030		mg/L	
			Total Aluminum (Al)	2022/09/09	2.6		%	20
			Total Antimony (Sb)	2022/09/09	NC		%	20
			Total Arsenic (As)	2022/09/09	5.5		%	20
			Total Beryllium (Be)	2022/09/09	NC		%	20
			Total Cadmium (Cd)	2022/09/09	NC		%	20
			Total Chromium (Cr)	2022/09/09	120 (1)		%	20
			Total Cobalt (Co)	2022/09/09	1.5		%	20
			Total Copper (Cu)	2022/09/09	8.2		%	20
			Total Lead (Pb)	2022/09/09	2.9		%	20
			Total Molybdenum (Mo)	2022/09/09	4.5		%	20
			Total Nickel (Ni)	2022/09/09	4.4		%	20
			Total Selenium (Se)	2022/09/09	6.8		%	20
			Total Silver (Ag)	2022/09/09	NC		%	20
			Total Thallium (Tl)	2022/09/09	NC		%	20



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708064	MPU	Matrix Spike [BBD276-02]	Total Tin (Sn)	2022/09/09	NC		%	20
			Total Titanium (Ti)	2022/09/09	7.5		%	20
			Total Uranium (U)	2022/09/09	1.8		%	20
			Total Vanadium (V)	2022/09/09	NC		%	20
			Total Zinc (Zn)	2022/09/09	NC		%	20
			Total Barium (Ba)	2022/09/08		103	%	80 - 120
			Total Boron (B)	2022/09/08		100	%	80 - 120
			Total Calcium (Ca)	2022/09/08		NC	%	80 - 120
			Total Iron (Fe)	2022/09/08		105	%	80 - 120
			Total Lithium (Li)	2022/09/08		103	%	80 - 120
			Total Magnesium (Mg)	2022/09/08		103	%	80 - 120
			Total Manganese (Mn)	2022/09/08		103	%	80 - 120
			Total Phosphorus (P)	2022/09/08		101	%	80 - 120
			Total Potassium (K)	2022/09/08		108	%	80 - 120
			Total Silicon (Si)	2022/09/08		102	%	80 - 120
			Total Sodium (Na)	2022/09/08		105	%	80 - 120
			Total Strontium (Sr)	2022/09/08		99	%	80 - 120
			Total Sulphur (S)	2022/09/08		100	%	80 - 120
A708064	MPU	Spiked Blank	Total Barium (Ba)	2022/09/08		100	%	80 - 120
			Total Boron (B)	2022/09/08		97	%	80 - 120
			Total Calcium (Ca)	2022/09/08		99	%	80 - 120
			Total Iron (Fe)	2022/09/08		102	%	80 - 120
			Total Lithium (Li)	2022/09/08		99	%	80 - 120
			Total Magnesium (Mg)	2022/09/08		98	%	80 - 120
			Total Manganese (Mn)	2022/09/08		103	%	80 - 120
			Total Phosphorus (P)	2022/09/08		97	%	80 - 120
			Total Potassium (K)	2022/09/08		103	%	80 - 120
			Total Silicon (Si)	2022/09/08		98	%	80 - 120
			Total Sodium (Na)	2022/09/08		100	%	80 - 120
			Total Strontium (Sr)	2022/09/08		97	%	80 - 120
			Total Sulphur (S)	2022/09/08		92	%	80 - 120
A708064	MPU	Method Blank	Total Barium (Ba)	2022/09/08	<0.010		mg/L	
			Total Boron (B)	2022/09/08	<0.020		mg/L	
			Total Calcium (Ca)	2022/09/08	<0.30		mg/L	
			Total Iron (Fe)	2022/09/08	<0.060		mg/L	
			Total Lithium (Li)	2022/09/08	<0.020		mg/L	
			Total Magnesium (Mg)	2022/09/08	<0.20		mg/L	
			Total Manganese (Mn)	2022/09/08	<0.0040		mg/L	
			Total Phosphorus (P)	2022/09/08	<0.10		mg/L	
			Total Potassium (K)	2022/09/08	<0.30		mg/L	
			Total Silicon (Si)	2022/09/08	<0.50		mg/L	
			Total Sodium (Na)	2022/09/08	<0.50		mg/L	
			Total Strontium (Sr)	2022/09/08	<0.020		mg/L	
			Total Sulphur (S)	2022/09/08	<0.20		mg/L	
A708064	MPU	RPD [BBD272-07]	Total Barium (Ba)	2022/09/08	1.6		%	20
			Total Boron (B)	2022/09/08	2.2		%	20
			Total Calcium (Ca)	2022/09/08	2.7		%	20
			Total Iron (Fe)	2022/09/08	12		%	20
			Total Lithium (Li)	2022/09/08	NC		%	20
			Total Magnesium (Mg)	2022/09/08	2.2		%	20
			Total Manganese (Mn)	2022/09/08	2.8		%	20
			Total Phosphorus (P)	2022/09/08	NC		%	20
			Total Potassium (K)	2022/09/08	3.4		%	20
			Total Silicon (Si)	2022/09/08	4.9		%	20
			Total Sodium (Na)	2022/09/08	2.9		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708068	LYV	Matrix Spike [BBD271-04]	Total Strontium (Sr)	2022/09/08	2.2		%	20
			Total Sulphur (S)	2022/09/08	4.1		%	20
			Total Suspended Solids	2022/09/08		92	%	80 - 120
			Total Suspended Solids	2022/09/08		93	%	80 - 120
			Total Suspended Solids	2022/09/08	<0.99		mg/L	
			Total Suspended Solids	2022/09/08	18		%	20
			1,4-Difluorobenzene (sur.)	2022/09/08		97	%	50 - 140
			4-Bromofluorobenzene (sur.)	2022/09/08		98	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2022/09/08		95	%	50 - 140
			Benzene	2022/09/08		94	%	50 - 140
A708204	RSU	Matrix Spike [BBD271-08]	Toluene	2022/09/08		89	%	50 - 140
			Ethylbenzene	2022/09/08		93	%	50 - 140
			m & p-Xylene	2022/09/08		95	%	50 - 140
			o-Xylene	2022/09/08		96	%	50 - 140
			F1 (C6-C10)	2022/09/08		95	%	60 - 140
			1,4-Difluorobenzene (sur.)	2022/09/09		96	%	50 - 140
			4-Bromofluorobenzene (sur.)	2022/09/09		101	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2022/09/09		93	%	50 - 140
			Benzene	2022/09/09		94	%	60 - 130
			Toluene	2022/09/09		90	%	60 - 130
A708204	RSU	Spiked Blank	Ethylbenzene	2022/09/09		95	%	60 - 130
			m & p-Xylene	2022/09/09		96	%	60 - 130
			o-Xylene	2022/09/09		97	%	60 - 130
			F1 (C6-C10)	2022/09/09		105	%	60 - 140
			1,4-Difluorobenzene (sur.)	2022/09/08		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2022/09/08		97	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2022/09/08		97	%	50 - 140
			Benzene	2022/09/08	<0.00040		mg/L	
			Toluene	2022/09/08	<0.00040		mg/L	
			Ethylbenzene	2022/09/08	<0.00040		mg/L	
A708204	RSU	Method Blank	m & p-Xylene	2022/09/08	<0.00080		mg/L	
			o-Xylene	2022/09/08	<0.00040		mg/L	
			F1 (C6-C10)	2022/09/08	<0.10		mg/L	
			Benzene	2022/09/08	NC		%	30
			Toluene	2022/09/08	NC		%	30
			Ethylbenzene	2022/09/08	NC		%	30
			m & p-Xylene	2022/09/08	NC		%	30
			o-Xylene	2022/09/08	NC		%	30
			F1 (C6-C10)	2022/09/08	NC		%	30
			Chloride (Cl)	2022/09/08		NC	%	80 - 120
A708338	TOR	Matrix Spike	Sulphate (SO4)	2022/09/08		NC	%	80 - 120
			Chloride (Cl)	2022/09/08		103	%	80 - 120
A708338	TOR	Spiked Blank	Sulphate (SO4)	2022/09/08		100	%	80 - 120
			Chloride (Cl)	2022/09/08	<1.0		mg/L	
A708338	TOR	Method Blank	Sulphate (SO4)	2022/09/08	<1.0		mg/L	
			Chloride (Cl)	2022/09/08	1.9		%	20
A708338	TOR	RPD	Sulphate (SO4)	2022/09/08	1.5		%	20
			Chloride (Cl)	2022/09/08		NC	%	80 - 120
A708348	TOR	Matrix Spike	Sulphate (SO4)	2022/09/08		NC	%	80 - 120
			Chloride (Cl)	2022/09/08		102	%	80 - 120
A708348	TOR	Spiked Blank	Sulphate (SO4)	2022/09/08		102	%	80 - 120
			Chloride (Cl)	2022/09/08	<1.0		mg/L	
A708348	TOR	Method Blank	Sulphate (SO4)	2022/09/08	<1.0		mg/L	
			Chloride (Cl)	2022/09/08	1.6		%	20
A708348	TOR	RPD	Sulphate (SO4)	2022/09/08	0.42		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708755	JLD	Spiked Blank	Alkalinity (Total as CaCO ₃)	2022/09/08		97	%	80 - 120
A708755	JLD	Method Blank	Alkalinity (PP as CaCO ₃)	2022/09/08	<1.0		mg/L	
			Alkalinity (Total as CaCO ₃)	2022/09/08	<1.0		mg/L	
			Bicarbonate (HCO ₃)	2022/09/08	<1.0		mg/L	
			Carbonate (CO ₃)	2022/09/08	<1.0		mg/L	
			Hydroxide (OH)	2022/09/08	<1.0		mg/L	
A708755	JLD	RPD	Alkalinity (PP as CaCO ₃)	2022/09/08	NC		%	20
			Alkalinity (Total as CaCO ₃)	2022/09/08	2.0		%	20
			Bicarbonate (HCO ₃)	2022/09/08	2.0		%	20
			Carbonate (CO ₃)	2022/09/08	NC		%	20
			Hydroxide (OH)	2022/09/08	NC		%	20
A708758	JLD	Spiked Blank	pH	2022/09/08		99	%	97 - 103
A708758	JLD	RPD	pH	2022/09/08	0.31		%	N/A
A708761	JLD	Spiked Blank	Conductivity	2022/09/08		99	%	90 - 110
A708761	JLD	Method Blank	Conductivity	2022/09/08	<2.0		uS/cm	
A708761	JLD	RPD	Conductivity	2022/09/08	1.4		%	10
A708887	MPU	Matrix Spike	Dissolved Barium (Ba)	2022/09/08		94	%	80 - 120
			Dissolved Boron (B)	2022/09/08		NC	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/08		95	%	80 - 120
			Dissolved Iron (Fe)	2022/09/08		97	%	80 - 120
			Dissolved Lithium (Li)	2022/09/08		97	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/08		95	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/08		98	%	80 - 120
			Dissolved Phosphorus (P)	2022/09/08		97	%	80 - 120
			Dissolved Potassium (K)	2022/09/08		98	%	80 - 120
			Dissolved Silicon (Si)	2022/09/08		NC	%	80 - 120
			Dissolved Sodium (Na)	2022/09/08		NC	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/08		89	%	80 - 120
			Dissolved Sulphur (S)	2022/09/08		94	%	80 - 120
A708887	MPU	Spiked Blank	Dissolved Barium (Ba)	2022/09/08		98	%	80 - 120
			Dissolved Boron (B)	2022/09/08		93	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/08		97	%	80 - 120
			Dissolved Iron (Fe)	2022/09/08		92	%	80 - 120
			Dissolved Lithium (Li)	2022/09/08		96	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/08		96	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/08		94	%	80 - 120
			Dissolved Phosphorus (P)	2022/09/08		94	%	80 - 120
			Dissolved Potassium (K)	2022/09/08		99	%	80 - 120
			Dissolved Silicon (Si)	2022/09/08		89	%	80 - 120
			Dissolved Sodium (Na)	2022/09/08		97	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/08		94	%	80 - 120
			Dissolved Sulphur (S)	2022/09/08		93	%	80 - 120
A708887	MPU	Method Blank	Dissolved Barium (Ba)	2022/09/08	<0.010		mg/L	
			Dissolved Boron (B)	2022/09/08	<0.020		mg/L	
			Dissolved Calcium (Ca)	2022/09/08	<0.30		mg/L	
			Dissolved Iron (Fe)	2022/09/08	<0.060		mg/L	
			Dissolved Lithium (Li)	2022/09/08	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2022/09/08	<0.20		mg/L	
			Dissolved Manganese (Mn)	2022/09/08	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2022/09/08	<0.10		mg/L	
			Dissolved Potassium (K)	2022/09/08	<0.30		mg/L	
			Dissolved Silicon (Si)	2022/09/08	<0.50		mg/L	
			Dissolved Sodium (Na)	2022/09/08	<0.50		mg/L	
			Dissolved Strontium (Sr)	2022/09/08	<0.020		mg/L	
			Dissolved Sulphur (S)	2022/09/08	<0.20		mg/L	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708887	MPU	RPD	Dissolved Barium (Ba)	2022/09/08	0.13		%	20
			Dissolved Boron (B)	2022/09/08	0.38		%	20
			Dissolved Calcium (Ca)	2022/09/08	0.50		%	20
			Dissolved Iron (Fe)	2022/09/08	0.13		%	20
			Dissolved Lithium (Li)	2022/09/08	0.87		%	20
			Dissolved Magnesium (Mg)	2022/09/08	0.32		%	20
			Dissolved Manganese (Mn)	2022/09/08	0.21		%	20
			Dissolved Phosphorus (P)	2022/09/08	1.5		%	20
			Dissolved Potassium (K)	2022/09/08	0.48		%	20
			Dissolved Silicon (Si)	2022/09/08	0.28		%	20
			Dissolved Sodium (Na)	2022/09/08	0.55		%	20
			Dissolved Strontium (Sr)	2022/09/08	0.27		%	20
			Dissolved Sulphur (S)	2022/09/08	3.9		%	20
A708888	PC5	Matrix Spike	Dissolved Barium (Ba)	2022/09/09		97	%	80 - 120
			Dissolved Boron (B)	2022/09/09		100	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/09		93	%	80 - 120
			Dissolved Iron (Fe)	2022/09/09		104	%	80 - 120
			Dissolved Lithium (Li)	2022/09/09		96	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/09		88	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/09		104	%	80 - 120
			Dissolved Phosphorus (P)	2022/09/09		98	%	80 - 120
			Dissolved Potassium (K)	2022/09/09		100	%	80 - 120
			Dissolved Silicon (Si)	2022/09/09		86	%	80 - 120
			Dissolved Sodium (Na)	2022/09/09		NC	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/09		92	%	80 - 120
			Dissolved Sulphur (S)	2022/09/09		96	%	80 - 120
A708888	PC5	Spiked Blank	Dissolved Barium (Ba)	2022/09/09		98	%	80 - 120
			Dissolved Boron (B)	2022/09/09		98	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/09		97	%	80 - 120
			Dissolved Iron (Fe)	2022/09/09		103	%	80 - 120
			Dissolved Lithium (Li)	2022/09/09		96	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/09		96	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/09		103	%	80 - 120
			Dissolved Phosphorus (P)	2022/09/09		94	%	80 - 120
			Dissolved Potassium (K)	2022/09/09		100	%	80 - 120
			Dissolved Silicon (Si)	2022/09/09		92	%	80 - 120
			Dissolved Sodium (Na)	2022/09/09		98	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/09		95	%	80 - 120
			Dissolved Sulphur (S)	2022/09/09		93	%	80 - 120
A708888	PC5	Method Blank	Dissolved Barium (Ba)	2022/09/09	<0.010		mg/L	
			Dissolved Boron (B)	2022/09/09	<0.020		mg/L	
			Dissolved Calcium (Ca)	2022/09/09	<0.30		mg/L	
			Dissolved Iron (Fe)	2022/09/09	<0.060		mg/L	
			Dissolved Lithium (Li)	2022/09/09	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2022/09/09	<0.20		mg/L	
			Dissolved Manganese (Mn)	2022/09/09	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2022/09/09	<0.10		mg/L	
			Dissolved Potassium (K)	2022/09/09	<0.30		mg/L	
			Dissolved Silicon (Si)	2022/09/09	<0.50		mg/L	
			Dissolved Sodium (Na)	2022/09/09	<0.50		mg/L	
			Dissolved Strontium (Sr)	2022/09/09	<0.020		mg/L	
			Dissolved Sulphur (S)	2022/09/09	<0.20		mg/L	
A708888	PC5	RPD	Dissolved Barium (Ba)	2022/09/09	0.68		%	20
			Dissolved Boron (B)	2022/09/09	1.1		%	20
			Dissolved Calcium (Ca)	2022/09/09	1.7		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708890	JAB	Matrix Spike [BBD273-06]	Dissolved Iron (Fe)	2022/09/09	NC		%	20
			Dissolved Lithium (Li)	2022/09/09	0.15		%	20
			Dissolved Magnesium (Mg)	2022/09/09	0.72		%	20
			Dissolved Manganese (Mn)	2022/09/09	76 (1)		%	20
			Dissolved Phosphorus (P)	2022/09/09	NC		%	20
			Dissolved Potassium (K)	2022/09/09	0.063		%	20
			Dissolved Silicon (Si)	2022/09/09	0.53		%	20
			Dissolved Sodium (Na)	2022/09/09	0.72		%	20
			Dissolved Strontium (Sr)	2022/09/09	0.55		%	20
			Dissolved Sulphur (S)	2022/09/09	0.12		%	20
A708890	JAB	Spiked Blank	Dissolved Barium (Ba)	2022/09/09		107	%	80 - 120
			Dissolved Boron (B)	2022/09/09		106	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/09		117	%	80 - 120
			Dissolved Iron (Fe)	2022/09/09		105	%	80 - 120
			Dissolved Lithium (Li)	2022/09/09		109	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/09		115	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/09		105	%	80 - 120
			Dissolved Phosphorus (P)	2022/09/09		104	%	80 - 120
			Dissolved Potassium (K)	2022/09/09		114	%	80 - 120
			Dissolved Silicon (Si)	2022/09/09		99	%	80 - 120
A708890	JAB	Method Blank	Dissolved Sodium (Na)	2022/09/09		112	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/09		103	%	80 - 120
			Dissolved Sulphur (S)	2022/09/09		104	%	80 - 120
			Dissolved Barium (Ba)	2022/09/09		103	%	80 - 120
			Dissolved Boron (B)	2022/09/09		100	%	80 - 120
			Dissolved Calcium (Ca)	2022/09/09		100	%	80 - 120
			Dissolved Iron (Fe)	2022/09/09		108	%	80 - 120
			Dissolved Lithium (Li)	2022/09/09		99	%	80 - 120
			Dissolved Magnesium (Mg)	2022/09/09		101	%	80 - 120
			Dissolved Manganese (Mn)	2022/09/09		108	%	80 - 120
A708890	JAB	RPD [BBD273-06]	Dissolved Phosphorus (P)	2022/09/09		98	%	80 - 120
			Dissolved Potassium (K)	2022/09/09		103	%	80 - 120
			Dissolved Silicon (Si)	2022/09/09		96	%	80 - 120
			Dissolved Sodium (Na)	2022/09/09		101	%	80 - 120
			Dissolved Strontium (Sr)	2022/09/09		100	%	80 - 120
			Dissolved Sulphur (S)	2022/09/09		97	%	80 - 120
			Dissolved Barium (Ba)	2022/09/09	<0.010		mg/L	
			Dissolved Boron (B)	2022/09/09	<0.020		mg/L	
			Dissolved Calcium (Ca)	2022/09/09	<0.30		mg/L	
			Dissolved Iron (Fe)	2022/09/09	<0.060		mg/L	
A708890	JAB	RPD [BBD273-06]	Dissolved Lithium (Li)	2022/09/09	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2022/09/09	<0.20		mg/L	
			Dissolved Manganese (Mn)	2022/09/09	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2022/09/09	<0.10		mg/L	
			Dissolved Potassium (K)	2022/09/09	<0.30		mg/L	
			Dissolved Silicon (Si)	2022/09/09	<0.50		mg/L	
			Dissolved Sodium (Na)	2022/09/09	<0.50		mg/L	
			Dissolved Strontium (Sr)	2022/09/09	<0.020		mg/L	
			Dissolved Sulphur (S)	2022/09/09	<0.20		mg/L	
			Dissolved Barium (Ba)	2022/09/09	1.6		%	20
A708890	JAB	RPD [BBD273-06]	Dissolved Boron (B)	2022/09/09	3.2		%	20
			Dissolved Calcium (Ca)	2022/09/09	1.6		%	20
			Dissolved Iron (Fe)	2022/09/09	NC		%	20
			Dissolved Lithium (Li)	2022/09/09	NC		%	20
			Dissolved Magnesium (Mg)	2022/09/09	1.7		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708902	MKJ	Matrix Spike	Dissolved Manganese (Mn)	2022/09/09	NC		%	20
			Dissolved Phosphorus (P)	2022/09/09	NC		%	20
			Dissolved Potassium (K)	2022/09/09	1.1		%	20
			Dissolved Silicon (Si)	2022/09/09	1.4		%	20
			Dissolved Sodium (Na)	2022/09/09	1.6		%	20
			Dissolved Strontium (Sr)	2022/09/09	1.4		%	20
			Dissolved Sulphur (S)	2022/09/09	1.4		%	20
			Dissolved Aluminum (Al)	2022/09/10		105	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		111	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		96	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		104	%	80 - 120
			Dissolved Cadmium (Cd)	2022/09/10		103	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		99	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		98	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		98	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/09/10		108	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		99	%	80 - 120
			Dissolved Selenium (Se)	2022/09/10		98	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		100	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		99	%	80 - 120
			Dissolved Tin (Sn)	2022/09/10		106	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		105	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		100	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		101	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		100	%	80 - 120
A708902	MKJ	Spiked Blank	Dissolved Aluminum (Al)	2022/09/10		111	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		106	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		93	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		95	%	80 - 120
			Dissolved Cadmium (Cd)	2022/09/10		95	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		95	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		94	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		95	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		96	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/09/10		98	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		97	%	80 - 120
			Dissolved Selenium (Se)	2022/09/10		94	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		96	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		95	%	80 - 120
			Dissolved Tin (Sn)	2022/09/10		98	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		97	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		95	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		96	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		93	%	80 - 120
A708902	MKJ	Method Blank	Dissolved Aluminum (Al)	2022/09/10	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2022/09/10	<0.00060		mg/L	
			Dissolved Arsenic (As)	2022/09/10	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2022/09/10	<0.0010		mg/L	
			Dissolved Cadmium (Cd)	2022/09/10	<0.000020		mg/L	
			Dissolved Chromium (Cr)	2022/09/10	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2022/09/10	<0.00030		mg/L	
			Dissolved Copper (Cu)	2022/09/10	<0.0010		mg/L	
			Dissolved Lead (Pb)	2022/09/10	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2022/09/10	<0.00020		mg/L	



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708902	MKJ	RPD	Dissolved Nickel (Ni)	2022/09/10	<0.00050		mg/L	
			Dissolved Selenium (Se)	2022/09/10	<0.00020		mg/L	
			Dissolved Silver (Ag)	2022/09/10	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2022/09/10	<0.00020		mg/L	
			Dissolved Tin (Sn)	2022/09/10	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2022/09/10	<0.0010		mg/L	
			Dissolved Uranium (U)	2022/09/10	<0.00010		mg/L	
			Dissolved Vanadium (V)	2022/09/10	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2022/09/10	<0.0030		mg/L	
			Dissolved Aluminum (Al)	2022/09/10	NC		%	20
			Dissolved Antimony (Sb)	2022/09/10	NC		%	20
			Dissolved Arsenic (As)	2022/09/10	NC		%	20
			Dissolved Beryllium (Be)	2022/09/10	NC		%	20
			Dissolved Chromium (Cr)	2022/09/10	NC		%	20
			Dissolved Cobalt (Co)	2022/09/10	NC		%	20
			Dissolved Copper (Cu)	2022/09/10	NC		%	20
			Dissolved Lead (Pb)	2022/09/10	NC		%	20
			Dissolved Molybdenum (Mo)	2022/09/10	NC		%	20
			Dissolved Nickel (Ni)	2022/09/10	NC		%	20
			Dissolved Selenium (Se)	2022/09/10	NC		%	20
			Dissolved Silver (Ag)	2022/09/10	NC		%	20
A708907	RY3	Matrix Spike	Dissolved Thallium (Tl)	2022/09/10	NC		%	20
			Dissolved Tin (Sn)	2022/09/10	NC		%	20
			Dissolved Titanium (Ti)	2022/09/10	NC		%	20
			Dissolved Uranium (U)	2022/09/10	NC		%	20
			Dissolved Vanadium (V)	2022/09/10	NC		%	20
			Dissolved Zinc (Zn)	2022/09/10	2.7		%	20
			Dissolved Aluminum (Al)	2022/09/10		109	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		107	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		97	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		98	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		97	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		96	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		97	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/09/10		111	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		98	%	80 - 120
			Dissolved Selenium (Se)	2022/09/10		101	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		100	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		99	%	80 - 120
A708907	RY3	Spiked Blank	Dissolved Tin (Sn)	2022/09/10		108	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		103	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		104	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		100	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		100	%	80 - 120
			Dissolved Aluminum (Al)	2022/09/10		120	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		106	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		95	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		94	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		97	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		97	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		98	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/09/10		101	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		97	%	80 - 120

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A708907	RY3	Method Blank	Dissolved Selenium (Se)	2022/09/10		97	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		98	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		100	%	80 - 120
			Dissolved Tin (Sn)	2022/09/10		102	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		98	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		97	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		98	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		96	%	80 - 120
			Dissolved Aluminum (Al)	2022/09/11	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2022/09/11	<0.00060		mg/L	
			Dissolved Arsenic (As)	2022/09/11	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2022/09/11	<0.0010		mg/L	
			Dissolved Chromium (Cr)	2022/09/11	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2022/09/11	<0.00030		mg/L	
			Dissolved Copper (Cu)	2022/09/11	<0.0010		mg/L	
			Dissolved Lead (Pb)	2022/09/11	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2022/09/11	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2022/09/11	<0.00050		mg/L	
			Dissolved Selenium (Se)	2022/09/11	<0.00020		mg/L	
			Dissolved Silver (Ag)	2022/09/11	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2022/09/11	<0.00020		mg/L	
			Dissolved Tin (Sn)	2022/09/11	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2022/09/11	<0.0010		mg/L	
			Dissolved Uranium (U)	2022/09/11	<0.00010		mg/L	
			Dissolved Vanadium (V)	2022/09/11	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2022/09/11	<0.0030		mg/L	
A708907	RY3	RPD	Dissolved Aluminum (Al)	2022/09/11	NC		%	20
			Dissolved Antimony (Sb)	2022/09/11	0.73		%	20
			Dissolved Arsenic (As)	2022/09/11	1.6		%	20
			Dissolved Beryllium (Be)	2022/09/11	NC		%	20
			Dissolved Chromium (Cr)	2022/09/11	NC		%	20
			Dissolved Cobalt (Co)	2022/09/11	0.95		%	20
			Dissolved Copper (Cu)	2022/09/11	0.66		%	20
			Dissolved Lead (Pb)	2022/09/11	NC		%	20
			Dissolved Molybdenum (Mo)	2022/09/11	1.9		%	20
			Dissolved Nickel (Ni)	2022/09/11	1.4		%	20
			Dissolved Selenium (Se)	2022/09/11	9.6		%	20
			Dissolved Silver (Ag)	2022/09/11	NC		%	20
			Dissolved Thallium (Tl)	2022/09/11	NC		%	20
			Dissolved Tin (Sn)	2022/09/11	NC		%	20
			Dissolved Titanium (Ti)	2022/09/11	NC		%	20
			Dissolved Uranium (U)	2022/09/11	1.1		%	20
			Dissolved Vanadium (V)	2022/09/11	5.5		%	20
			Dissolved Zinc (Zn)	2022/09/11	1.5		%	20
A709273	SJ1	Matrix Spike	2,3,4-trichlorophenol	2022/09/09		126	%	50 - 140
			2,4,6-TRIBROMOPHENOL (sur.)	2022/09/09		118	%	50 - 140
			2,4-DIBROMOPHENOL (sur.)	2022/09/09		114	%	50 - 140
			Phenol	2022/09/09		62	%	30 - 130
			3 & 4-chlorophenol	2022/09/09		110	%	50 - 140
			2,3,5,6-tetrachlorophenol	2022/09/09		125	%	50 - 140
			2,3,4,6-tetrachlorophenol	2022/09/09		130	%	50 - 140
			2,4,5-trichlorophenol	2022/09/09		122	%	50 - 140
			2,4,6-trichlorophenol	2022/09/09		123	%	50 - 140
			2,3,5-trichlorophenol	2022/09/09		118	%	50 - 140
			2,4-dichlorophenol	2022/09/09		119	%	50 - 140

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A709273	SJ1	Spiked Blank	2,4-dimethylphenol	2022/09/09		112	%	50 - 140
			2,4-dinitrophenol	2022/09/09		122	%	30 - 130
			2,6-dichlorophenol	2022/09/09		121	%	50 - 140
			2-chlorophenol	2022/09/09		103	%	50 - 140
			2-methylphenol	2022/09/09		98	%	50 - 140
			2-nitrophenol	2022/09/09		116	%	50 - 140
			3 & 4-methylphenol	2022/09/09		99	%	50 - 140
			4,6-dinitro-2-methylphenol	2022/09/09		120	%	30 - 130
			4-chloro-3-methylphenol	2022/09/09		115	%	50 - 140
			4-nitrophenol	2022/09/09		95	%	50 - 140
			Pentachlorophenol	2022/09/09		118	%	50 - 140
			2,3,4-trichlorophenol	2022/09/09		120	%	50 - 140
			2,4,6-TRIBROMOPHENOL (sur.)	2022/09/09		112	%	50 - 140
			2,4-DIBROMOPHENOL (sur.)	2022/09/09		108	%	50 - 140
			Phenol	2022/09/09		60	%	30 - 130
			3 & 4-chlorophenol	2022/09/09		106	%	50 - 140
			2,3,5,6-tetrachlorophenol	2022/09/09		118	%	50 - 140
			2,3,4,6-tetrachlorophenol	2022/09/09		132	%	50 - 140
			2,4,5-trichlorophenol	2022/09/09		118	%	50 - 140
			2,4,6-trichlorophenol	2022/09/09		116	%	50 - 140
			2,3,5-trichlorophenol	2022/09/09		112	%	50 - 140
			2,4-dichlorophenol	2022/09/09		113	%	50 - 140
			2,4-dimethylphenol	2022/09/09		104	%	50 - 140
			2,4-dinitrophenol	2022/09/09		104	%	30 - 130
			2,6-dichlorophenol	2022/09/09		116	%	50 - 140
			2-chlorophenol	2022/09/09		100	%	50 - 140
			2-methylphenol	2022/09/09		94	%	50 - 140
			2-nitrophenol	2022/09/09		112	%	50 - 140
			3 & 4-methylphenol	2022/09/09		95	%	50 - 140
			4,6-dinitro-2-methylphenol	2022/09/09		104	%	30 - 130
			4-chloro-3-methylphenol	2022/09/09		110	%	50 - 140
			4-nitrophenol	2022/09/09		86	%	50 - 140
			Pentachlorophenol	2022/09/09		102	%	50 - 140
A709273	SJ1	Method Blank	2,3,4-trichlorophenol	2022/09/09	<0.00010		mg/L	
			2,4,6-TRIBROMOPHENOL (sur.)	2022/09/09		109	%	50 - 140
			2,4-DIBROMOPHENOL (sur.)	2022/09/09		107	%	50 - 140
			Phenol	2022/09/09	<0.00010		mg/L	
			3 & 4-chlorophenol	2022/09/09	<0.00010		mg/L	
			2,3,5,6-tetrachlorophenol	2022/09/09	<0.00010		mg/L	
			2,3,4,6-tetrachlorophenol	2022/09/09	<0.00010		mg/L	
			2,4,5-trichlorophenol	2022/09/09	<0.00010		mg/L	
			2,4,6-trichlorophenol	2022/09/09	<0.00010		mg/L	
			2,3,5-trichlorophenol	2022/09/09	<0.00010		mg/L	
			2,4-dichlorophenol	2022/09/09	<0.00010		mg/L	
			2,4-dimethylphenol	2022/09/09	<0.00010		mg/L	
			2,4-dinitrophenol	2022/09/09	<0.0010		mg/L	
			2,6-dichlorophenol	2022/09/09	<0.00010		mg/L	
			2-chlorophenol	2022/09/09	<0.00010		mg/L	
			2-methylphenol	2022/09/09	<0.00010		mg/L	
			2-nitrophenol	2022/09/09	<0.0010		mg/L	
			3 & 4-methylphenol	2022/09/09	<0.00010		mg/L	
			4,6-dinitro-2-methylphenol	2022/09/09	<0.0010		mg/L	
			4-chloro-3-methylphenol	2022/09/09	<0.00010		mg/L	
			4-nitrophenol	2022/09/09	<0.0010		mg/L	
			Pentachlorophenol	2022/09/09	<0.00010		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C267211
Report Date: 2022/09/15

STANTEC CONSULTING LTD
Client Project #: 123514046

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A709273	SJ1	RPD	2,3,4-trichlorophenol	2022/09/09	NC		%	30
			Phenol	2022/09/09	NC		%	30
			3 & 4-chlorophenol	2022/09/09	NC		%	30
			2,3,5,6-tetrachlorophenol	2022/09/09	NC		%	30
			2,3,4,6-tetrachlorophenol	2022/09/09	NC		%	30
			2,4,5-trichlorophenol	2022/09/09	NC		%	30
			2,4,6-trichlorophenol	2022/09/09	NC		%	30
			2,3,5-trichlorophenol	2022/09/09	NC		%	30
			2,4-dichlorophenol	2022/09/09	NC		%	30
			2,4-dimethylphenol	2022/09/09	NC		%	30
			2,4-dinitrophenol	2022/09/09	NC		%	30
			2,6-dichlorophenol	2022/09/09	NC		%	30
			2-chlorophenol	2022/09/09	NC		%	30
			2-methylphenol	2022/09/09	NC		%	30
			2-nitrophenol	2022/09/09	NC		%	30
			3 & 4-methylphenol	2022/09/09	0		%	30
			4,6-dinitro-2-methylphenol	2022/09/09	NC		%	30
			4-chloro-3-methylphenol	2022/09/09	NC		%	30
			4-nitrophenol	2022/09/09	NC		%	30
			Pentachlorophenol	2022/09/09	NC		%	30
A710371	KH2	Matrix Spike	Dissolved Aluminum (Al)	2022/09/10		88	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		98	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		92	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		89	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		88	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		88	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		85	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		87	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		89	%	80 - 120
			Dissolved Selenium (Se)	2022/09/10		90	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		98	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		88	%	80 - 120
			Dissolved Tin (Sn)	2022/09/10		98	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		92	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		89	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		93	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		86	%	80 - 120
A710371	KH2	Spiked Blank	Dissolved Aluminum (Al)	2022/09/10		101	%	80 - 120
			Dissolved Antimony (Sb)	2022/09/10		98	%	80 - 120
			Dissolved Arsenic (As)	2022/09/10		95	%	80 - 120
			Dissolved Beryllium (Be)	2022/09/10		90	%	80 - 120
			Dissolved Chromium (Cr)	2022/09/10		94	%	80 - 120
			Dissolved Cobalt (Co)	2022/09/10		96	%	80 - 120
			Dissolved Copper (Cu)	2022/09/10		96	%	80 - 120
			Dissolved Lead (Pb)	2022/09/10		96	%	80 - 120
			Dissolved Nickel (Ni)	2022/09/10		93	%	80 - 120
			Dissolved Selenium (Se)	2022/09/10		98	%	80 - 120
			Dissolved Silver (Ag)	2022/09/10		95	%	80 - 120
			Dissolved Thallium (Tl)	2022/09/10		95	%	80 - 120
			Dissolved Tin (Sn)	2022/09/10		100	%	80 - 120
			Dissolved Titanium (Ti)	2022/09/10		103	%	80 - 120
			Dissolved Uranium (U)	2022/09/10		93	%	80 - 120
			Dissolved Vanadium (V)	2022/09/10		97	%	80 - 120
			Dissolved Zinc (Zn)	2022/09/10		92	%	80 - 120
A710371	KH2	Method Blank	Dissolved Aluminum (Al)	2022/09/10	<0.0030		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C267211
Report Date: 2022/09/15

STANTEC CONSULTING LTD
Client Project #: 123514046

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A710371	KH2	RPD	Dissolved Antimony (Sb)	2022/09/10	<0.00060		mg/L	
			Dissolved Arsenic (As)	2022/09/10	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2022/09/10	<0.0010		mg/L	
			Dissolved Chromium (Cr)	2022/09/10	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2022/09/10	<0.00030		mg/L	
			Dissolved Copper (Cu)	2022/09/10	<0.0010		mg/L	
			Dissolved Lead (Pb)	2022/09/10	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2022/09/10	<0.00050		mg/L	
			Dissolved Selenium (Se)	2022/09/10	<0.00020		mg/L	
			Dissolved Silver (Ag)	2022/09/10	<0.00010		mg/L	
			Dissolved Thallium (Tl)	2022/09/10	<0.00020		mg/L	
			Dissolved Tin (Sn)	2022/09/10	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2022/09/10	<0.0010		mg/L	
			Dissolved Uranium (U)	2022/09/10	<0.00010		mg/L	
			Dissolved Vanadium (V)	2022/09/10	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2022/09/10	<0.0030		mg/L	
			Dissolved Aluminum (Al)	2022/09/10	17		%	20
			Dissolved Antimony (Sb)	2022/09/10	NC		%	20
			Dissolved Arsenic (As)	2022/09/10	NC		%	20
			Dissolved Beryllium (Be)	2022/09/10	NC		%	20
			Dissolved Chromium (Cr)	2022/09/10	NC		%	20
			Dissolved Cobalt (Co)	2022/09/10	NC		%	20
			Dissolved Copper (Cu)	2022/09/10	10		%	20
			Dissolved Lead (Pb)	2022/09/10	NC		%	20
			Dissolved Nickel (Ni)	2022/09/10	NC		%	20
			Dissolved Selenium (Se)	2022/09/10	NC		%	20
			Dissolved Silver (Ag)	2022/09/10	NC		%	20
			Dissolved Thallium (Tl)	2022/09/10	NC		%	20
			Dissolved Tin (Sn)	2022/09/10	NC		%	20
			Dissolved Titanium (Ti)	2022/09/10	NC		%	20
			Dissolved Uranium (U)	2022/09/10	NC		%	20
			Dissolved Vanadium (V)	2022/09/10	NC		%	20
			Dissolved Zinc (Zn)	2022/09/10	NC		%	20
A710780	ACR	Matrix Spike [BBD268-09]	Total Ammonia (N)	2022/09/10		110	%	80 - 120
A710780	ACR	Spiked Blank	Total Ammonia (N)	2022/09/10		99	%	80 - 120
A710780	ACR	Method Blank	Total Ammonia (N)	2022/09/10	<0.015		mg/L	
A710780	ACR	RPD [BBD268-09]	Total Ammonia (N)	2022/09/10	NC		%	20
A710781	ACR	Matrix Spike [BBD269-09]	Total Ammonia (N)	2022/09/10		111	%	80 - 120
A710781	ACR	Spiked Blank	Total Ammonia (N)	2022/09/10		96	%	80 - 120
A710781	ACR	Method Blank	Total Ammonia (N)	2022/09/10	<0.015		mg/L	
A710781	ACR	RPD [BBD269-09]	Total Ammonia (N)	2022/09/10	NC		%	20
A713777	MKJ	Matrix Spike	Dissolved Copper (Cu)	2022/09/13		83	%	80 - 120
A713777	MKJ	Spiked Blank	Dissolved Molybdenum (Mo)	2022/09/13		90	%	80 - 120
			Dissolved Copper (Cu)	2022/09/13		95	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/09/13		97	%	80 - 120
A713777	MKJ	Method Blank	Dissolved Copper (Cu)	2022/09/13	<0.0010		mg/L	
			Dissolved Molybdenum (Mo)	2022/09/13	<0.00020		mg/L	
A713777	MKJ	RPD	Dissolved Copper (Cu)	2022/09/13	0.75		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Dissolved Molybdenum (Mo)	2022/09/13	9.1		%	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. 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 #: C267211
Report Date: 2022/09/15

STANTEC CONSULTING LTD
Client Project #: 123514046

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

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

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



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Automated Statchk

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 Signature Page.

[illegible]

COOLER OBSERVATIONS:				MAXXAM JOB#:			
<i>(melted ice)</i>							
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☒	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☒	☐		INTACT	☐	☐	
ICE PRESENT	☒	☐	1 10 10 11	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☒	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☒	☐		INTACT	☐	☐	
ICE PRESENT	☒	☐	1 13 12 13	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☒	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☒	☐		INTACT	☐	☐	
ICE PRESENT	☒	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	COOLER ID
PRESENT	☐	☐	TEMP	PRESENT	☐	☐	TEMP
INTACT	☐	☐		INTACT	☐	☐	
ICE PRESENT	☐	☐	1 2 3	ICE PRESENT	☐	☐	1 2 3
CUSTODY SEAL	YES	NO	COOLER ID	CUSTODY SEAL	YES	NO	

RECEIVED BY (SIGN & PRINT)	DATE (YYYY/MM/DD)	TIME (HH:MM)
<i>José Merino</i>	2022/09/02	16:00

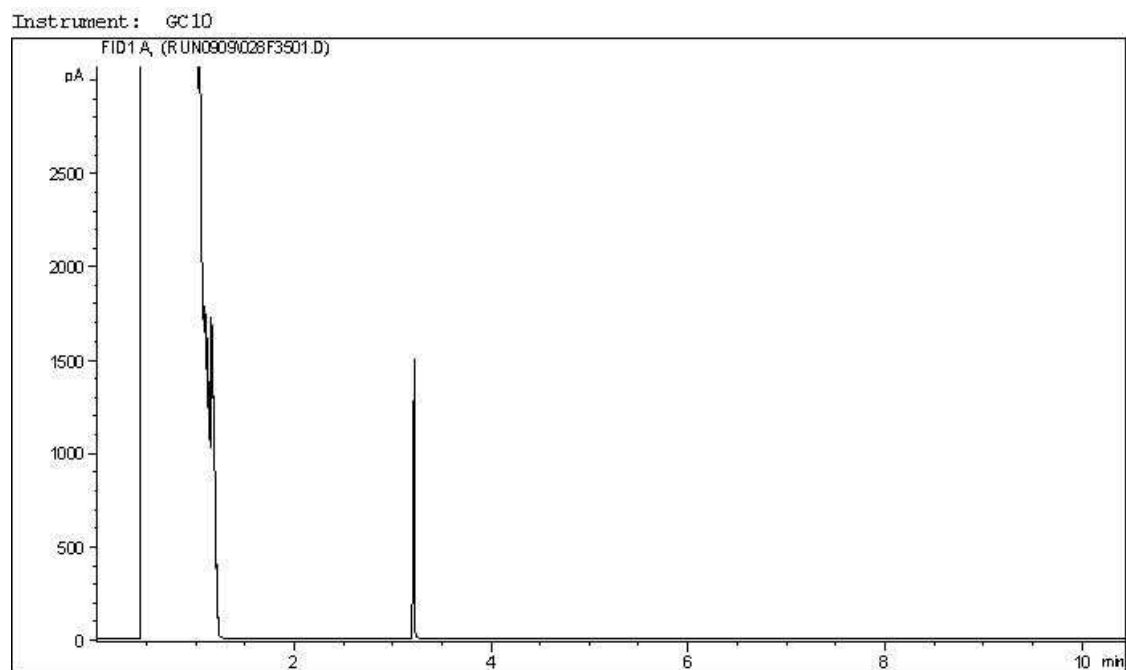
CHAIN OF CUSTODY RECORD

Page 1 of 1

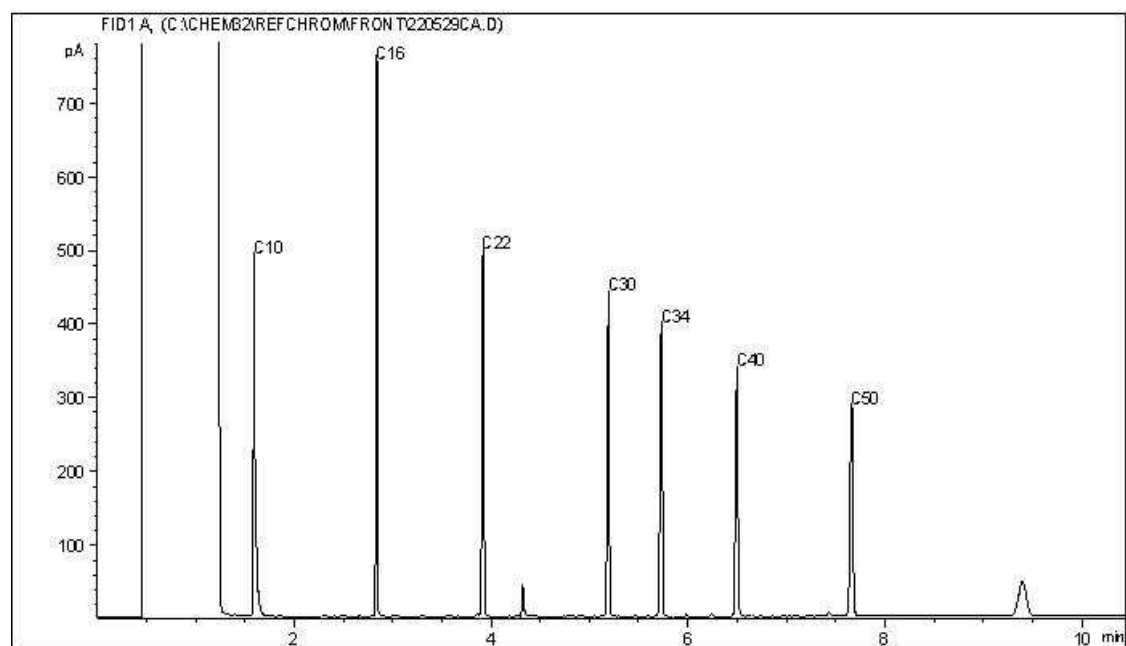
Invoice Information				Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required			
Company Name: Stantec Consulting Ltd				Company Name:				Quotation #:				☒ Regular TAT (5-7 days) Most analyses			
Contact Name: Lindsay Van Noortwyk				Contact Name:				P.O. #/ AFE#: 123514046				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Address: Suite# 500, 10220 - 103 Ave NW, Edmonton AB, T5J 0K4				Address:				Project #: 123514046				Rush TAT (Surcharges will be applied)			
Phone: (780)232-1114 Fax:				Phone: Fax:				Site Location:				☐ 1 Day ☐ 2 Days ☐ 3-4 Days			
Email: Lyndsav.VanNoortwyk@stantec.com				Email: Lindsay.Vannoortwyk@stantec.com; Luke.Anderson@stantec.com				Site Location Province: NU				Date Required:			
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY				Sampled By: TM				Rush Confirmation #:							
Regulation 153				Other Regulations				Analysis Requested				LABORATORY USE ONLY			
☐ Table 1 ☐ Res/Park ☐ Med/ Fine				☐ CCME ☐ Sanitary Sewer Bylaw				# OF CONTAINERS SUBMITTED FIELD FILTERED (CIRCLE) Metals (ug / cvl) BTEX/ PHC FL-2 TSS Oil + Grease PAH THE Total Phenols Total Metals Diss. Metals Routine Parameters HOLD- DO NOT ANALYZE				CUSTODY SEAL Y / N COOLER TEMPERATURES			
☐ Table 2 ☐ Ind/Comm ☐ Coarse				☐ MISA ☐ Storm Sewer Bylaw								Present Intact			
☐ Table 3 ☐ Agri/ Other				☐ PWQO ☐ Region											
☐ Table _____				☐ Other (Specify)											
FOR RSC (PLEASE CIRCLE) Y / N				☐ REG 558 (MIN. 3 DAY TAT REQUIRED)											
Include Criteria on Certificate of Analysis: Y / N															
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
SAMPLE IDENTIFICATION				DATE SAMPLED (YYYY/MM/DD)				TIME SAMPLED (HH:MM)				MATRIX			
1 TRIP BLANK				2022/08/15				17:30				Water			
2 FIELD Blank				2022/08/15				17:45				1			
3 SW22-1				2022/08/15				10:46				1			
4 SW22-2				2022/08/14				14:50				1			
5 SW22-3				2022/08/15				10:15				1			
6 SW22-4				2022/08/15				09:16				1			
7 SW22-7				2022/08/14				15:25				1			
8 SW22-Dup				2022/08/15				10:30				1			
9 SW22-BG				2022/08/14				16:10				2			
10															
RELINQUISHED BY: (Signature/Print)				DATE: (YYYY/MM/DD)				TIME: (HH:MM)				RECEIVED BY: (Signature/Print)			
Troy Myden				2022/08/16				17:30				Damon W. Neer			
												2022/09/05 8:00			
												BV JOB #			
												4211			

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



Carbon Range Distribution - Reference Chromatogram



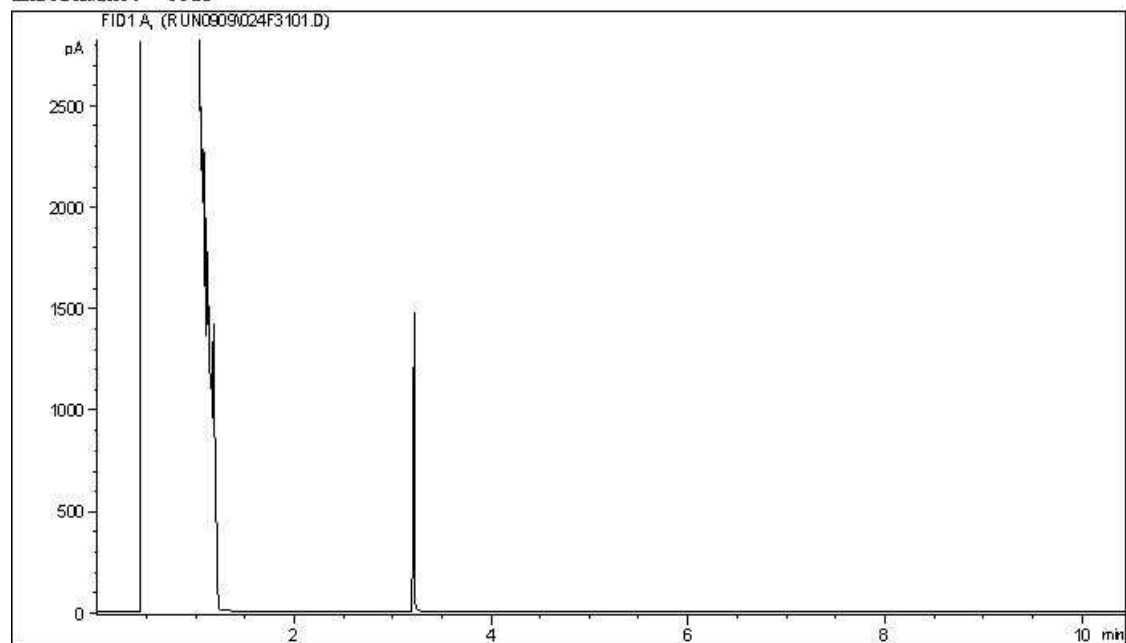
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

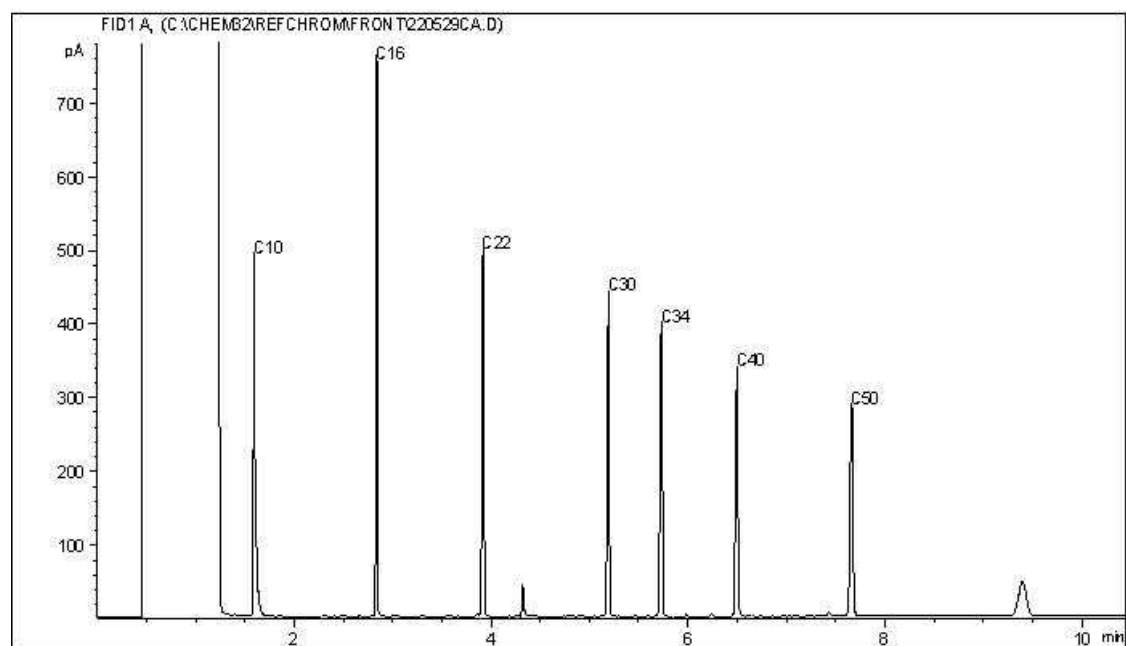
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Instrument: GC10



Carbon Range Distribution - Reference Chromatogram



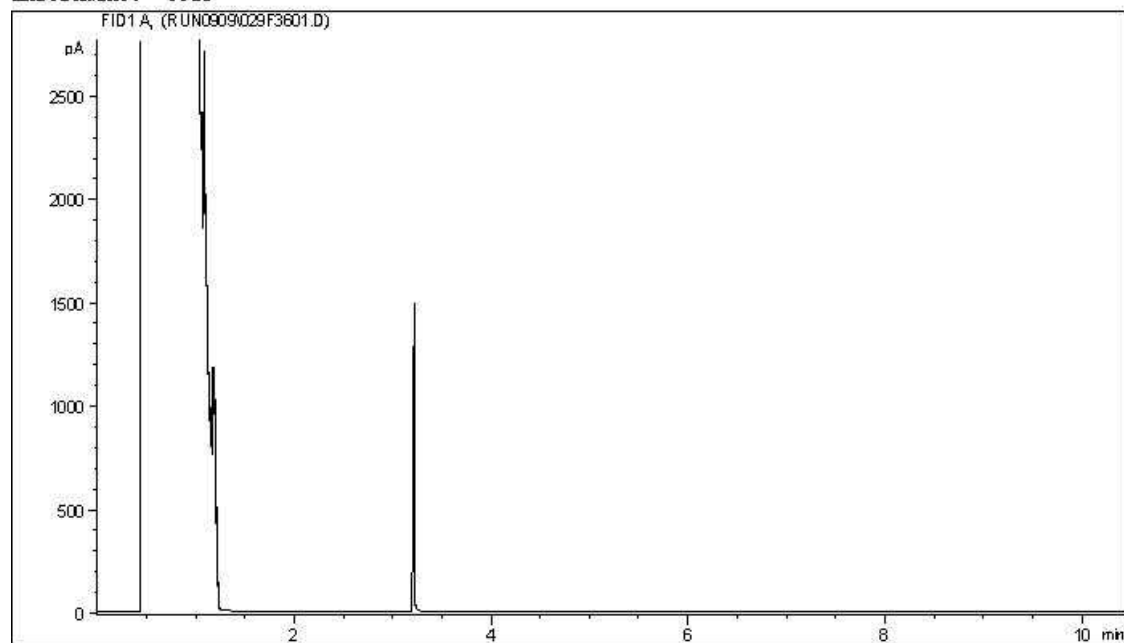
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

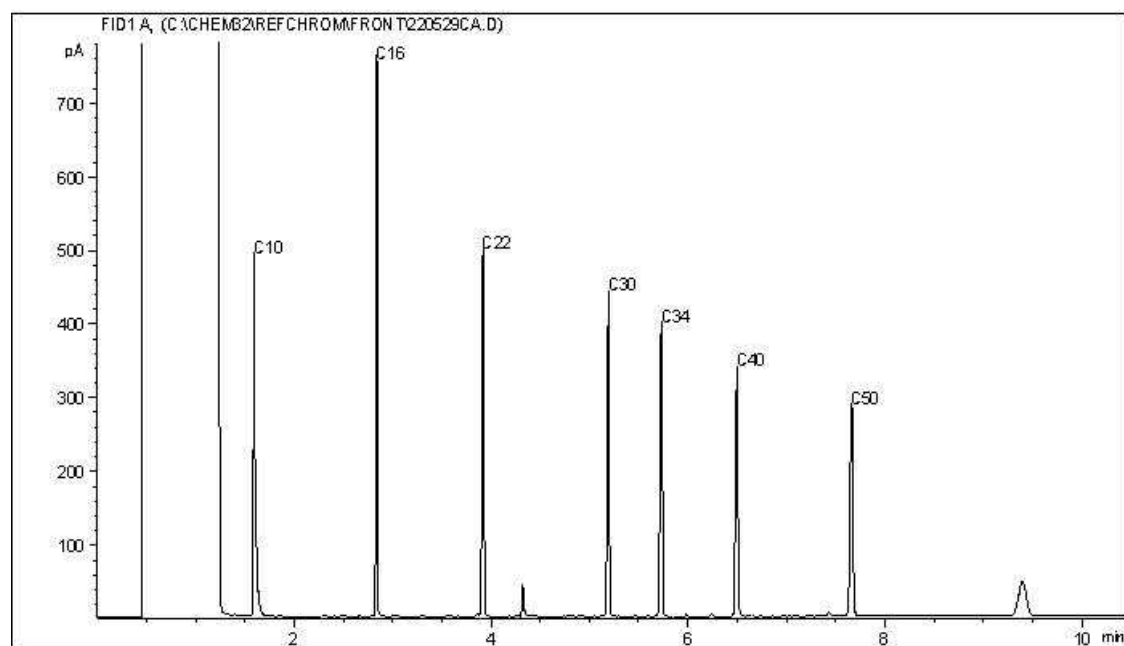
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Instrument: GC10



Carbon Range Distribution - Reference Chromatogram



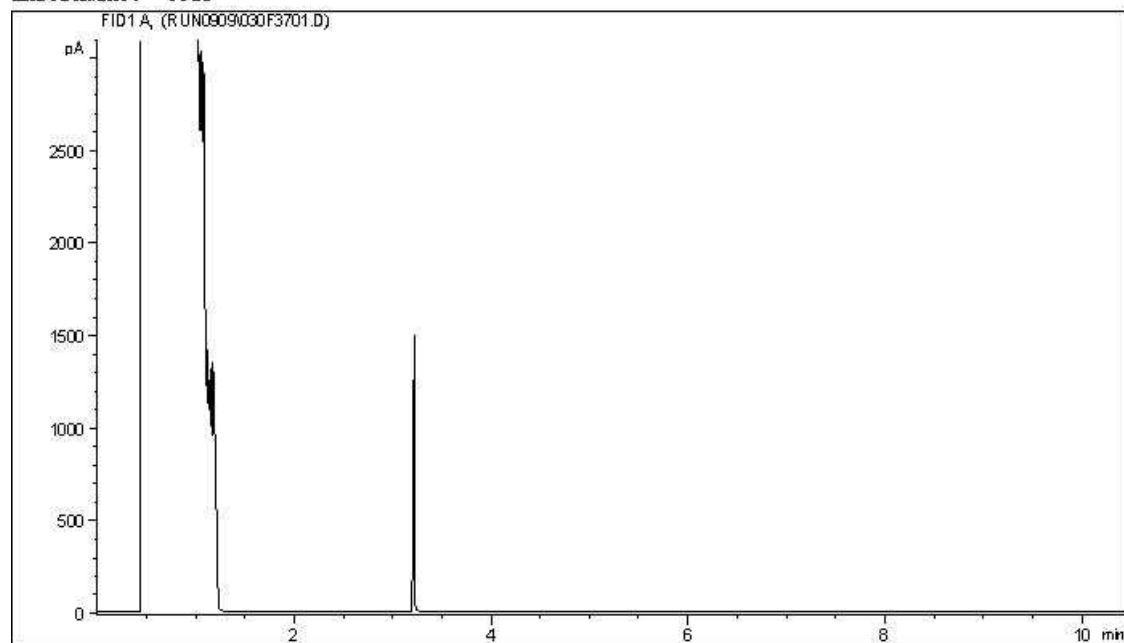
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

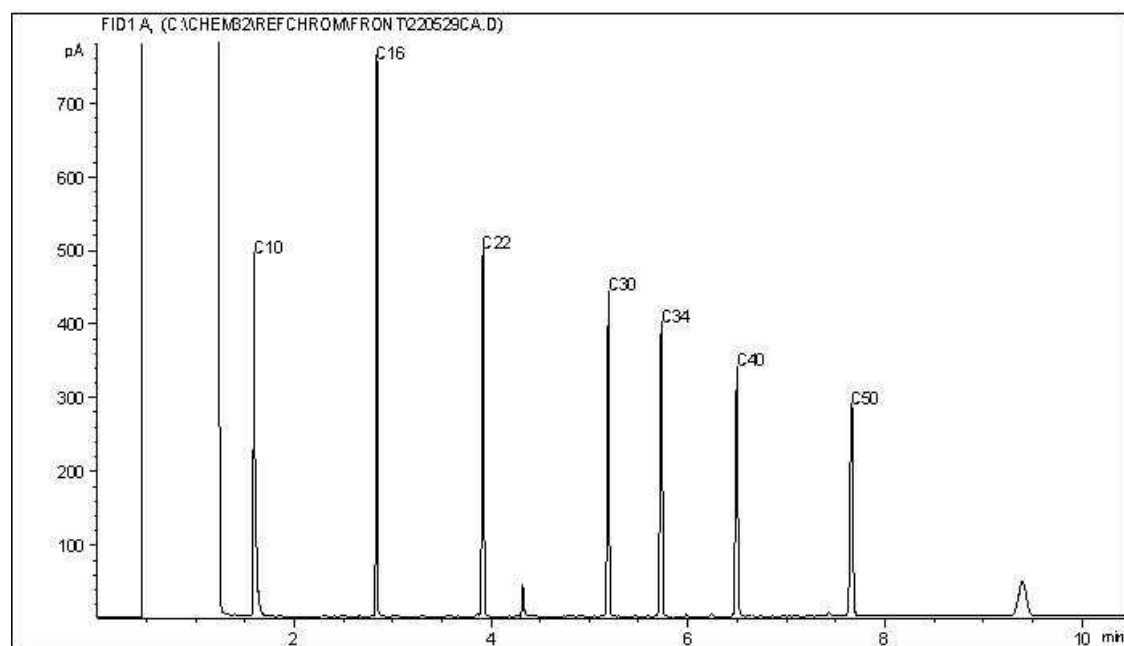
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Instrument: GC10



Carbon Range Distribution - Reference Chromatogram



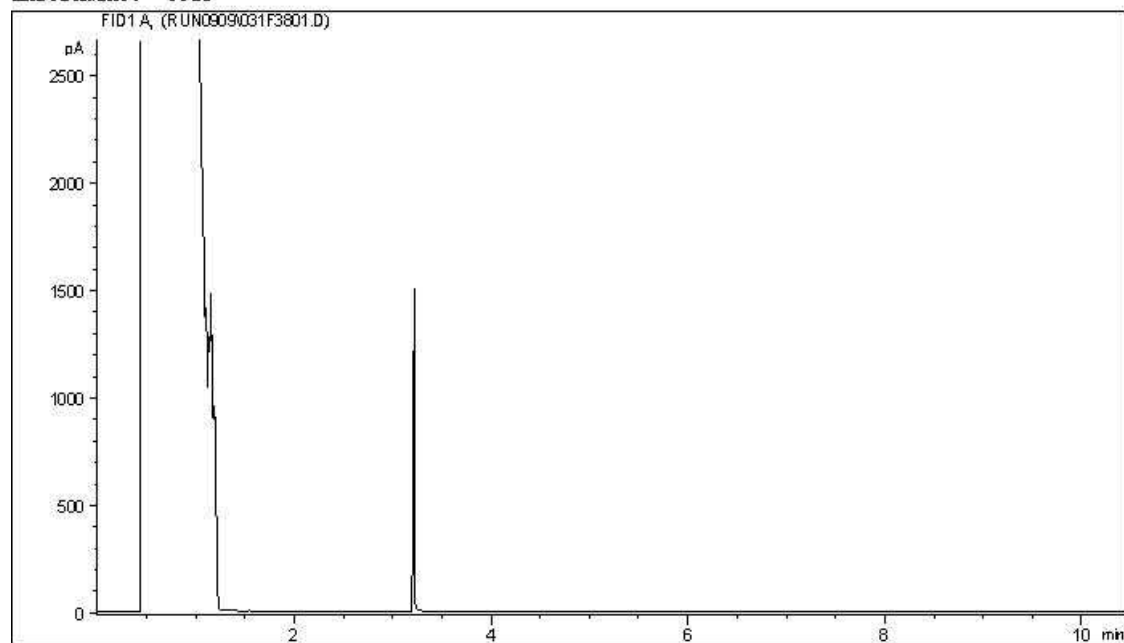
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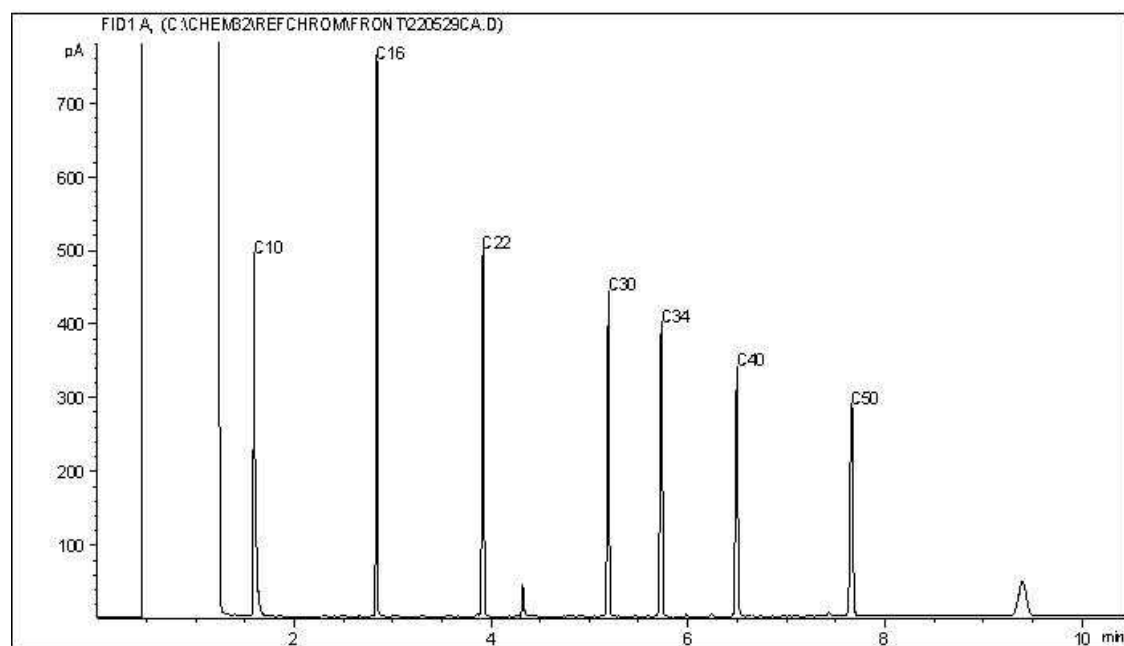
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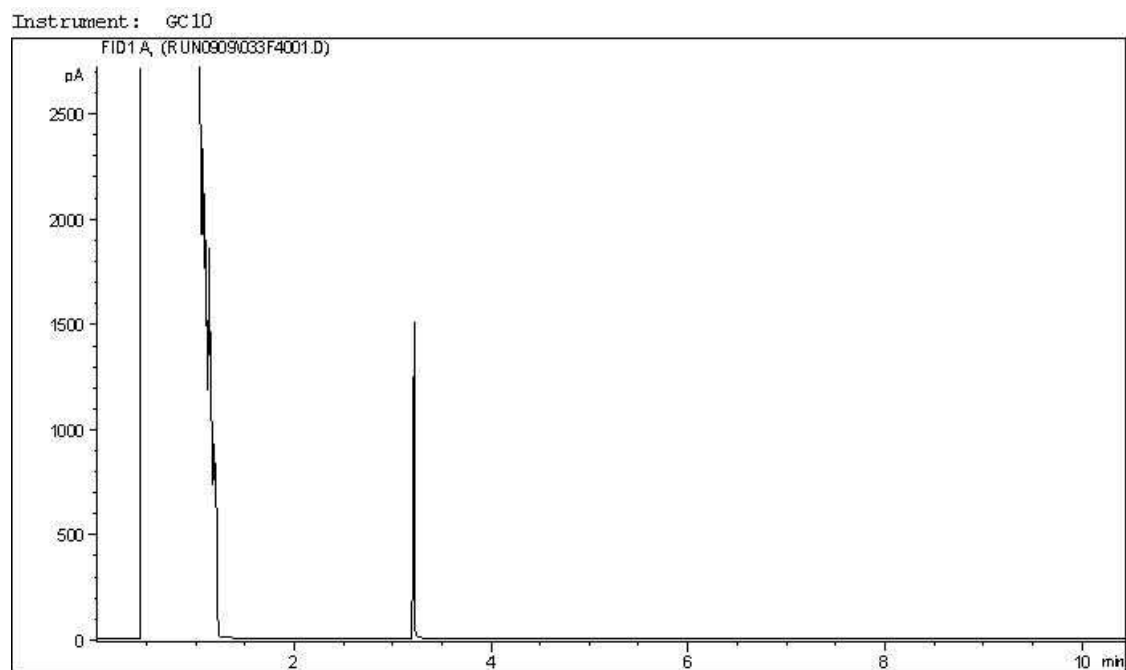


TYPICAL PRODUCT CARBON NUMBER RANGES

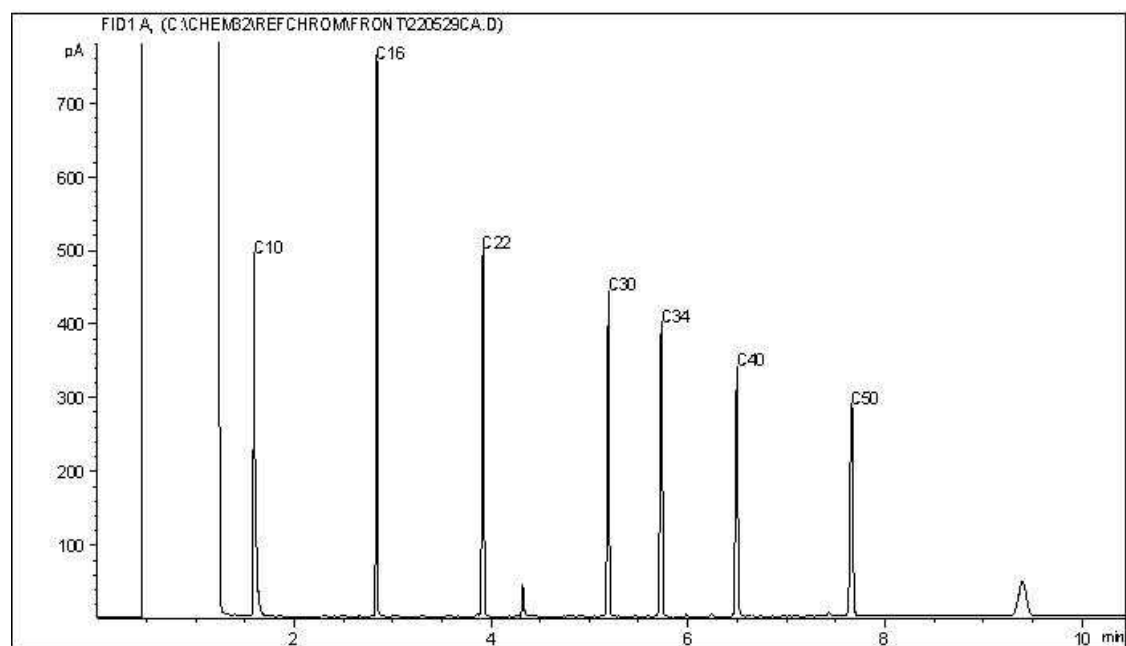
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Carbon Range Distribution - Reference Chromatogram



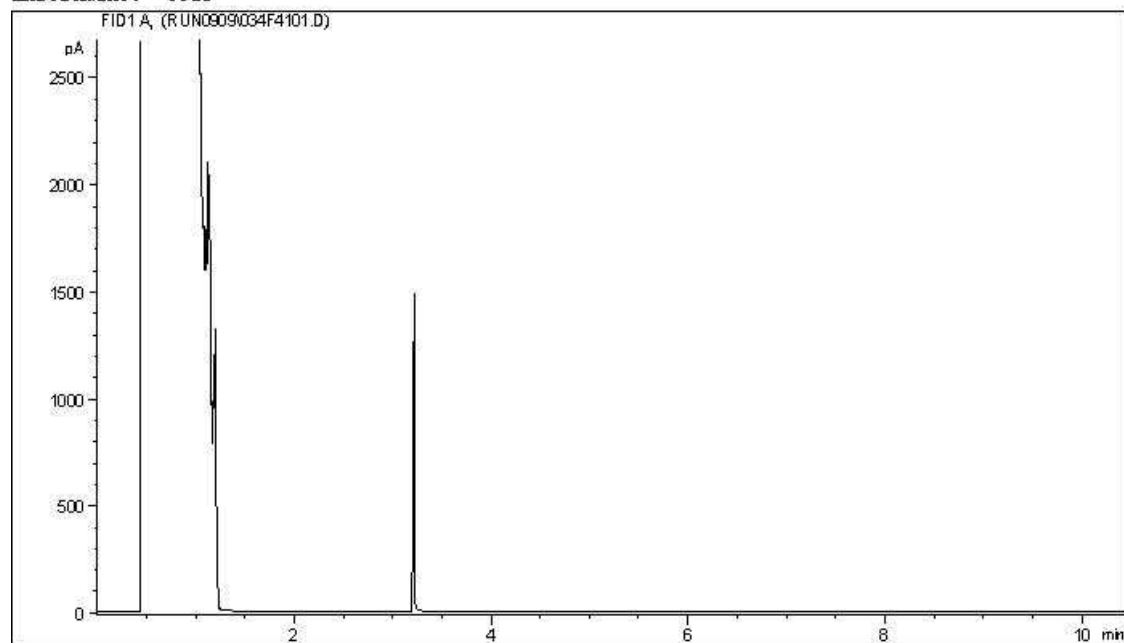
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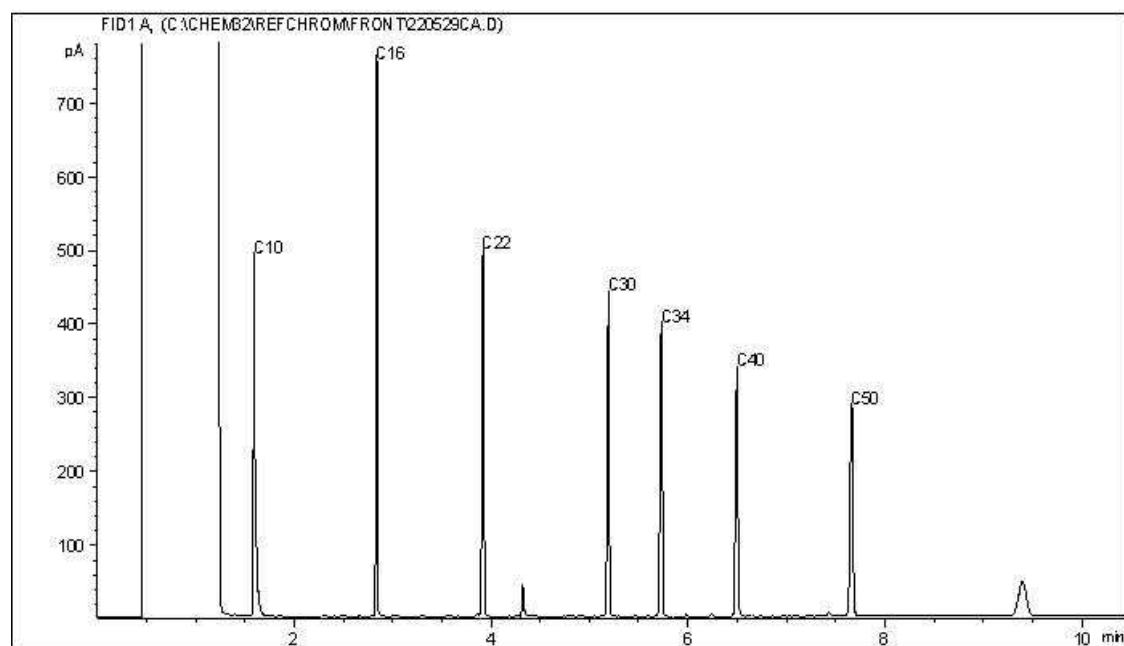
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Carbon Range Distribution - Reference Chromatogram



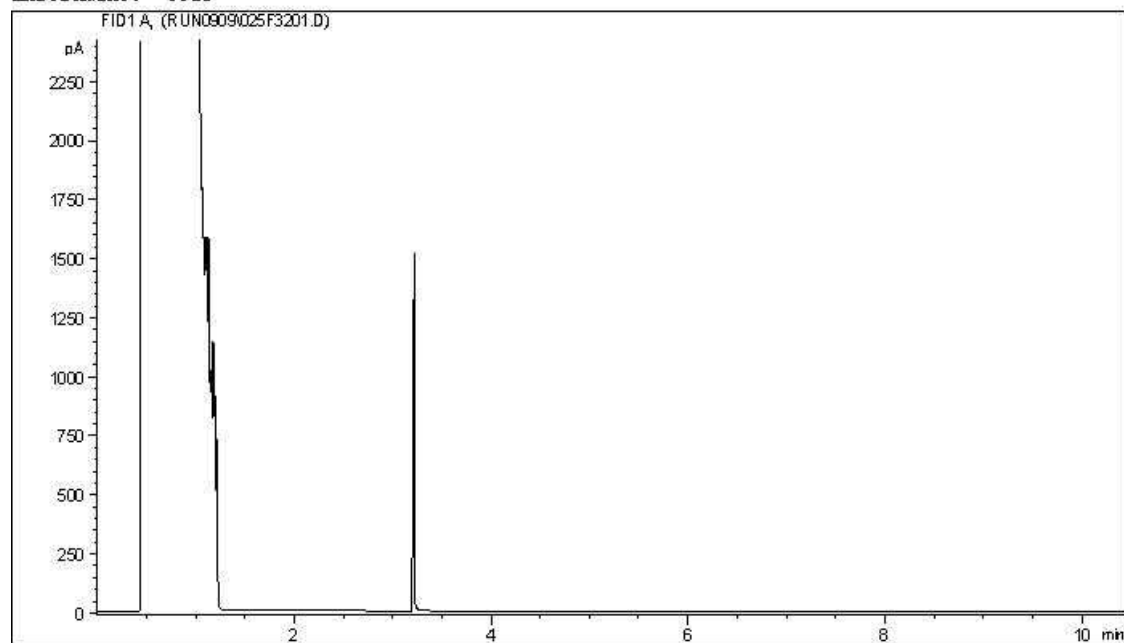
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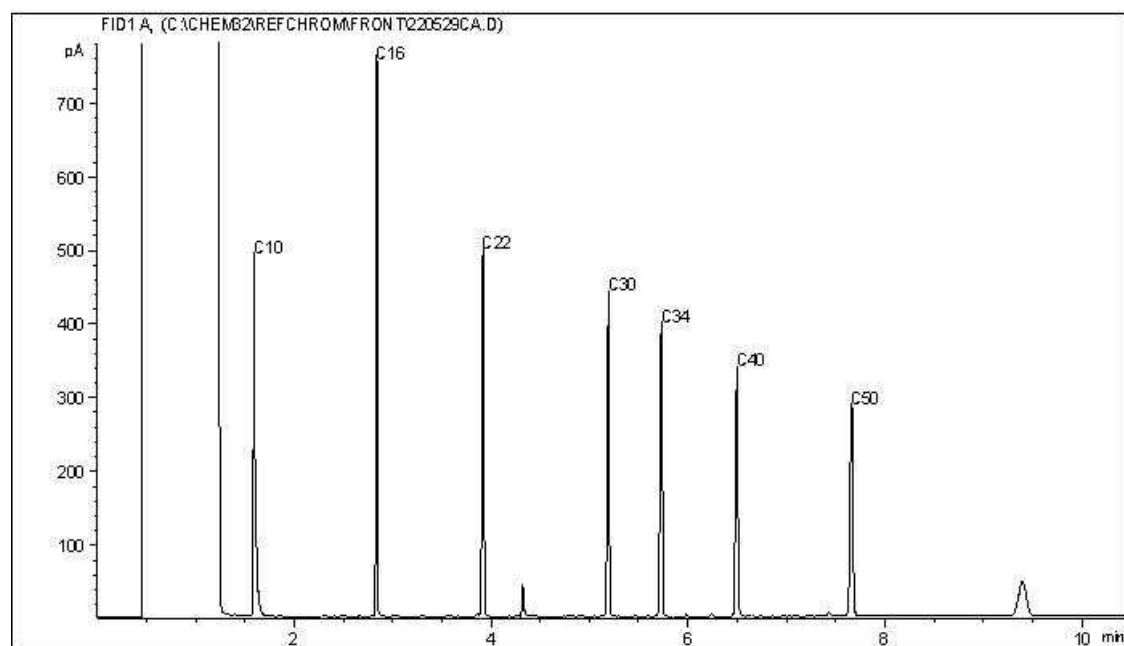
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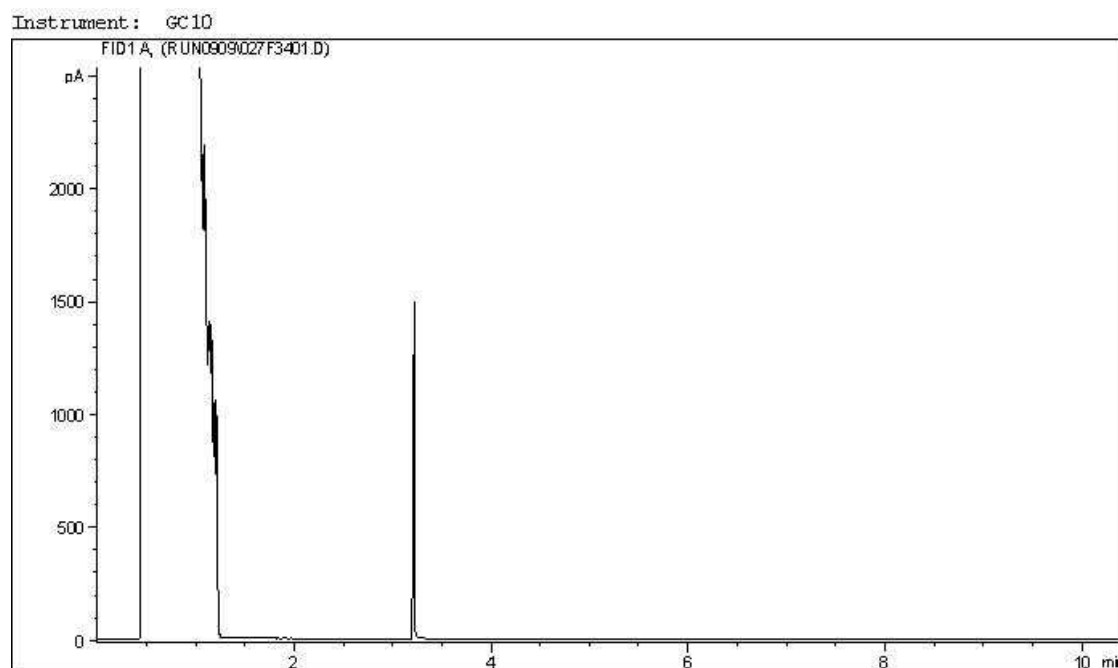


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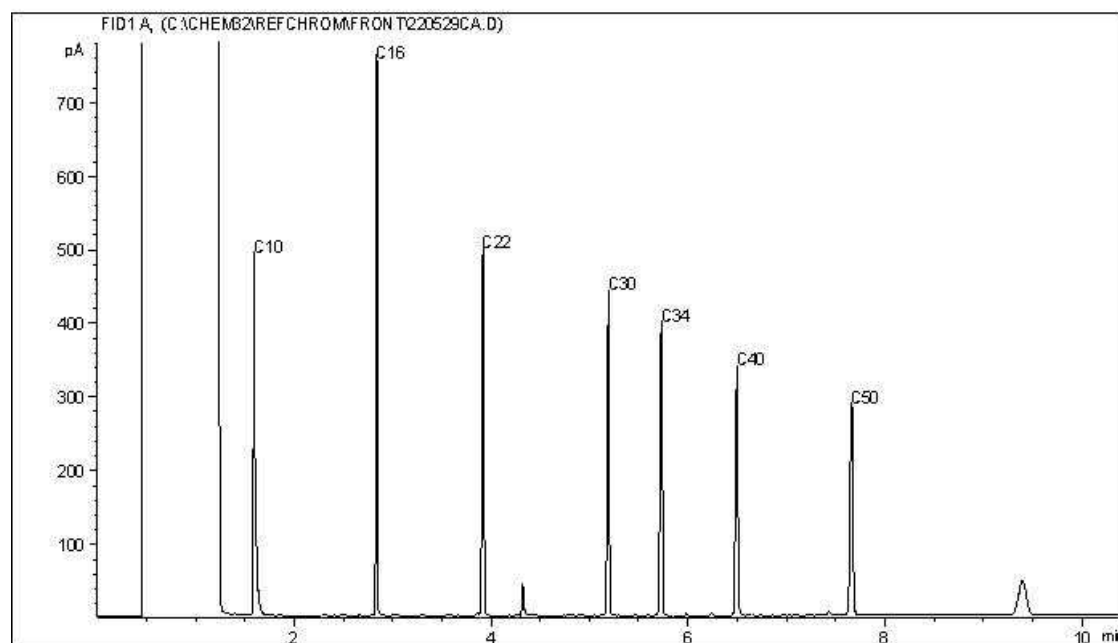
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