

**CAM-D SIMPSON LAKE
LONG TERM MONITORING EVENT
2020 LONG TERM MONITORING REPORT**

Submitted to:



Crown-Indigenous Relations
and Northern Affairs Canada

Relations Couronne-Autochtones
et Affaires du Nord Canada

Crown-Indigenous Relations and Northern Affairs Canada

Contaminants and Remediation Division

Box 2200

Iqaluit, Nunavut X0A 0H0

Prepared by:

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Yellowknife, NT X1A 1P3

Project Number: 200537

February 18, 2021

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EXECUTIVE SUMMARY

CAM-D was originally an intermediate Distant Early Warning (DEW) Line site implemented by the Department of National Defence (DND). Constructed in 1957, the site was taken out of service in 1963 and custody was assumed by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) in 1965. Remediation including the construction of a non-hazardous waste landfill (NHWL) took place between 2008 and 2011. All non-hazardous waste was placed in the NHWL which comprised of four perimeter berms constructed of granular material. The objective of this project is to complete tasks for the long-term monitoring of the CAM-D site as described in the *CAM-D Simpson Lake Long-Term Monitoring Plan, INAC, 2010* (LTM Plan). The 2020 long term monitoring event is Year 9 in Phase II of the monitoring plan.

The field program including visual inspection and groundwater sampling was carried out on August 28, 2020. A visual inspection and environmental monitoring inspection were completed of the site and documented in the visual monitoring and environmental monitoring checklists. Photographic records were collected and documented. Groundwater samples were collected from the four (4) monitoring wells on site and sent to ALS Laboratories in Yellowknife, NT for analysis for petroleum hydrocarbons (PHCs), polychlorinated biphenyls (PCBs), total and dissolved metals as well as general chemistry parameters.

Visual monitoring of the site shows evidence of frost action and erosion. Cracks that appear throughout the landfill did not expose any of the landfill contents at the time of the inspection. Some frost cracks appear to be increasing in size. The monitoring wells were noted in generally good condition but there was evidence of heaving at MW4 and the condition should be monitored closely in future monitoring events in case repairs are required. Several incidences of erosion were recorded in the visual monitoring inspection that was not previously reported. Poor drainage and ponding occur throughout the site but do not appear to be caused by deterioration of the landfill or to be affecting the condition of the landfill. No staining or seepage was evident during the site inspection. The NHWL condition is considered to be marginal based on the AMSRP Abandoned Military Site Remediation Protocol (INAC, 2009) as additional erosion and movement was observed in 2020.

The observations made regarding the natural environment monitoring showed evidence of wildlife though no wildlife was observed during the site visit. An interview with a local resident reported that the land was used for hunting and confirmed that caribou, wolves, fox, muskox and siksik are commonly found in the area and that no observable changes in wildlife sightings have been reported by local hunters and trappers.



No soil or surface water samples were collected as there was no evidence of any seepage or staining from the NHWL.

All four (4) groundwater wells were sampled including a field duplicate. The analytical results were compared to the Federal Interim Groundwater Quality Guidelines (FIGQGs) and were used to calculate Upper Limits of Acceptability (ULAs) based on available historical data. Several exceedances of the FIGQGs were reported including total and dissolved aluminum, cadmium, copper, selenium, uranium, iron, dissolved zinc, as well as sulphate, fluoride and chloride. It is important to note that the Tier 1 criteria applied for metals and general chemistry parameters in the FIGQGs are based on a water use exposure pathway that assumes surface water supporting aquatic life is within 10 m of the impacted groundwater. This is not the case at the CAM-D site and therefore these exceedances are not considered an area of concern. Monitoring of these exceedances should continue to determine if an increasing trend is occurring which could be as a result of leachate from waste within the NHWL entering the groundwater table.

Exceedances of the ULAs were observed for aluminum and nitrate. Parameters that exceed the ULAs should be closely monitored in the next monitoring event. If there are two successive monitoring events with ULA exceedances, increased monitoring is required according to the AMSRP (INAC, 2009). The geochemical assessment of the NHWL at CAM-D is therefore considered to be acceptable.

Based on the results of the 2020 long term monitoring event, BluMetric recommends continuing the increased frequency of monitoring as originally suggested by Arcadis in the 2016 *Long Term Monitoring* report. The recommendation is primarily due to the evidence of continued frost action, cracking at the landfill, heaving at monitoring wells and exceedances of the ULA in groundwater. These items should continue to be monitored closely for changes or increasing trends. The next monitoring event is recommended to occur in Year 11 (2022) and based on those findings, the schedule may need to be revisited.



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1 INTRODUCTION

BluMetric Environmental Inc. (BluMetric™) was retained by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) – Nunavut Regional Office to conduct long term monitoring (LTM) activities at the CAM-D site, Simpson Lake, Nunavut (herein referred to as “the site”). This project was completed under CIRNAC Standing Offer Number 4600001830 and order number 4500413861. This report describes the monitoring activities completed for CIRNAC at the site.

1.1 OBJECTIVE

The objective of this project is to complete tasks for the long-term monitoring of the CAM-D site as described in the *CAM-D Simpson Lake Long-Term Monitoring Plan, Indigenous and Northern Affairs Canada* (INAC), 2010 (referred to as “the LTM Plan”).

The Phase II monitoring schedule was increased to include monitoring in Year 9, as recommended by Arcadis Canada Inc. in their *Long Term Monitoring– 2016* report and again by SLR Consulting Ltd. (SLR) in their *2018 Long Term Monitoring Report*.

1.2 SCOPE OF WORK

The scope of work for the 2020 long term monitoring activities includes the following:

- Produce and implement a Logistic Plan that complies with all federal, provincial/territorial and municipal health requirements, restrictions and guidance related to COVID-19.
- Produce and implement a Health and Safety Plan including risks and mitigations specific to COVID-19.
- Produce and implement a field sampling plan including Quality Assurance and Quality Control (QAQC) plan.
- Implement a field program including:
 - o Provision of wildlife monitor (with firearm) from nearby community;
 - o Monitoring of general site condition and natural environment;
 - o Visual inspection of the Non-Hazardous Waste Landfill (NHWL) documented by photographic record, visual monitoring checklist and a site map;
 - o Purge and collect groundwater samples from the four (4) monitoring wells;
 - o Collect soil samples if seepage or staining is identified during the visual inspection;
 - o Collect blind duplicates of at least 20% of samples;



- o Submit samples to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory for analysis of petroleum hydrocarbon (PHC) fractions F1 and F2, total and dissolved metals, major ions, hardness, total dissolved solids, total suspended solids, pH, conductivity, and polychlorinated biphenyls (PCBs); and
- Submit a draft and final version of the CAM-D Simpson Lake 2020 Long Term Monitoring Report to CIRNAC.

2 BACKGROUND INFORMATION

The CAM-D Simpson Lake site is located approximately 80 kilometres (km) west of Kugaaruk, 120 km southeast of Taloyoak, and 160 km east of Gjoa Haven, Nunavut. Figure 1 shows the general site location. CAM-D was originally an intermediate Distant Early Warning (DEW) Line site implemented by the Department of National Defence (DND). Constructed in 1957, the site was taken out of service in 1963 and custody of the site was assumed by Indigenous and Northern Affairs Canada (INAC) in 1965.

During operations, the site consisted of a module train, warehouse, garage, Inuit house, petroleum, oil and lubricant (POL) tanks, Quonset huts, storage pads, a radar tower and a 750 m airstrip. At the time of the 1994 assessment, only the garage and a POL pumphouse were still standing, all others had been demolished or collapsed. Between 1992 and 1995, the DND constructed an unmanned Short-Range Radar (SRR) facility approximately 1km east of the site. This facility is still in operation and not part of the LTM activities.

Approximately 371 m³ of soils with concentrations of metals, polychlorinated biphenyls (PCB), petroleum hydrocarbons (PHC) and poly-aromatic hydrocarbons (PAH) exceeding Abandoned Military Site Remediation Protocol (AMSRP) criteria were identified on site. Tier I contaminated soil was used as intermediate fill in the NHWL and the Tier II contaminated soil was shipped off site for disposal. About 58 m³ of hazardous materials were identified and shipped off site for disposal. A total of 745 m³ of non-hazardous waste was identified and disposed of on site in the NHWL.

Remediation, including the construction of the NHWL, took place between 2008 and 2011. All non-hazardous waste was placed in the NHWL which comprised of four (4) perimeter berms constructed of granular material. The waste was placed in the landfill in lifts of 0.5 m and covered by 0.15 m of fill. The final cover consisted of a minimum of 1.0 m granular fill cap. The NHWL and the four (4) monitoring wells installed are shown on Figure 2.



2.1 PREVIOUS REPORTS AND MONITORING PROGRAMS

BluMetric Environmental reviewed the following reports prior to the field program:

- INAC, CAM-D (Simpson Lake) Long Term Monitoring Plan, February 22, 2010;
- Arcadis Canada Inc., Long Term Monitoring – 2016, February 3, 2017;
- SLR Consulting Ltd., 2018 Long Term Monitoring Report, December 18, 2018;
- Abandoned Military Site Remediation Protocol (AMSRP), March 2009, INAC.

A post construction landfill monitoring schedule is proposed in the AMSRP as the following:

- Phase I: Years 1, 3, 5
- Phase II: Years 7, 10 15 and 25
- Phase II: Beyond year 25 if required

It was recommended, based on the 2016 long term monitoring report findings by Arcadis, that the monitoring schedule in Phase II be increased to monitor in years 7 (2018), 9 (2020) and 11 (2022).

3 REGULATORY GUIDELINES

BluMetric reviewed the CAM-D LTM Plan as well as the AMSRP to identify the applicable guidelines to be used in the LTM program. The following sections describe the regulatory guidelines selected for each type of sample collected at the site.

3.1 GROUNDWATER

3.1.1 Baseline Samples

Due to the absence of groundwater criteria, the analytical data for groundwater was compared to available historical data from the site. According to AMSRP, if the analytical results are within the average +/- three standard deviations, the landfill is deemed acceptable and performing as expected. If the analytical results do not meet these criteria, further measures should be recommended ranging from increasing monitoring frequency to developing a new remedial plan.

An upper limit of acceptability (ULA) was calculated using the average + three (3) standard deviations of all available data from 2012 to 2018. ULAs were only calculated for a limited number of parameters since baseline data is sparse, and as concentrations for many parameters below the detectable limit. Duplicates were omitted from the calculations as to not over-represent results from one well in the ULA calculation. Tables 1 to 5 (following the text) summarize the available historical groundwater data and the calculated ULAs (where available).



3.1.2 Federal Interim Groundwater Quality Guidelines

In addition to the ULAs, the analytical results were also compared to the Federal Interim Groundwater Quality Guidelines (FIGQG). Generally, federal contaminated sites are evaluated using the Canadian Environmental Quality Guidelines (CEQG) developed by the Canadian Council of Ministers of the Environment (CCME). There are comprehensive guidelines for various media including surface water and soil, however no CEQGs exists for groundwater. In recognizing the need for a nationally-consistent approach for assessing and managing groundwater, Environment Canada developed the Federal Interim Groundwater Quality Guidelines. These guidelines are intended as an interim measure until CEQGs for groundwater are available.

The FIGQGs follow a tiered framework as follows:

- Tier 1: direct application of generic numerical guidelines, specifically, application of the lowest guideline for any pathway.
- Tier 2: allows for the development of site-specific remediation objectives through the consideration of site-specific conditions, by modifying (within limits) the numerical guidelines based on site-specific conditions and focusing on exposure pathways and receptors that are applicable to the site.
- Tier 3: use of site-specific risk assessment to develop Site-Specific Remediation Objectives

From the FIGQGs, the guidelines from Table 2, *Generic Guidelines for Residential/Parkland Land Uses, Tier 1 Lowest Guideline for coarse-grained soil* (Table 2, Tier 1) were referenced for this report as they were deemed most representative of current site use and soil conditions. The FIGQGs typically do not apply to total metals, they have been applied to both total and dissolved metals to evaluate potential for transport of contaminants with colloidal materials in groundwater. As per the FIGQGs for certain metals (aluminum, copper, lead, and zinc) without criteria, *Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CWQG AW) (CCME 1999) are used. Though typically only applied to total metals, due to the absence of applicable guidelines for dissolved metals, these were applied to both.

3.2 SURFACE WATER

There were no surface water samples collected at the site during the 2020 long term monitoring event as no seepage was observed from the landfill itself. No baseline surface water samples exist for the site, though two samples of ponded water were collected in 2018 and could be used to compare if future surface water samples are collected.



In previous reports the Canadian Water Quality Guidelines for the Protection of Aquatic life (CWQG-PAL) (CCME, 1999) is referenced for surface water. The CWQG-PAL were developed to provide basic scientific information about the effects of water quality variables and natural and anthropogenic substances on aquatic life. The guidelines that should be used to compare surface water analytical results are the freshwater, long term exposure guidelines since the NHWL is a permanent structure.

3.3 SOIL

Baseline soil samples were collected in 2012. With this information, ULAs could be calculated. No soil samples have been collected since the 2012 LTM event. Tables 6 through 8 present the historical data and the ULAs that should be used for analytical results comparison.

3.3.1 Canadian Environmental Quality Guidelines – CCME

No soil samples were collected as part of the long-term monitoring activity for the site, however previous monitoring reports reference the following CCME guidelines for soil analytical results:

- Canadian Soil Quality Guidelines (CSQGs) *for the Protection of Environmental and Human Health* (CCME, 1999, with updates) for residential/parkland use, including fact sheets for benzene, toluene, ethylbenzene and xylene (BTEX), non-potable water, coarse-grained soil.
- Canada-Wide Standard (CWS) for Petroleum Hydrocarbons in Soil (CCME, 2008) – Tier 1 Residential/Parkland, non-potable water, coarse-grained soil.

The rationale for choosing these criteria are that the groundwater at CAM-D will not be used for drinking (non-potable) and coarse-grained material is found on site. If seepage or staining occurs and soil samples are taken in future monitoring activities, the above guidelines should be used for comparison.

4 METHODOLOGY

The field program, including visual inspection and sampling, was carried out on August 28, 2020 by BluMetric personnel Matthew Kitchen, EIT and Jeff Rosnawski. They were accompanied by CIRNAC representative Selma Al-Soweydawi, and by a wildlife monitor Fred Qavvik, a resident of Kugaruuk who also provided knowledge of the site. The site was accessed by Twin Otter, chartered by Kenn Borek Air. Logistics for the site visit were carried out as per the Logistics Plan provided previously under a separate cover. The summaries of daily activities and notes can be found in Appendix A.



4.1 HEALTH AND SAFETY PLAN

In preparation for the field program, a site-specific Health and Safety Plan (HASP) was produced and submitted to CIRNAC previously under a separate cover. The HASP identified risks and suspected hazards associated with work on the site. It specifically addressed any known or suspected hazards and provided mitigative measures including protocols for COVID-19. Included in the HASP were emergency contacts and procedures for medical, mechanical, or weather emergencies. Prior to the start of work, a review of the HASP was completed with all personnel involved in the field program.

4.2 LANDFILL VISUAL MONITORING

The physical integrity of the NHWL was inspected at the CAM-D site during the 2020 long term monitoring event. The visual inspection looked for evidence of:

- erosion, ponding, frost action, settlement, and lateral movement;
- animal burrows, vegetation, vegetation stresses; and
- staining or seepage

This was documented by the visual monitoring checklist and through site photographs. Site features that were noted and summarized in the *2018 Long Term Monitoring Plan* by SLR Consulting were monitored for any observed changes and the summary table was updated to include new features observed during the 2020 visual monitoring.

4.3 NATURAL ENVIRONMENT MONITORING

Natural environment data was collected during the 2020 long term monitoring event. The specific observations that were noted included:

- wildlife sightings (species, number, gender, juveniles);
- evidence of recent presence of wildlife (droppings, tracks, feathers/fur, carcass remains, etc.);
- wildlife activity (summering/nesting/denning, migratory/passing through); and
- qualitative assessment of relative numbers versus previous years (more, same, less).

Observations and additional information on land use and wildlife activity was provided by Fred Qavvik, the wildlife monitor, and a resident of Kugaruuk.



4.4 GROUNDWATER SAMPLE COLLECTION

Samples were collected from all four (4) wells (MW01, MW02, MW03 and MW04) and a duplicate was collected (MW02 – D) for the 2020 monitoring event. Monitoring well locations are listed in Table 9 below.

Table 9: CAM-D Simpson Lake Monitoring Wells

Monitoring Well	Latitude	Longitude
MW01	68 35 35.29	-91 58 50.51
MW02 ¹	68 35 38.0564	-91 58 49.83
MW03	68 35 37.54	-91 58 54.21
MW04	68 35 35.58	-91 58 56.07

¹During the visual inspection it was noted that monitoring well MW02 was not located as indicated on the figures from the LTM plan or previous reports. The latitude and longitude for MW02 in this table are estimated based on visual inspection and should be re-surveyed if exact coordinates are required.

The locks on all four wells were cut and replaced with a new lock. The keys to the wells were provided to CIRNAC.

Water level and depth were recorded, and an approximate well volume was calculated. A peristaltic pump and dedicated, disposable polyethylene tubing were used to purge and sample the wells using a low-flow sampling methodology. The monitoring well was purged of three well volumes prior to sampling and water quality parameters including dissolved oxygen (DO), oxidation-reduction potential (ORP), temperature, pH, conductivity, turbidity and total dissolved solids were measured using a Horiba U-52 Multi-Parameter Meter and recorded prior to sampling. The Horiba U-52 Multi-Parameter Meter was checked and/or calibrated prior to sampling. Appendix B shows the groundwater sample collection log including the in-situ water quality parameter results.

Prior to shipping, samples were packed in a laboratory provided cooler and ice packs were to be replaced daily as necessary. The samples were shipped by Canadian North to the ALS Laboratories depot in Yellowknife where they were received and forwarded for analysis.

The groundwater samples were submitted to ALS Laboratories, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory for analysis of:

- PHCs;
- Total and Dissolved Metals;
- Major Ions, Hardness, Total Dissolved Solids (TDS), Total Suspended Solids (TSS);
- pH, Conductivity; and
- PCBs.



The QA/QC plan for this program included the following:

- **field duplicates** (20% of program) as per AMSRP to provide a measure of precision/repeatability of the sampling procedure, analytic technique and heterogeneity of the sample.
- **analytical method blanks** give a measure of any contamination that may be introduced during sample handling and processing and can indicate whether results are falsely inflated.
- **analytical control spike** is used to identify analytical interference associated with the sample matrix. Control spikes are evaluated by calculating a percent recovery as follows:
$$\text{Recovery (\%)} = \left(\frac{\text{measured concentration}}{\text{certified concentration}} \right) * 100$$
- **analytical duplicates** provide a measure of the precision and repeatability of the analytical method.

For field and analytical duplicates, the precision is measured by the relative percentage difference (RPD) for duplicate samples. RPD is calculated for contaminant concentrations greater than 5 times the reportable detection limit (RDL), concentrations results less than 5 times the RDL become increasingly imprecise. RPD is calculated as follows:

$$RPD (\%) = \left(\frac{Dup_1 - Dup_2}{\text{average of } Dup_1 + Dup_2} \right) * 100$$

The Guidance Manual for Environmental Site Characterization in Support of Human Health Risk Assessment, Volume I (CCME, 2016) recommends that RPDs for parameters of field duplicate groundwater samples not exceed 40% and RPDs for laboratory groundwater duplicates not exceed 20%. RPDs for soil sample field duplicates should not exceed 60% and RPDs for laboratory soil duplicates should not exceed 30%.

Unfortunately, due to a logistical issue, the de-ionized water for field blanks and travel blank bottles were not received in time for the site visit. As a result the following were omitted from the program:

- **travel blanks** to test for background contaminants, contamination from transport and handling or presence of container or preservative contamination.
- **field blanks**, to provide a measure of the sampling procedure and whether cross-contamination or contamination from exposure to air has occurred.



4.5 SOIL SAMPLING

No soil samples were collected at the time of the 2020 long term monitoring event as there was no evidence of seepage or staining. The following outlines the methodology that was prepared for this program in the event that soil sampling was required.

Soil samples were to be collected with a small trowel which will be decontaminated with a laboratory-grade biodegradable cleaner (Alconox®) and rinsed between sampling locations. Soils samples were to be collected to a maximum depth of 30cm and pack into laboratory supplied jars with minimal to no headspace. Samples were to be kept cool and packed on ice for shipment to ALS laboratories.

The following parameters were to be analysed:

- PCBs;
- F1-F4 PHCs; and
- Metals.

5 RESULTS

5.1 PHOTOGRAPHIC RECORDS

The photographic records of the NHWL were taken as per the scope of work. The complete photographic record (Photos 1-150) has been transferred to CIRNAC electronically through the File Transfer Protocol (FTP) site due to the large file size. The photographs referenced in the text of the document are found in Appendix C. Note that the photographs referenced in CAM-D Simpson Lake NHWL Feature Summary Table 10 reference photograph numbers from the complete photo record. Photo viewpoints (which reference the complete photo record) have also been depicted on Figure 2 CAM-D Non-Hazardous Waste Landfill Plan.

5.2 LANDFILL VISUAL MONITORING

The visual monitoring checklist was completed to document the inspection of the NHWL. See Appendix A for the visual monitoring checklist and notes collected on site. Table 10 summarizes the features that appeared in the 2018 long term monitoring report as well as features not previously reported. This table updates the changes observed during the 2020 Landfill Visual Monitoring. Features observed during the visual monitoring are shown on Figure 2 – CAM-D Non-hazardous Waste Landfill Plan.



Table 10: CAM-D Simpson Lake NHWL Feature Summary

Feature Letter	Feature Type	Location	Extent	Description/Change Comments	Photographs ¹
A	Erosion	Top of NHWL, near S Corner	<1%	Appears to have grown in size from the previous reported extent.	75, 76, 77
B	Vegetation	NE of MW04	<1%	Grasses were observed to be present in a higher density and cover a larger area than was reported in 2018.	67
C	Ponded Water	Multiple areas around base of NHWL	N/A	Multiple areas of standing water in the vicinity of the NHWL. More standing water than reported in 2018.	8-16, 19-24, 36-40, 44, 45, 47-53, 57-71, 83-90, 120, 124-126
D²	Erosion	100 NE of N Corner of NHWL	N/A	Not observed, limited assumed effect on project area due to distance.	N/A
E	Settlement	SW Berm	<1%	Horizontal cracking, one additional crack was observed in 2020 that was not present in 2018.	67, 75, 76, 77
F	Settlement	NW Berm	<1%	Horizontal cracking, significant change in length from the 2018 report, An estimated increase of approximately 10 m based on 2018 photos.	60, 65, 66, 131
G	Erosion	NE Berm	<1%	Erosion Rills, extent of rills has increased from the 2018 report.	8 -13, 42
H	Settlement	E Corner	<1%	Not observed, potentially filled with water.	9
I	Settlement	SE Berm	<1%	Horizontal cracking, significant change in length from the 2018 report. An estimated increase of approximately 30 m based on 2018 photos.	110-113
J	Settlement	NE Berm	<1%	Horizontal cracking, no significant change was observed from the 2018 investigation.	8 -13, 42, 142



Feature Letter	Feature Type	Location	Extent	Description/Change Comments	Photographs ¹
K	Settlement	NE Berm	<1%	Horizontal cracking, no significant change was observed from the 2018 investigation.	8 -13, 142
L	Settlement	N Corner	<1%	Horizontal cracking, no significant change was observed from the 2018 investigation.	47, 66
M	Settlement	Mid-SW Berm, at toe	<1%	Horizontal cracking, no significant change was observed from the 2018 investigation	67
N	Debris	N Corner	<1%	Not observed due to standing water.	N/A
O	Debris	Landfill Cap near W Corner	<1%	The wire reported in the 2018 report was not observed.	97
P	Erosion	NW Berm	10%	Erosion Rills, not previously included in summary. Large area observed along the NW Berm. Similar in extent to pictures from the 2018 report.	60, 65, 67, 131
Q	Debris	West of landfill	<1%	Various pieces of wood and wires.	119, 121- 124
R	Debris	East of landfill	<1%	Various pieces of wire debris.	119, 140, 141

¹Photograph numbers listed in this table reference photograph numbers from the complete photo record.

²Feature from 2018 Long Term Monitoring Report not observed

N/A – not applicable

Overall, the site NWHL was observed to be in marginal condition based on the severity ratings presented in the AMSRP Volume II (INAC, 2009). Based on the 2020 visual monitoring observations, the physical performance of the NHWL appears to be deteriorating with time, with an increase in the number and size of features, indicating physical degradation. The surface of the NHWL was flat and had little to no evidence of settlement. Evidence of erosion was noticed in the north east corner of the landfill, consistent with previous reports see Photos 1 through 4. Photos 5 through 9 show evidence of frost action. Evidence of frost cracks occur around all sides of the landfill consistent with the observations in previous reports. Some of these cracks have grown in size from previous monitoring events while some appeared to remain the same. New frost cracks and areas of erosion were added to the summary. The cracks and areas of erosion do not expose any contents of the landfill but should continue to be monitored closely in upcoming long term monitoring events.



There was no evidence of wildlife impacting the landfill however, two siksik burrows were noted on the road, shown in Photo 10. As mentioned in previous reports, re-vegetation will likely take a significant amount of time to occur due to the short growing season and coarse material that were used in the construction. Photo 11 provides context of the vegetation that exists on the site surrounding the landfill. Small plants were observed throughout the landfill with cover estimated at about 10%, slightly higher than was noted in 2018.

No staining or seepage was observed. Miscellaneous debris was found throughout the site. Photos show small pieces of debris throughout the site (Photo 12 and 13). The small pieces of debris do not appear to be coming from deficiencies in the landfill.

The condition of the monitoring wells was observed to be fully functional, however monitoring well MW04 showed evidence of heaving, see Photo 14. Photo 15 shows evidence of ponding on the site, however poor drainage was noted throughout the entire site. As mentioned above in Table 9, monitoring well MW02 does not appear to be in the location previously reported. Figure 2 shows the estimated location based off of the 2020 site visit.

5.3 NATURAL ENVIRONMENT

Site observations and an interview with a local resident were conducted to document the status of the natural environment near the NHWL. The natural environment monitoring checklist can be found in Appendix A.

No wildlife sightings were observed during the monitoring event. Evidence of wildlife in the form of animal tracks in the area was documented. Caribou tracks (Photo 16), wolf tracks (Photo 17) and a siksik den were present in the vicinity of the NHWL.

An interview with Fred Qavvik revealed that the wildlife activity in the area includes siksik denning and wildlife such as wolves, caribou, fox and muskox passing through. He noted that there is some hunting that occurs in the area for caribou and fishing at Simpson Lake for Arctic char and lake trout. He noted that local hunters have noted no noticeable change in the relative number of wildlife in the area and estimated that one could see up to five (5) caribou, one (1) or two (2) wolves, and an unknown number of siksik at a time while visiting the area.

There was evidence of revegetation observed on the landfill, but as expected given the climate, much less than the surrounding tundra. Photos 18, 19 and 20 provide some context by showing the extent of revegetation compared to the surrounding tundra.



5.4 GROUNDWATER ANALYTICAL RESULTS

A total of five (5) groundwater samples were collected. Samples from all four (4) monitoring wells and a duplicate sample from MW02 were collected and submitted to ALS Laboratories in Yellowknife for analysis. Certificate of analysis can be found in Appendix D.

The AMSRP suggests that analytical results be compared to the results of previous data, and if the groundwater concentrations are within the range of the average +/- three standard deviations, the landfill is performing acceptably. In addition to the ULAs, the groundwater analytical results were compared to the FIGQGs.

Analytical results for PHCs in groundwater in 2020 were all below reportable detection limits. This is consistent with analytical results from the previous monitoring activities. Table 11 (following the text) presents the analytical results for PHCs and the reportable detection limits.

The analytical results show that PCB concentrations were below the reportable detection limits for all samples. Table 12 (following the text) summarizes the analytical results for PCBs and the reportable detection limits.

Tables 13 and 14 (following the text) summarize the analytical results for total and dissolved metals. Analytical results from general chemistry including major ions are summarized in Table 15 (following the text). It should be noted that the FIGQGs have been updated in the historical metals table (Tables 3 and 4) to the 2016 criteria which has resulted in some additional historical exceedances.

Table 16 below summarizes the exceedances of FIGQGs for groundwater samples analyzed during the 2020 long term monitoring event.

Table 16: Summary of Exceedances FIGQGs

Sample ID	FIGQG Exceedances	FIGQG
MW01	Total Aluminum (0.155 mg/L)	0.1 mg/L
	Total Cadmium (0.000126 mg/L)	0.00009 mg/L
	Total Copper (0.0107 mg/L)	0.004 mg/L
	Dissolved Copper (0.0168 mg/L)	0.004 mg/L
	Total Selenium (0.00156 mg/L)	0.001 mg/L
	Dissolved Selenium (0.00183mg/L)	0.001 mg/L
	Total Uranium (0.214 mg/L)	0.015 mg/L
	Dissolved Uranium (0.186 mg/L)	0.015 mg/L
	Fluoride (0.86 mg/L)	0.12 mg/L
	Sulphate (1020 mg/L)	100 mg/L



Sample ID	FIGQG Exceedances	FIGQG
MW02	Total Copper (0.0103 mg/L)	0.004 mg/L
	Dissolved Copper (0.0107 mg/L)	0.004 mg/L
	Total Uranium (0.0959 mg/L)	0.015 mg/L
	Dissolved Uranium (0.103mg/L)	0.015 mg/L
	Fluoride (0.72 mg/L)	0.12 mg/L
	Sulphate (248 mg/L)	100 mg/L
MW02-D	Total Copper (0.01 mg/L)	0.004 mg/L
	Dissolved Copper (0.0104 mg/L)	0.004 mg/L
	Total Uranium (0.106 mg/L)	0.015 mg/L
	Dissolved Uranium (0.0955 mg/L)	0.015 mg/L
	Fluoride (0.69 mg/L)	0.12 mg/L
	Sulphate (245 mg/L)	100 mg/L
MW03	Total Aluminum (0.187 mg/L)	0.1 mg/L
	Dissolved Aluminum (0.176 mg/L)	0.1 mg/L
	Total Cadmium (0.000151 mg/L)	0.00009 mg/L
	Dissolved Cadmium (0.000153mg/L)	0.00009 mg/L
	Total Copper (0.0112 mg/L)	0.004 mg/L
	Dissolved Copper (0.0118 mg/L)	0.004 mg/L
	Total Uranium (0.0756 mg/L).	0.015 mg/L
	Dissolved Uranium(0.0865mg/L)	0.015 mg/L
	Dissolved Zinc (0.0103mg/L)	0.01 mg/L
	Chloride (200 mg/L)	120 mg/L.
	Fluoride (0.79 mg/L)	0.12 mg/L
	Sulphate (422 mg/L)	100 mg/L
MW04	Total Aluminum (1.73 mg/L)	0.1 mg/L
	Dissolved Aluminum (2.46 mg/L)	0.1 mg/L
	Total Copper (0.00819 mg/L)	0.004 mg/L
	Dissolved Copper (0.00983 mg/L)	0.004mg/L
	Total Iron (0.853 mg/L)	0.3 mg/L
	Dissolved Iron(1.48mg/L)	0.3 mg/L
	Total Uranium (0.0155 mg/L)	0.015 mg/L
	Fluoride (0.5 mg/L)	0.12 mg/L
	Sulphate (275 mg/L)	100 mg/L

Table 17 below summarizes the exceedances of calculated ULAs for groundwater samples analyzed during the 2020 long term monitoring event.



Table 17: Summary of Exceedances ULA

Sample ID	ULA Exceedances	ULA
MW01	Dissolved Aluminum (2.46 mg/L)	1.4 mg/L
	Nitrate (0.44 mg/L)	0.14 mg/L
MW02	Nitrate (1.31 mg/L)	0.14 mg/L
MW02-D	Nitrate (1.33 mg/L)	0.14 mg/L
MW03	Nitrate (0.221 mg/L)	0.14 mg/L
MW04	Nitrate (0.455 mg/L)	0.14 mg/L

According to the AMSRP, an exceedance of the ULA for two or more successive monitoring events corresponds to a low risk of failure for the NHWL in which case increasing monitoring should occur. Though there were ULA exceedances for aluminum and nitrate, no previous exceedances of the ULAs for these parameters have been reported. These parameters should be monitored closely in the next monitoring event to determine whether increased monitoring is required.

5.5 QA/QC DISCUSSION

5.5.1 Duplicate Samples – Relative Percent Difference

One field duplicate sample was taken from MW02. RPD was calculated for contaminant concentrations greater than 5 times the reportable detection limit (RDL), none of the calculated RPDs exceeded the 40% RPD criterion for field duplicates. Table 17 (following the text) shows the complete list of RPDs that were calculated.

5.5.2 Field Blank and Trip Blank

A field blank and trip blank were planned to be collected at the CAM-D site. Unfortunately, due to shipping and logistical issues, the field staff experienced a shortage of de-ionized water and trip blanks were not received. As a result, no trip blanks or field blanks were analysed.

5.5.3 Analytical QA/QC

Analytical QA/QC was completed by ALS laboratories by way of analytical method blanks, analytical control spikes and analytical duplicates.

Hold times for TSS, TDS, Nitrate, Nitrite, PHCs, PCBs and pH were exceeded. This was in part due to the logistical challenges of shipping from the site to ALS in Yellowknife and subsequent shipping to the southern laboratories for analysis. As stated in ALS laboratories guidance



document Hold Times: General Information of Exceedances (2017), hold times are established and intended as best-practice to protect the integrity of the test samples and minimize the potential for significant changes to samples prior to analysis (ALS, 2017). If exceeded, it is common practice to apply professional judgment to assess whether the results may still be useable and fit-for-purpose. It was expected that the hold time for pH would exceed, and as a standard procedure, field measurements were collected to represent conditions at the time of sampling (Appendix A). Based on recommendations from ALS, test results with hold time exceedances less than 50% of the recommended hold time may be considered valid and defensible, with the caveat that the measurement uncertainty associated with those tests may be higher than usual. This would be applicable for the PHC and PCB analysis which were 7% and 22% over their respective recommended hold times.

For significant hold time exceedances such as the samples for TDS, TSS, Nitrate and Nitrite, the environmental fate and stability characteristics of the specific sample should be considered prior to determining whether the test results are fit-for-purpose. ALS recommends that the consistency with historical or expected results or with available test results from related or similar samples be considered. Results for TDS were below historical levels. Results for TSS were slightly above the expected concentration based on the ULA. Concentrations of nitrate were below criteria, and concentration of nitrite were below detectable limits.

Logistical challenges are expected working in remote locations, and some hold time exceedances were anticipated. Reduced flight frequency during the summer of 2020 increased the potential for hold time exceedances during sampling shipping. For future monitoring programs, implementing methods to expedite sample delivery would help to reduce the uncertainty related to the results.

The complete analytical quality control report can be found as part of the certificate of analyses in Appendix D.

6 CONCLUSION

The observations made during the 2020 long term monitoring event support that the non-hazardous waste landfill (NHWL) is performing as expected.

Visual monitoring of the site shows evidence of frost action and erosion. Cracks that appear throughout the landfill did not expose any of the landfill contents at the time of the inspection. Some frost cracks appear to be increasing in size. In addition, there was some evidence of frost action affecting the monitoring wells. The monitoring wells were noted in generally good



condition but there was evidence of heaving at MW4 and the condition should be monitored closely in future monitoring events in case repairs are required. Several incidences of erosion were recorded in the visual monitoring inspection that was not previously reported. Poor drainage and ponding occur throughout the site but do not appear to be caused by deterioration of the landfill or to be affecting the condition of the landfill. No staining or seepage was evident during the site inspection. The NHWL condition is considered to be marginal based on the AMSRP (INAC, 2009) as additional erosion and movement was observed in 2020.

The observations made regarding the natural environment monitoring showed evidence of wildlife though no wildlife was observed during the site visit. Caribou and wolf tracks, and siksik burrows were observed. An interview with a local resident reported that the land was used for hunting and confirmed that caribou, wolves, fox, muskox and siksik are commonly found in the area and that no observable changes in wildlife sightings has been reported by local hunters and trappers.

No soil or surface water samples were collected as there was no evidence of any seepage or staining from the NHWL.

All four (4) groundwater wells were sampled including a field duplicate and submitted to the analytical laboratory for petroleum hydrocarbons, polychlorinated biphenyls, total and dissolved metals, major ions, hardness, total dissolved and suspended solids, pH and conductivity analyses. The analytical results were compared to the FIGQGs and were used to calculate ULAs based on available historical data. Several exceedances of the FIGQGs were reported including total and dissolved aluminum, cadmium, copper, selenium, uranium, iron, dissolved zinc, as well as sulphate, fluoride and chloride. It is important to note that the Tier 1 criteria applied for metals and general chemistry parameters in the FIGQGs are based on a water use exposure pathway that assumes surface water supporting aquatic life is within 10 m of the impacted groundwater. This is not the case at the CAM-D site and therefore these exceedances are not considered an area of concern. Monitoring of these exceedances should continue to determine if an increasing trend is occurring which could be as a result of leachate from waste within the NHWL entering the groundwater table.

Exceedances of the ULAs were observed for dissolved aluminum and nitrate. Parameters that exceed the ULAs should be closely monitored in the next monitoring event. If there are two successive monitoring events with ULA exceedances, increased monitoring is required according to the AMSRP (INAC, 2009). The geochemical assessment of the NHWL at CAM-D is therefore considered to be acceptable.



Based on the results of the 2020 long term monitoring event, BluMetric recommends continuing the increased frequency of monitoring as originally suggested by Arcadis in the 2016 *Long Term Monitoring* report. The recommendation is primarily due to the evidence of continued frost action, cracking at the landfill, heaving at monitoring wells and exceedances of the ULA in groundwater. These items should continue to be monitored closely for changes or increasing trends. The next monitoring event is recommended to occur in Year 11 (2022) and at that point, the schedule should be revisited.

6.1 CLOSURE

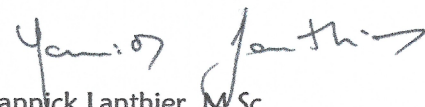
The conclusions presented in this report are based upon the analysis of historical information made available to BluMetric Environmental Inc. Any additional information received after the date of delivery of this report will be analysed and submitted in a timely manner in the form of an addendum or a memorandum.

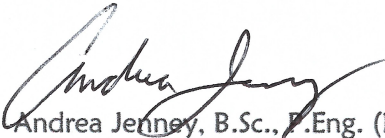
BluMetric Environmental Inc, makes no warranty as to the accuracy or completeness of the information provided by others, or of conclusions and recommendations predicated on the accuracy of that information.

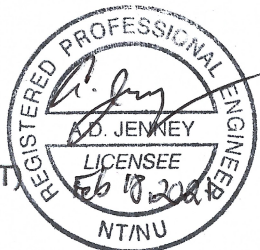
This report has been prepared for CIRNAC. Any use a third party makes of this report, any reliance on the report, or decisions based upon the report, are the responsibility of those third parties unless authorization is received from BluMetric Environmental Inc. in writing.

Respectfully Submitted,
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TABLES



CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW
Table 1: Historical Analytical Chemistry Results for PHCs and VOCs in Water				MW01 - 2012	MW01 - 2012- Lab D	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	Franz	Franz	Franz	Franz	Arcadis	Arcadis	Franz	Arcadis
				8-Jul-12	8-Jul-12	23-Aug-14	23-Aug-14	20-Aug-16	20-Aug-16	23-Aug-14	19-Aug-16
PHCs and VOCs											
F1 (C6-C10)	mg/L	0.1	0.81	<0.025	<0.025	<0.025	<0.025	<0.10	<0.10	<0.025	<0.10
F1-BTEX	mg/L	0.1	0.81	<0.025	<0.025	<0.025	<0.025	<0.10	<0.10	<0.025	<0.10
F2 (C10-C16)	mg/L	0.3	1.3	<u><100</u>	-	<u><100</u>	<u><100</u>	<0.10	<0.10	-	<0.10
F3 (C16-C34)	mg/L	0.3	-	<100	-	<200	<200	<0.20	<0.20	-	<0.20
F4 (C34-C50)	mg/L	0.3	-	<100	-	<200	<200	<0.20	<0.20	-	<0.20
Benzene	mg/L	0.0005	0.14	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040
Ethylbenzene	mg/L	0.0005	11	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040
Toluene	mg/L	0.00045	0.083	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040
ortho-Xylene	mg/L	0.0005	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040
meta- & para-Xylene	mg/L	0.0005	-	<0.00040	<0.00040	<0.00040	<0.00040	<0.00080	<0.00080	<0.00040	<0.00080
Xylenes	mg/L	0.00075	3.9	<0.00040	<0.00040	<0.00040	<0.00040	<0.00080	<0.00080	<0.00040	<0.00080

Notes:

Underline indicates detection limit exceeds criteria

Criteria 1 - CSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIGQG), 2016

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW	
Table 1: Historical Analytical Chemistry Results for PHCs and VOCs in Water				MW03-2012	MW03-2012 - D	MW03-2014	MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016	
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	
			FCSAP-T1-Coarse-RP	Franz	Franz	Franz	Arcadis	Franz	Franz	Franz	Franz	Arcadis
				7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16	7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16	
PHCs and VOCs												
F1 (C6-C10)	mg/L	0.1	0.81	<0.025	-	<0.025	<0.10	<0.025	<0.025	<0.025	<0.10	
F1-BTEX	mg/L	0.1	0.81	<0.025	-	<0.025	<0.10	<0.025	<0.025	<0.025	<0.10	
F2 (C10-C16)	mg/L	0.3	1.3	<u><100</u>	<u><100</u>	<u><100</u>	<0.10	<u><100</u>	<u><100</u>	<u><100</u>	<0.10	
F3 (C16-C34)	mg/L	0.3	-	<100	<100	<200	<0.20	<100	<100	<200	<0.20	
F4 (C34-C50)	mg/L	0.3	-	<100	<100	<200	<0.20	<100	<100	<200	<0.20	
Benzene	mg/L	0.0005	0.14	<0.00020	-	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00040	
Ethylbenzene	mg/L	0.0005	11	<0.00020	-	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00040	
Toluene	mg/L	0.00045	0.083	<0.00020	-	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00040	
ortho-Xylene	mg/L	0.0005	-	<0.00020	-	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00040	
meta- & para-Xylene	mg/L	0.0005	-	<0.00040	-	<0.00040	<0.00080	<0.00040	<0.00040	<0.00040	<0.00080	
Xylenes	mg/L	0.00075	3.9	<0.00040	-	<0.00040	<0.00080	<0.00040	<0.00040	<0.00040	<0.00080	

Notes:

<u>Underline</u>	indicates detection limit exceeds criteria
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Criteria 1 - CSAP Guidance Document on Federal Interim Gro

RDL - Refers to laboratory detection limit which may va

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Table 2: Analytical Chemistry Results for PCBs in Water				MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2012 - D	MW03-2014
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	Franz	Franz	Franz	Arcadis	Arcadis	Franz	Arcadis	Franz	Franz	Franz
				8-Jul-12	23-Aug-14	23-Aug-14	20-Aug-16	20-Aug-16	23-Aug-14	19-Aug-16	7-Aug-12	7-Aug-12	23-Aug-14
PCBs													
Aroclor 1016	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1221	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1232	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1242	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1248	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1254	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1260	mg/L	0.00002	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1262	%	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Aroclor 1268	mg/L	0.00004	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Total PCBs	mg/L	0.00004	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Notes:

Criteria 1 - 2016

FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIQWQG), 2016

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW
Table 2: Analytical Chemistry Results for PCBs in Water				MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	Arcadis	Franz	Franz	Franz	Arcadis
				19-Aug-16	7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16
PCBs								
Aroclor 1016	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1221	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1232	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1242	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1248	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1254	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1260	mg/L	0.00002	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1262	%	-	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Aroclor 1268	mg/L	0.00004	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005
Total PCBs	mg/L	0.00004	-	<0.00005	<0.0003	<0.00005	<0.00005	<0.00005

Notes:

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Protection Criteria
2016
RDL - Refers to laboratory detection limit which may vary

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	Average	Standard Deviation	ULA
Table 3: Analytical Chemistry Results for Metals and Inorganics (Total) in Water				MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2014	MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016			
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D			
			FCSAP-TI-Coarse-RP	Franz	Franz	Franz	Arcadis	Arcadis	Franz	Arcadis	Franz	Franz	Arcadis	Franz	Franz	Franz	Arcadis			
				8-Jul-12	23-Aug-14	23-Aug-14	20-Aug-16	20-Aug-16	23-Aug-14	19-Aug-16	7-Aug-12	23-Aug-14	19-Aug-16	7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16			
Total Metals																				
Aluminum (Al)-Total	mg/L	0.003	0.1	-	-	-	0.022	0.023	-	0.063	-	-	1.2	-	-	-	5.9	-	-	-
Antimony (Sb)-Total	mg/L	0.0001	2	-	-	-	0.0016	0.0016	-	<0.00060	-	-	<0.00060	-	-	-	<0.00060	-	-	-
Arsenic (As)-Total	mg/L	0.0001	0.005	0.0037	0.0042	0.0037	0.0026	0.0027	0.00052	0.00041	0.0016	0.0011	0.0017	0.00044	0.00042	0.00072	0.0016	0.00169	0.00131	0.00561
Barium (Ba)-Total	mg/L	0.0001	0.5	-	-	-	0.011	0.011	-	0.039	-	-	0.039	-	-	-	0.039	0.02500	0.01617	0.07350
Beryllium (Be)-Total	mg/L	0.0001	0.0053	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010	-	-	-
Bismuth (Bi)-Total	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)-Total	mg/L	0.01	1.5	-	-	-	0.073	0.072	-	0.049	-	-	0.067	-	-	-	0.063	0.06300	0.01020	0.09359
Cadmium (Cd)-Total	mg/L	0.000005	0.00009	0.00018	0.00023	0.0002	0.000043	0.000072	0.00003	0.000026	0.0011	0.000053	<0.000020	0.000075	0.000064	0.000024	<0.000020	0.00020	0.00035	0.00124
Calcium (Ca)-Total	mg/L	0.05	-	-	-	-	67	67	-	96	-	-	60	-	-	-	26	62.25000	28.75616	148.51848
Cesium (Cs)-Total	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Total	mg/L	0.0001	0.0089	0.0018	0.0029	0.0036	0.0011	0.0011	0.0011	<0.0010	<0.001	0.0012	0.0029	<0.001	<0.001	0.0011	0.0065	0.00233	0.00186	0.00790
Cobalt (Co)-Total	mg/L	0.0001	-	0.00044	0.0012	0.001	0.00063	0.00062	0.00044	0.00089	0.00044	0.00052	0.001	0.0005	0.00049	<0.00030	0.0015	0.00076	0.00037	0.00188
Copper (Cu)-Total	mg/L	0.0005	hardness depend.	0.012	0.038	0.032	0.02	0.02	0.032	0.008	0.046	0.017	0.0071	0.024	0.025	0.013	0.013	0.02092	0.01278	0.05924
Iron (Fe)-Total	mg/L	0.01	0.3	-	-	-	<0.060	<0.060	-	0.1	NA	NA	2	-	-	-	4.1	2.06667	2.00083	8.06917
Lead (Pb)-Total	mg/L	0.00005	hardness depend.	0.0031	0.0029	0.0025	0.00076	0.00079	0.00073	0.0027	0.001	0.0004	0.00083	<0.0002	<0.0002	<0.00020	0.00092	0.00148	0.00108	0.00472
Lithium (Li)-Total	mg/L	0.001	-	-	-	-	0.15	0.15	-	0.051	-	-	0.078	-	-	-	0.029	0.07700	0.05263	0.23489
Magnesium (Mg)-Total	mg/L	0.005	-	-	-	-	65	66	-	99	-	-	72	-	-	-	15	62.75000	35.04640	167.88919
Manganese (Mn)-Total	mg/L	0.0001	-	-	-	-	0.078	0.08	-	0.73	-	-	0.11	-	-	-	0.075	0.24825	0.32156	1.21292
Mercury (Hg)-Total	mg/L	0.000005	0.000026	-	-	-	0.0000029	<0.0000020	-	0.0000028	-	-	0.0000024	-	-	-	<0.0000020	0.00000	0.00000	0.00000
Molybdenum (Mo)-Total	mg/L	0.00005	0.073	-	-	-	0.085	0.086	-	0.0093	-	-	0.036	-	-	-	0.0082	0.03463	0.03596	0.14250
Nickel (Ni)-Total	mg/L	0.0005	hardness depend.	0.001	0.045	0.04	0.03	0.03	0.0058	0.0031	0.0036	0.018	0.012	0.0075	0.0076	0.0038	0.0037	0.01214	0.01384	0.05364
Phosphorus (P)-Total	mg/L	0.05	-	-	-	-	<0.10	<0.10	-	<0.10	-	-	<0.10	-	-	-	<0.10	-	-	-
Potassium (K)-Total	mg/L	0.05	-	-	-	-	18	18	-	9.5	-	-	29	-	-	-	23	19.87500	8.25000	44.62500
Rubidium (Rb)-Total	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)-Total	mg/L	0.00005	0.001	-	-	-	0.0049	0.0049	-	<0.00020	-	-	0.00039	-	-	-	0.00036	0.00188	0.00261	0.00972
Silicon (Si)-Total	mg/L	0.1	-	-	-	-	4.9	4.9	-	2.8	-	-	4.5	-	-	-	7.6	4.95000	1.98746	10.91238
Silver (Ag)-Total	mg/L	0.00001	0.00025	-	-	-	<0.00010	<0.00010	-	<0.00010	-	-	<0.00010	-	-	-	<0.00010	-	-	-
Sodium (Na)-Total	mg/L	0.05	-	-	-	-	910	910	-	51	-	-	230	-	-	-	140	332.75000	391.71025	1507.88074
Strontium (Sr)-Total	mg/L	0.0002	-	-	-	-	0.71	0.72	-	0.41	-	-	0.41	-	-	-	0.18	0.42750	0.21731	1.07944
Sulfur (S)-Total	mg/L	0.5	-	-	-	-	620	610	-	110	-	-	150	-	-	-	61	235.25000	259.06933	1012.45798
Tellurium (Te)-Total	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Total	mg/L	0.00001	0.0008	-	-	-	<0.00020	<0.00020	-	<0.00020	-	-	<0.00020	-	-	-	<0.00020	-	-	-
Thorium (Th)-Total	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)-Total	mg/L	0.0001	-	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010	-	-	-
Titanium (Ti)-Total	mg/L	0.0003	0.1	-	-	-	0.0014	0.0012	-	0.0052	-	-	0.11	-	-	-	0.27	0.09665	0.12605	0.47479
Tungsten (W)-Total	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)-Total	mg/L	0.00001	0.015	-	-	-	0.27	0.28	-	0.19	-	-	0.074	-	-	-	0.0048	0.13470	0.11821	0.48934
Vanadium (V)-Total	mg/L	0.0005	-	-	-	-	0.001	0.0011	-	<0.0010	-	-	0.0047	-	-	-	0.0089	0.00487	0.00395	0.01672
Zinc (Zn)-Total	mg/L	0.003	0.01	0.012	0.014	0.011	0.0052	0.0051	0.0059	<0.0030	0.011	0.007	0.0069	0.0056	0.0038	0.0039	0.011	0.00825	0.00344	0.01857
Zirconium (Zr)-Total	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

Underline	Indicates detection limit exceeds criteria
Grey	Indicates detected concentration exceeds criteria 1

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, Residential/Parkland Land Use (FIGWQG), 2016. Except for Al, Cu, Pd, and Zn where Canadian Water Quality Guideline for the Protection of Aquatic Life (FW) (1999) was applied.
ULA - Upper Limit of Acceptability - calculated from historically collected data, average + 3 x standard deviation. ULAs were only calculated for parameters that had three or more data points > RDL.
RDL - Refers to laboratory detection limit which may vary between sample locations and event

Parameter	Units	CWQG AW (1999) Variable Criteria - Calculated													
		MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2014	MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016
Aluminum (Al)	mg/L				0.1	0.1		0.1			0.1				0.1
Copper (Cu)	mg/L	0.0040	0.0020	0.0020	0.0040	0.0040	0.0020	0.0040	0.0040	0.0020	0.0040	0.0040	0.0040	0.0020	0.0026
Lead (Pb)	mg/L	0.0070	0.0010	0.0010	0.0070	0.0070	0.0010	0.0070	0.0070	0.0010	0.0070	0.0070	0.0070	0.0010	0.0036
Nickel (Ni)	mg/L	0.1500	0.0250	0.0250	0.1500	0.1500	0.0250	0.1500	0.1500	0.0250	0.1500	0.1500	0.1500	0.0250	0.1028

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	Average	Standard Deviation	ULA	
Table 4: Analytical Chemistry Results for Metals and Inorganics (Dissolved) in Water				MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2014	MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014				MW04-2016
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D				
			FCSAP-TI-Coarse-RP	Franz	Franz	Franz	Arcadis	Arcadis	Franz	Arcadis	Franz	Franz	Arcadis	Franz	Franz	Arcadis				
8-Jul-12			23-Aug-14	23-Aug-14	20-Aug-16	20-Aug-16	23-Aug-14	19-Aug-16	7-Aug-12	23-Aug-14	19-Aug-16	7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16					
Dissolved Metals																				
Aluminum (Al)-Dissolved	mg/L	0.001	0.1	-	-	-	0.0079	0.0071	-	0.0061	-	-	0.023	-	-	-	0.83	0.21675	0.40890	1.44346
Antimony (Sb)-Dissolved	mg/L	0.0001	2	-	-	-	0.0014	0.0014	-	<0.00060	-	-	<0.00060	-	-	-	<0.00060			
Arsenic (As)-Dissolved	mg/L	0.0001	0.005	0.0039	0.0031	0.0031	0.0026	0.0026	0.00035	0.00029	0.0016	0.00082	0.0013	0.00045	0.00036	0.00055	0.0013	0.00148	0.00122	0.00514
Barium (Ba)-Dissolved	mg/L	0.0001	0.5	-	-	-	<0.010	<0.010	-	<0.010	-	-	0.029	-	-	-	0.014	0.02150	0.01061	0.05332
Beryllium (Be)-Dissolved	mg/L	0.0001	0.0053	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010			
Bismuth (Bi)-Dissolved	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Boron (B)-Dissolved	mg/L	0.01	1.5	-	-	-	0.073	0.072	-	0.047	-	-	0.063	-	-	-	0.058	0.06025	0.01081	0.09269
Cadmium (Cd)-Dissolved	mg/L	0.000005	0.00009	0.00013	0.00017	0.00018	0.000051	0.000063	0.000026	<0.000020	0.000061	0.000046	<0.000020	0.000042	0.000039	0.00000055	<0.000020	0.00007	0.00006	0.00023
Calcium (Ca)-Dissolved	mg/L	0.05	-	-	-	-	66	66	-	93	-	-	55	-	-	-	24	59.50000	28.54820	145.14461
Cesium (Cs)-Dissolved	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Chromium (Cr)-Dissolved	mg/L	0.0001	0.0089	0.0016	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010			
Cobalt (Co)-Dissolved	mg/L	0.0001	-	0.00042	0.0008	0.00082	0.00059	0.00059	0.00031	0.00085	<0.0003	0.00042	0.00031	0.00041	0.00042	<0.00030	<0.00030	0.00051	0.00021	0.00115
Copper (Cu)-Dissolved	mg/L	0.0002	hardness depend.	0.011	0.027	0.027	0.012	0.012	0.02	0.0076	0.041	0.01	0.004	0.021	0.02	0.0069	0.0029	0.01485	0.01148	0.04930
Iron (Fe)-Dissolved	mg/L	0.01	0.3	-	-	-	<0.060	<0.060	-	<0.060	-	-	0.12	-	-	-	<0.060			
Lead (Pb)-Dissolved	mg/L	0.00005	hardness depend.	0.0029	0.002	0.0019	0.00078	0.00074	<0.00020	<0.00020	0.00055	<0.00020	<0.00020	<0.0002	<0.0002	<0.00020	<0.00020	0.00156	0.00110	0.00485
Lithium (Li)-Dissolved	mg/L	0.001	-	-	-	-	0.14	0.15	-	0.047	-	-	0.068	-	-	-	<0.020	0.08500	0.04877	0.23132
Magnesium (Mg)-Dissolved	mg/L	0.005	-	-	-	-	64	64	-	98	-	-	66	-	-	-	13	60.25000	35.14138	165.67414
Manganese (Mn)-Dissolved	mg/L	0.0001	-	-	-	-	0.072	0.074	-	0.7	-	-	0.075	-	-	-	0.015	0.21550	0.32418	1.18803
Mercury (Hg)-Dissolved	mg/L	0.000005	0.000026	-	-	-	<0.0000020	<0.0000020	-	<0.0000020	-	-	<0.0000020	-	-	-	<0.0000020			
Molybdenum (Mo)-Dissolved	mg/L	0.00005	0.073	-	-	-	0.083	0.084	-	0.0093	-	-	0.033	-	-	-	0.0083	0.03340	0.03498	0.13834
Nickel (Ni)-Dissolved	mg/L	0.0005	hardness depend.	0.0094	0.033	0.032	0.026	0.027	0.0039	0.0028	0.0031	0.014	0.0088	0.0066	0.0063	0.0025	0.00055	0.01006	0.01047	0.04147
Phosphorus (P)-Dissolved	mg/L	0.05	-	-	-	-	<0.10	<0.10	-	<0.10	-	-	<0.10	-	-	-	<0.10			
Potassium (K)-Dissolved	mg/L	0.05	-	-	-	-	18	18	-	9	-	-	26	-	-	-	19	18.00000	6.97615	38.92845
Rubidium (Rb)-Dissolved	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Selenium (Se)-Dissolved	mg/L	0.00005	0.001	-	-	-	0.006	0.0046	-	0.0003	-	-	0.00051	-	-	-	0.0004	0.00180	0.00280	0.01020
Silicon (Si)-Dissolved	mg/L	0.05	-	-	-	-	4.6	4.7	-	2.6	-	-	2.4	-	-	-	0.83	2.60750	1.54625	7.24625
Silver (Ag)-Dissolved	mg/L	0.00001	0.00025	-	-	-	<0.00010	<0.00010	-	<0.00010	-	-	<0.00010	-	-	-	<0.00010			
Sodium (Na)-Dissolved	mg/L	0.05	-	-	-	-	860	870	-	48	-	-	210	-	-	-	130	312.00000	371.27169	1,426
Strontium (Sr)-Dissolved	mg/L	0.0002	-	-	-	-	0.68	0.69	-	0.39	-	-	0.37	-	-	-	0.16	0.40000	0.21370	1.04109
Sulfur (S)-Dissolved	mg/L	0.5	-	-	-	-	590	600	-	100	-	-	130	-	-	-	61	220.25000	248.11338	964.59014
Tellurium (Te)-Dissolved	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Thallium (Tl)-Dissolved	mg/L	0.00001	0.0008	-	-	-	<0.00020	<0.00020	-	<0.00020	-	-	<0.00020	-	-	-	<0.00020			
Thorium (Th)-Dissolved	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Tin (Sn)-Dissolved	mg/L	0.0001	-	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010			
Titanium (Ti)-Dissolved	mg/L	0.0003	0.1	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010			
Tungsten (W)-Dissolved	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Uranium (U)-Dissolved	mg/L	0.00001	0.015	-	-	-	0.27	0.27	-	0.19	-	-	0.064	-	-	-	0.0047	0.13218	0.12005	0.49233
Vanadium (V)-Dissolved	mg/L	0.0005	-	-	-	-	<0.0010	<0.0010	-	<0.0010	-	-	<0.0010	-	-	-	<0.0010			
Zinc (Zn)-Dissolved	mg/L	0.001	0.01	0.0097	0.0092	0.011	0.0034	<0.0030	0.0065	<0.0030	0.008	0.0008	0.0034	0.0033	<0.003	0.0046	<0.0030	0.00543	0.00306	0.01463
Zirconium (Zr)-Dissolved	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Notes:

Underline	Indicates detection limit exceeds criteria
Grey	Indicates detected concentration exceeds criteria 1

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, Residential/Parkland Land Use (FIGWQG), 2016. Except for Al, Cu, Pd, and Zn where Canadian Water Quality Guideline for the Protection of Aquatic Life (FW) (1999) was applied.

ULA - Upper Limit of Acceptability - calculated from historically collected data, average + 3 x standard deviation

RDL - Refers to laboratory detection limit which may vary between sample locations and event

Parameter	Units	CWQG AW (1999) Variable Criteria - Calculated													
		MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2014	MW03-2016	MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016
Aluminum (Al)	mg/L	-	-	-	0.1	0.1	-	0.1	-	-	0.1	-	-	-	0.1
Copper (Cu)	mg/L	0.0040	0.0020	0.0020	0.0040	0.0040	0.0020	0.0040	0.0040	0.0020	0.0040	0.0040	0.0040	0.0020	0.0026
Lead (Pb)	mg/L	0.0070	0.0010	0.0010	0.0070	0.0070	0.0010	0.0070	0.0070	0.0010	0.0070	0.0070	0.0070	0.0010	0.0036
Nickel (Ni)	mg/L	0.1500	0.0250	0.0250	0.1500	0.1500	0.0250	0.1500	0.1500	0.0250	0.1500	0.1500	0.1500	0.0250	0.1028

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Table 5: Historic Analytical Chemistry Results for General Chemistry in Water				MW01 - 2012	MW01 - 2014	MW01 - 2014 - D	MW01 - 2016	MW01 - 2016 - D	MW02 - 2014	MW02-2016	MW03-2012	MW03-2014	MW03-2016
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	Franz	Franz	Franz	Arcadis	Arcadis	Franz	Arcadis	Franz	Franz	Arcadis
				8-Jul-12	23-Aug-14	23-Aug-14	20-Aug-16	20-Aug-16	23-Aug-14	19-Aug-16	7-Aug-12	23-Aug-14	19-Aug-16
General Chemistry													
Conductivity	uS/cm	2	-	3000	4600	4700	4400	1200	1200	1400	2100	2000	1800
Hardness (as CaCO3)	mg/L	0.5	-	630	-	-	430	430	-	640	560	-	410
pH	pH	0.1	6.5-9	7.98	8.16	8.22	7.96	7.91	7.91	7.60	7.85	7.93	7.86
Total Suspended Solids	mg/L	3	-	<10	14	15	8	<10	<10	4	15	<10	21
Total Dissolved Solids	mg/L	13	-	2,210	3,420	3,410	3,100	802	802	870	1,410	1,350	1,200
Chloride (Cl)	mg/L	0.5	120	160	140	140	110	44	44	65	170	180	190
Fluoride (F)	mg/L	0.02	0.12	1.07	0.7	0.71	0.64	0.41	0.41	0.93	1.29	0.67	1.4
Nitrate (as N)	mg/L	0.005	13	0.1	0.021	0.34	<0.010	11.9	<0.010	<0.010	0.054	0.036	0.054
Nitrite (as N)	mg/L	0.001	0.06	0.48	0.31	<0.010	1.3	<0.010	11.9	0.24	0.57	3.13	0.31
Sulfate (SO4)	mg/L	0.3	100	1,100	1,700	1,800	1,900	190	190	310	550	430	420

Notes:

Underline	indicates detection limit exceeds criteria
Grey	indicates detected concentration exceeds criteria 1

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIGWQG), 2016

ULA Upper Limit of Acceptability - calculated from historically collected data, average + 3 x standard deviation

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537				GW	GW	GW	GW	Average	Standard Deviation	ULA
Table 5: Historic Analytical Chemistry Results for General Chemistry in Water				MW04-2012	MW04-2012 - D	MW04-2014	MW04-2016			
Parameter	Units	RDL	Criteria 1	CAM-D	CAM-D	CAM-D	CAM-D			
			FCSAP-T1-Coarse-RP	Franz	Franz	Franz	Arcadis			
				7-Aug-12	7-Aug-12	23-Aug-14	19-Aug-16			
General Chemistry										
Conductivity	uS/cm	2	-	1300	1300	1500	990	2208.18	1259.10	5985.49
Hardness (as CaCO3)	mg/L	0.5	-	380	380	-	110	451.43	183.98	1003.36
pH	pH	0.1	6.5-9	7.43	7.50	7.90	8.47			
Total Suspended Solids	mg/L	3	-	<10	<10	<10	61			
Total Dissolved Solids	mg/L	13	-	888	876	956	590	1526.91	961.55	4411.56
Chloride (Cl)	mg/L	0.5	120	59	59	120	130	124.36	50.51	275.89
Fluoride (F)	mg/L	0.02	0.12	0.31	0.32	0.34	1.1	0.81	0.38	1.94
Nitrate (as N)	mg/L	0.005	13	<0.010	<0.010	0.014	0.077	0.051	0.031	0.142
Nitrite (as N)	mg/L	0.001	0.06	0.44	0.45	2.51	0.33	1.96	3.44	12.28
Sulfate (SO4)	mg/L	0.3	100	390	390	380	190	687.27	603.56	2497.95

Notes:

Underline	indicates detection limit exceeds criteria
Grey	indicates detected concentration exceeds criteria 1

Criteria 1 - FCSAP Guidance Document on Federal Interim Groun

ULA Upper Limit of Acceptability - calculated from historic

RDL - Refers to laboratory detection limit which may vary b

Table 6 - Historical Soil Analytical Results - PHCs													
PARAMETER	Federal		RDL	CAM-D S1	CAM-D DUP1	CAM-D S1	CAM-D DUP1	CAM-D S2	CAM-D S2	CAM-D S3	CAM-D S3	CAM-D S4	CAM-D S4
Sample ID	CCME ¹	CWS for PHC											
Date	Residential/	in Soil			2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07
Depth (m)	Parkland	(<1.5 m) ²			0 - 0.15	0.-0.15	0.35-0.5	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5	0-0.15
BTEx & F1 Hydrocarbons (µg/g)													
Benzene	0.03	-	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	0.37	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.082	-	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o-Xylene	ns	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
p+m-Xylene	ns	-	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Total Xylenes	11	-	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
F1 (C6-C10)	-	-	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEx	-	30 (210)	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-F4 Hydrocarbons (µg/g)													
F2 (C10-C16 Hydrocarbons)	-	150 (150)	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34 Hydrocarbons)	-	300 (300)	10	54	61	<10	<10	64	18	100	14	43	20
F4 (C34-C50 Hydrocarbons)	-	2800 (2800)	10	13	22	<10	<10	<10	<10	96	<10	<10	<10
Reached Baseline at C50	-	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes:
µg/g - micrograms per gram
RDL - Reporting Detection Limit
¹ CCME (2007), Canadian Soil Quality Guidelines, Update 7.0, Table 1. Canadian Soil Quality Guidelines, Residential / Parkland Use, coarse-grained soils.
² CCME Canadian-Wide Standards for Petroleum Hydrocarbons in Soil - Table 1, Tier 1 levels for PHCs, Residential / Parkland Use in coarse-grained surface soils. (Brackets) Protection of Eco Soil Contact from Table 1 - Technical Supplement.

Table 7 - Historical Soil Analytical Results - PCBs														
PARAMETER	Federal	INAC DEW Line Cleanup Criteria, Tier II ²	RDL	CAM-D S1	CAM-D DUP1	CAM-D S1	CAM-D DUP1	CAM-D S2	CAM-D S2	CAM-D S3	CAM-D S3	CAM-D S4	CAM-D S4	
Sample ID	CCME ¹													
Date	Residential/ Parkland			2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07
Depth (m)				0-0.15	0-0.15	0.35-0.5	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5	0-0.15
Polychlorinated Biphenyls (µg/g)														
Aroclor 1016	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1221	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1232	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1242	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1248	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1254	-	-	0.01	0.01	0.022	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1260	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1262	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Aroclor 1268	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Total PCB	1.3	5	0.01	0.01	0.022	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	

Notes:
µg/g - micrograms per gram
RDL - Reporting Detection Limit
¹ CCME (2007), Canadian Soil Quality Guidelines, Update 7.0, Table 1. Canadian Soil Quality Guidelines, Residential / Parkland Use, coarse-grained soils.
² Abandoned Military Site Remediation Protocol. Table 1. DEW Line Cleaup Criteria (DCC) for soil. DCC Tier II.

Table 8 - Historical Soil Analytical Results - Metals															
PARAMETER	Federal	INAC DEW Line Cleanup Criteria, Tier II ²	RDL	CAM-D S1	CAM-D DUP1	CAM-D S1	CAM-D DUP1	CAM-D S2	CAM-D S2	CAM-D S3	CAM-D S3	CAM-D S4	CAM-D S4	CAM-D S4 Lab-Dup	
Sample ID	CCME ¹														
Date	Residenti al/			2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07	2012-08-07
Depth (m)				0 - 0.15	0.-0.15	0.35-0.5	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5	0-0.15	0.35-0.5
Metals (µg/g)															
Acid Extractable Arsenic (As)	12.00	30	1.00	1.4	1.3	1.4	1.9	1.3	1.1	<1.0	1.2	1.2	<1.0	1	
Acid Extractable Cadmium (Cd)	10.00	5	0.10	0.14	0.17	<0.10	0.1	0.18	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Acid Extractable Chromium (Cr)	64.000	250	1.00	19	18	20	21	19	14	12	18	16	14	14	
Acid Extractable Cobalt (Co)	50	50	0.10	6.4	6.2	6.9	7.4	6.6	5.1	4.5	6.1	5.8	5	4.5	
Acid Extractable Copper (Cu)	63	100	0.50	11	11	11	12	13	8.3	5	8	8.1	7	6.7	
Acid Extractable Lead (Pb)	140.00	500	1.00	8.2	8.5	8.5	7.5	7.9	5.8	4.9	5.7	6.5	5	5.2	
Acid Extractable Nickel (Ni)	45.00	100	0.50	10	9.8	11	12	10	7.4	5.9	9.5	8.3	7	7.4	
Acid Extractable Zinc (Zn)	200.000	500	5.00	42	42	39	42	41	27	21	35	38	28	29	
Acid Extractable Mercury (Hg)	6.6	2	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Physical Properties															
Moisture (%)	ns	ns	1.00	7.1	7.7	7.1	1	12	10	10	9.6	7.9	10	8.5	

Notes:
µg/g - micrograms per gram
¹ CCME Canadian Soil Quality Guidelines, Residential / Parkland Use, coarse-grained soils.
² Abandoned Military Site Remediation Protocol. Table 1. DEW Line Cleaup Criteria (DCC) for soil. DCC Tier II.

CIRNAC - CAM-D LTM 2020 - 200537					GW	GW	GW	GW	GW
Table 11: Analytical Chemistry Results for PHCs and VOCs in Water					MW01	MW02	MW02-D	MW03	MW04
Parameter	Units	RDL	Criteria 1	Criteria 2	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	ULA	BluMetric	BluMetric	BluMetric	BluMetric	BluMetric
					28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20
PHCs and VOCs									
F1 (C6-C10)	mg/L	0.1	0.81	all < RDL	<0.10	<0.10	<0.10	<0.10	<0.10
F1-BTEX	mg/L	0.1	0.81	all < RDL	<0.10	<0.10	<0.10	<0.10	<0.10
F2 (C10-C16)	mg/L	0.3	1.3	all < RDL	<0.30	<0.30	<0.30	<0.30	<0.30
F3 (C16-C34)	mg/L	0.3	-	all < RDL	<0.30	<0.30	<0.30	<0.30	<0.30
F4 (C34-C50)	mg/L	0.3	-	all < RDL	<0.30	<0.30	<0.30	<0.30	<0.30
Benzene	mg/L	0.0005	0.14	all < RDL	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.0005	11	all < RDL	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	mg/L	0.0005	0.34	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	0.0005	0.072	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.00045	0.083	all < RDL	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
ortho-Xylene	mg/L	0.0005	-	all < RDL	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	mg/L	0.0005	-	all < RDL	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes	mg/L	0.00075	3.9	all < RDL	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075

Notes:

Criteria 1 - CSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIGQG), 2016

Criteria 2 - Site-specific Upper limit of acceptability (ULA)

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537					GW	GW	GW	GW	GW
					MW01	MW02	MW02-D	MW03	MW04
Table 12: Analytical Chemistry Results for PCBs in Water					CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
Parameter	Units	RDL	Criteria 1	Criteria 2	BluMetric	BluMetric	BluMetric	BluMetric	BluMetric
			FCSAP-T1-Coarse-RP	ULA	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20
PCBs									
Aroclor 1242	mg/L	0.00002	-	all < RDL	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Aroclor 1248	mg/L	0.00002	-	all < RDL	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Aroclor 1254	mg/L	0.00002	-	all < RDL	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Aroclor 1260	mg/L	0.00002	-	all < RDL	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Total PCBs	mg/L	0.00004	-	all < RDL	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040

Notes:

Criteria 1 - CSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIGQG), 2016

Criteria 2 - Site-specific Upper Limit of Acceptability (ULA)

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537					GW	GW	GW	GW	GW
Table 13: Analytical Chemistry Results for Metals and Inorganics (Total) in Water					MW01	MW02	MW02-D	MW03	MW04
					CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
Parameter	Units	RDL	Criteria 1	Criteria 2	BluMetric	BluMetric	BluMetric	BluMetric	BluMetric
			FCSAP-TI-Coarse-RP	ULA	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20
Total Metals									
Aluminum (Al)-Total	mg/L	0.003	0.1	-	0.155	0.0183	0.0222	0.187	1.73
Antimony (Sb)-Total	mg/L	0.0001	2	-	0.00106	0.00031	0.00031	0.00026	0.0004
Arsenic (As)-Total	mg/L	0.0001	0.005	0.01	0.00202	0.00041	0.00041	0.00094	0.00073
Barium (Ba)-Total	mg/L	0.0001	0.5	0.07	0.013	0.0263	0.0264	0.0288	0.0421
Beryllium (Be)-Total	mg/L	0.0001	0.0053	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	0.00005	-	-	0.000299	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	0.01	1.5	0.09	0.06	0.036	0.036	0.071	0.084
Cadmium (Cd)-Total	mg/L	0.000005	0.00009	0.00124	0.000126	0.0000284	0.0000288	0.000151	0.0000549
Calcium (Ca)-Total	mg/L	0.05	-	148.52	58.6	83	82.1	90.9	52.6
Cesium (Cs)-Total	mg/L	0.00001	-	-	0.000061	<0.000010	<0.000010	0.000023	0.000118
Chromium (Cr)-Total	mg/L	0.0001	0.0089	0.01	0.00221	0.00035	0.00033	0.00163	0.00216
Cobalt (Co)-Total	mg/L	0.0001	-	0.00	0.00039	0.00027	0.00027	0.0003	0.00034
Copper (Cu)-Total	mg/L	0.0005	0.004	0.06	0.0107	0.0103	0.01	0.0112	0.00819
Iron (Fe)-Total	mg/L	0.01	0.3	8.07	0.117	0.014	0.015	0.123	0.853
Lead (Pb)-Total	mg/L	0.00005	0.007	0.00	0.000357	0.000337	0.000293	0.000366	0.000424
Lithium (Li)-Total	mg/L	0.001	-	0.23	0.107	0.0352	0.0353	0.083	0.0141
Magnesium (Mg)-Total	mg/L	0.005	-	167.89	53.9	71.4	71.8	86	33.6
Manganese (Mn)-Total	mg/L	0.0001	-	1.21	0.0872	0.117	0.115	0.084	0.0205
Mercury (Hg)-Total	mg/L	0.000005	0.000026	0.0000035	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.00005	0.073	0.14	0.0451	0.00698	0.00694	0.0222	0.0162
Nickel (Ni)-Total	mg/L	0.0005	0.15	0.05	0.0159	0.00449	0.00463	0.00461	0.00353
Phosphorus (P)-Total	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	0.05	-	44.63	20.6	9.14	9.5	30.6	20.2
Rubidium (Rb)-Total	mg/L	0.0002	-	-	0.00502	0.00136	0.00134	0.00344	0.0055
Selenium (Se)-Total	mg/L	0.00005	0.001	0.01	0.00156	0.000216	0.000218	0.00021	0.000145
Silicon (Si)-Total	mg/L	0.1	-	10.91	4.84	3.71	3.8	3.51	5.68
Silver (Ag)-Total	mg/L	0.00001	0.00025	-	<0.000010	<0.000010	<0.000010	<0.000010	0.000011
Sodium (Na)-Total	mg/L	0.05	-	1507.88	511	66.6	68.1	205	168
Strontium (Sr)-Total	mg/L	0.0002	-	1.08	0.494	0.328	0.321	0.536	0.265
Sulfur (S)-Total	mg/L	0.5	-	1012.46	350	92.4	93.7	161	106
Tellurium (Te)-Total	mg/L	0.0002	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.00001	0.0008	-	0.000068	0.000013	0.000011	0.000081	0.000061
Thorium (Th)-Total	mg/L	0.0001	-	-	0.0001	<0.00010	<0.00010	0.00012	0.0006
Tin (Sn)-Total	mg/L	0.0001	-	-	0.00019	<0.00010	<0.00010	<0.00010	0.00011
Titanium (Ti)-Total	mg/L	0.0003	0.1	0.47	0.00609	0.00067	0.00067	<0.0054	0.0524
Tungsten (W)-Total	mg/L	0.0001	-	-	0.00188	<0.00010	<0.00010	0.00035	0.00071
Uranium (U)-Total	mg/L	0.00001	0.015	0.49	0.214	0.0959	0.0955	0.0756	0.0155
Vanadium (V)-Total	mg/L	0.0005	-	0.02	0.00082	<0.00050	<0.00050	0.00097	0.00237
Zinc (Zn)-Total	mg/L	0.003	0.01	0.02	0.0062	<0.0030	<0.0030	0.0085	0.0071
Zirconium (Zr)-Total	mg/L	0.0002	-	-	0.00047	0.00061	0.00095	0.00061	0.00177

Notes:

Underline	Indicates detection limit exceeds criteria
Grey	Indicates detected concentration exceeds criteria 1

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, Residential/Parkland Land Use (FIGWQG), 2016. Except for Al, Cu, Pd, and Zn where Canadian Water Quality Guideline for the Protection of Aquatic Life (FW) (1999) was applied.

Criteria 2 - Site-specific Upper limit of acceptability (ULA)

RDL - Refers to laboratory detection limit which may vary between sample locations and event

Parameter	Units	CWQG AW (1999) Variable Criteria - Calculated				
		MW01	MW02	MW02-D	MW03	MW04
Aluminum (Al)	mg/L	0.1	0.1	0.1	0.1	0.1
Copper (Cu)	mg/L	0.0040	0.0040	0.0040	0.0040	0.0040
Lead (Pb)	mg/L	0.0070	0.0070	0.0070	0.0070	0.0070
Nickel (Ni)	mg/L	0.15	0.15	0.15	0.15	0.15



CIRNAC - CAM-D LTM 2020 - 200537					GW	GW	GW	GW	GW
Table 14: Analytical Chemistry Results for Metals and Inorganics (Dissolved) in Water					MW01	MW02	MW02-D	MW03	MW04
Parameter	Units	RDL	Criteria 1	Criteria 2	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	ULA	BluMetric	BluMetric	BluMetric	BluMetric	BluMetric
					28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20
Dissolved Metals									
Aluminum (Al)-Dissolved	mg/L	0.001	0.1	1,443	0.0903	0.0238	0.0248	0.176	2.46
Antimony (Sb)-Dissolved	mg/L	0.0001	2	-	0.00124	0.00034	0.00031	0.00028	0.00037
Arsenic (As)-Dissolved	mg/L	0.0001	0.005	0.005136	0.00158	0.00045	0.00046	0.00091	0.00075
Barium (Ba)-Dissolved	mg/L	0.0001	0.5	0.053320	0.0119	0.0257	0.0256	0.0268	0.0398
Beryllium (Be)-Dissolved	mg/L	0.0001	0.0053	-	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	mg/L	0.00005	-	-	0.00031	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	0.01	1.5	0.0927	0.068	0.033	0.035	0.071	0.078
Cadmium (Cd)-Dissolved	mg/L	0.000005	0.00009	0.000234	<0.000075	0.0000268	0.0000345	0.000153	0.0000706
Calcium (Ca)-Dissolved	mg/L	0.05	-	145.1	70.3	85.5	86.1	94	49.2
Cesium (Cs)-Dissolved	mg/L	0.00001	-	-	0.000061	0.000012	0.000011	0.000027	0.000186
Chromium (Cr)-Dissolved	mg/L	0.0001	0.0089	-	0.00103	0.00035	0.00038	0.00123	0.00324
Cobalt (Co)-Dissolved	mg/L	0.0001	-	0.001147	0.00041	0.00026	0.00026	0.00024	0.00057
Copper (Cu)-Dissolved	mg/L	0.0002	0.004	0.04930	0.0168	0.0107	0.0104	0.0118	0.00983
Iron (Fe)-Dissolved	mg/L	0.01	0.3	-	0.097	0.017	0.015	0.113	1.48
Lead (Pb)-Dissolved	mg/L	0.00005	0.007	0.004852	0.00066	0.000329	0.000285	0.000493	0.00063
Lithium (Li)-Dissolved	mg/L	0.001	-	0.2313	0.108	0.0379	0.0391	0.0858	0.0147
Magnesium (Mg)-Dissolved	mg/L	0.005	-	165.674143	56.4	75.1	74	90.6	29.1
Manganese (Mn)-Dissolved	mg/L	0.0001	-	1.188032	0.0537	0.117	0.117	0.0866	0.0313
Mercury (Hg)-Dissolved	mg/L	0.000005	0.000026	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.00005	0.073	0.1383	0.0485	0.00637	0.00637	0.022	0.0157
Nickel (Ni)-Dissolved	mg/L	0.0005	0.15	0.04147	0.0203	0.0046	0.00465	0.00491	0.00519
Phosphorus (P)-Dissolved	mg/L	0.05	-	-	<0.10	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	0.05	-	38.9	20.2	10.2	9.94	33.8	19
Rubidium (Rb)-Dissolved	mg/L	0.0002	-	-	0.00582	0.0016	0.0015	0.00384	0.00708
Selenium (Se)-Dissolved	mg/L	0.00005	0.001	0.010201	0.00183	0.000197	0.00023	0.000219	0.00012
Silicon (Si)-Dissolved	mg/L	0.05	-	7.25	4.78	3.74	3.65	3.5	5.95
Silver (Ag)-Dissolved	mg/L	0.00001	0.00025	-	<0.000020	<0.000010	<0.000010	0.00001	<0.000010
Sodium (Na)-Dissolved	mg/L	0.05	-	1425.8	625	77.3	74.4	222	160
Strontium (Sr)-Dissolved	mg/L	0.0002	-	1.041	0.574	0.356	0.351	0.622	0.238
Sulfur (S)-Dissolved	mg/L	0.5	-	964.6	428	88.7	90.5	157	97.7
Tellurium (Te)-Dissolved	mg/L	0.0002	-	-	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Dissolved	mg/L	0.00001	0.0008	-	0.000056	0.000011	0.000012	0.000094	0.000071
Thorium (Th)-Dissolved	mg/L	0.0001	-	-	<0.00020	<0.00010	<0.00010	<0.00010	0.00066
Tin (Sn)-Dissolved	mg/L	0.0001	-	-	<0.00020	<0.00010	<0.00010	<0.00010	0.0001
Titanium (Ti)-Dissolved	mg/L	0.0003	0.1	-	0.00464	0.00106	0.00089	0.00586	0.0864
Tungsten (W)-Dissolved	mg/L	0.0001	-	-	0.00509	<0.00010	<0.00010	0.00039	0.00068
Uranium (U)-Dissolved	mg/L	0.00001	0.015	0.4923	0.186	0.103	0.106	0.0865	0.0141
Vanadium (V)-Dissolved	mg/L	0.0005	-	-	<0.0010	<0.00050	<0.00050	0.00087	0.0031
Zinc (Zn)-Dissolved	mg/L	0.001	0.01	0.0146	0.0035	0.0039	0.0031	0.0103	0.0095
Zirconium (Zr)-Dissolved	mg/L	0.0002	-	-	<0.00040	0.00059	0.00057	0.00056	0.00181

Notes:

Underline	Indicates detection limit exceeds criteria
Grey	Indicates detected concentration exceeds criteria 1
Red	Indicates detected concentration exceeds criteria 2

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, Residential/Parkland Land Use (FIGW/QG), 2016. Except for Al, Cu, Pd, and Zn where Canadian Water Quality Guideline for the Protection of Aquatic Life (FW) (1999) was applied.

Criteria 2 - Site-specific Upper limit of acceptability (ULA)

RDL - Refers to laboratory detection limit which may vary between sample locations and event

Parameter	Units	CWQG AW (1999) Variable Criteria - Calculated				
		MW01	MW02	MW02-D	MW03	MW04
Aluminum (Al)	mg/L	0.1	0.1	0.1	0.1	0.1
Copper (Cu)	mg/L	0.0040	0.0040	0.0040	0.0040	0.0040
Lead (Pb)	mg/L	0.0070	0.0070	0.0070	0.0070	0.0070
Nickel (Ni)	mg/L	0.15	0.15	0.15	0.15	0.15



CIRNAC - CAM-D LTM 2020 - 200537 Table 15: Analytical Chemistry Results for General Chemistry in Water					GW	GW	GW	GW	GW
					MW01	MW02	MW02-D	MW03	MW04
Parameter	Units	RDL	Criteria 1	Criteria 2	CAM-D	CAM-D	CAM-D	CAM-D	CAM-D
			FCSAP-T1-Coarse-RP	ULA	BluMetric	BluMetric	BluMetric	BluMetric	BluMetric
					28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20	28-Aug-20
General Chemistry									
Conductivity	uS/cm	2	-	5985	2830	1110	1110	1930	1170
Hardness (as CaCO3)	mg/L	0.5	-	1003	408	523	520	608	243
pH	pH	0.1	6.5-9	-	8.1	7.59	7.59	7.83	7.87
Total Suspended Solids	mg/L	3	-	-	6.9	<3.0	<3.0	13.1	16.5
Total Dissolved Solids	mg/L	13	-	4412	1,980	743	758	1,230	719
Bromide (Br)	mg/L	0.05	-	-	<1.0	<0.25	<0.25	0.75	0.3
Chloride (Cl)	mg/L	0.5	120	276	119	52.5	52.1	200	90.9
Fluoride (F)	mg/L	0.02	0.12	2	0.86	0.72	0.69	0.79	0.5
Nitrate (as N)	mg/L	0.005	13	0.14	0.44	1.31	1.33	0.221	0.455
Nitrite (as N)	mg/L	0.001	0.06	12	<0.020	<0.0050	<0.0050	<0.010	<0.0050
Sulfate (SO4)	mg/L	0.3	100	2498	1,020	248	245	422	275

Notes:

Underline	indicates detection limit exceeds criteria
Grey	indicates detected concentration exceeds criteria 1
Red	indicates detected concentration exceeds criteria 2

Criteria 1 - FCSAP Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIGWQG), 2016

Criteria 2 - Site-specific Upper Limit of Acceptability (ULA)

RDL - Refers to laboratory detection limit which may vary between sample locations and event

CIRNAC - CAM-D LTM 2020 - 200537					
Table 18: Relative Percent Difference of Field Duplicates					
Parameter		RDL	MW02	MW02-D	RPD (%)
PHCs and VOCs					
F1 (C6-C10)	mg/L	0.1	<0.10	<0.10	NA
F1-BTEX	mg/L	0.1	<0.10	<0.10	NA
F2 (C10-C16)	mg/L	0.3	<0.30	<0.30	NA
F3 (C16-C34)	mg/L	0.3	<0.30	<0.30	NA
F4 (C34-C50)	mg/L	0.3	<0.30	<0.30	NA
Benzene	mg/L	0.0005	<0.00050	<0.00050	NA
Ethylbenzene	mg/L	0.0005	<0.00050	<0.00050	NA
Methyl t-butyl ether (MTBE)	mg/L	0.0005	<0.00050	<0.00050	NA
Styrene	mg/L	0.0005	<0.00050	<0.00050	NA
Toluene	mg/L	0.00045	<0.00045	<0.00045	NA
ortho-Xylene	mg/L	0.0005	<0.00050	<0.00050	NA
meta- & para-Xylene	mg/L	0.0005	<0.00050	<0.00050	NA
Xylenes	mg/L	0.00075	<0.00075	<0.00075	NA
PCBs					
Aroclor 1242	mg/L	0.00002	<0.000020	<0.000020	NA
Aroclor 1248	mg/L	0.00002	<0.000020	<0.000020	NA
Aroclor 1254	mg/L	0.00002	<0.000020	<0.000020	NA
Aroclor 1260	mg/L	0.00002	<0.000020	<0.000020	NA
Total PCBs	mg/L	0.00004	<0.000040	<0.000040	NA
TOTAL METALS					
Aluminum (Al)-Total	mg/L	0.003	0.0183	0.0222	19.26%
Antimony (Sb)-Total	mg/L	0.0001	0.00031	0.00031	NA
Arsenic (As)-Total	mg/L	0.0001	0.00041	0.00041	NA
Barium (Ba)-Total	mg/L	0.0001	0.0263	0.0264	0.38%
Beryllium (Be)-Total	mg/L	0.0001	<0.00010	<0.00010	NA
Bismuth (Bi)-Total	mg/L	0.00005	<0.000050	<0.000050	NA
Boron (B)-Total	mg/L	0.01	0.036	0.036	NA
Cadmium (Cd)-Total	mg/L	0.000005	0.0000284	0.0000288	1.40%
Calcium (Ca)-Total	mg/L	0.05	83	82.1	1.09%
Cesium (Cs)-Total	mg/L	0.00001	<0.000010	<0.000010	NA
Chromium (Cr)-Total	mg/L	0.0001	0.00035	0.00033	NA
Cobalt (Co)-Total	mg/L	0.0001	0.00027	0.00027	NA
Copper (Cu)-Total	mg/L	0.0005	0.0103	0.01	2.96%
Iron (Fe)-Total	mg/L	0.01	0.014	0.015	NA
Lead (Pb)-Total	mg/L	0.00005	0.000337	0.000293	13.97%
Lithium (Li)-Total	mg/L	0.001	0.0352	0.0353	0.28%
Magnesium (Mg)-Total	mg/L	0.005	71.4	71.8	0.56%
Manganese (Mn)-Total	mg/L	0.0001	0.117	0.115	1.72%
Mercury (Hg)-Total	mg/L	0.000005	<0.0000050	<0.0000050	NA
Molybdenum (Mo)-Total	mg/L	0.00005	0.00698	0.00694	0.57%
Nickel (Ni)-Total	mg/L	0.0005	0.00449	0.00463	3.07%
Phosphorus (P)-Total	mg/L	0.05	<0.050	<0.050	NA
Potassium (K)-Total	mg/L	0.05	9.14	9.5	3.86%
Rubidium (Rb)-Total	mg/L	0.0002	0.00136	0.00134	1.48%
Selenium (Se)-Total	mg/L	0.00005	0.000216	0.000218	NA
Silicon (Si)-Total	mg/L	0.1	3.71	3.8	2.40%
Silver (Ag)-Total	mg/L	0.00001	<0.000010	<0.000010	NA
Sodium (Na)-Total	mg/L	0.05	66.6	68.1	2.23%
Strontium (Sr)-Total	mg/L	0.0002	0.328	0.321	2.16%
Sulfur (S)-Total	mg/L	0.5	92.4	93.7	1.40%
Tellurium (Te)-Total	mg/L	0.0002	<0.00020	<0.00020	NA
Thallium (Tl)-Total	mg/L	0.00001	0.000013	0.000011	NA
Thorium (Th)-Total	mg/L	0.0001	<0.00010	<0.00010	NA
Tin (Sn)-Total	mg/L	0.0001	<0.00010	<0.00010	NA
Titanium (Ti)-Total	mg/L	0.0003	0.00067	0.00067	NA
Tungsten (W)-Total	mg/L	0.0001	<0.00010	<0.00010	NA
Uranium (U)-Total	mg/L	0.00001	0.0959	0.0955	0.42%
Vanadium (V)-Total	mg/L	0.0005	<0.00050	<0.00050	NA
Zinc (Zn)-Total	mg/L	0.003	<0.0030	<0.0030	NA
Zirconium (Zr)-Total	mg/L	0.0002	0.00061	0.00095	NA

CIRNAC - CAM-D LTM 2020 - 200537					
Table 18: Relative Percent Difference of Field Duplicates					
Parameter		RDL	MW02	MW02-D	RPD (%)
DISSOLVED METALS					
Aluminum (Al)-Dissolved	mg/L	0.001	0.0238	0.0248	4.12%
Antimony (Sb)-Dissolved	mg/L	0.0001	0.00034	0.00031	NA
Arsenic (As)-Dissolved	mg/L	0.0001	0.00045	0.00046	NA
Barium (Ba)-Dissolved	mg/L	0.0001	0.0257	0.0256	0.39%
Beryllium (Be)-Dissolved	mg/L	0.0001	<0.00010	<0.00010	NA
Bismuth (Bi)-Dissolved	mg/L	0.00005	<0.000050	<0.000050	NA
Boron (B)-Dissolved	mg/L	0.01	0.033	0.035	NA
Cadmium (Cd)-Dissolved	mg/L	0.000005	0.0000268	0.0000345	25.12%
Calcium (Ca)-Dissolved	mg/L	0.05	85.5	86.1	0.70%
Cesium (Cs)-Dissolved	mg/L	0.00001	0.000012	0.000011	NA
Chromium (Cr)-Dissolved	mg/L	0.0001	0.00035	0.00038	NA
Cobalt (Co)-Dissolved	mg/L	0.0001	0.00026	0.00026	NA
Copper (Cu)-Dissolved	mg/L	0.0002	0.0107	0.0104	2.84%
Iron (Fe)-Dissolved	mg/L	0.01	0.017	0.015	NA
Lead (Pb)-Dissolved	mg/L	0.00005	0.000329	0.000285	14.33%
Lithium (Li)-Dissolved	mg/L	0.001	0.0379	0.0391	3.12%
Magnesium (Mg)-Dissolved	mg/L	0.005	75.1	74	1.48%
Manganese (Mn)-Dissolved	mg/L	0.0001	0.117	0.117	0.00%
Mercury (Hg)-Dissolved	mg/L	0.000005	<0.0000050	<0.0000050	NA
Molybdenum (Mo)-Dissolved	mg/L	0.00005	0.00637	0.00637	0.00%
Nickel (Ni)-Dissolved	mg/L	0.0005	0.0046	0.00465	1.08%
Phosphorus (P)-Dissolved	mg/L	0.05	<0.050	<0.050	NA
Potassium (K)-Dissolved	mg/L	0.05	10.2	9.94	2.58%
Rubidium (Rb)-Dissolved	mg/L	0.0002	0.0016	0.0015	6.45%
Selenium (Se)-Dissolved	mg/L	0.00005	0.000197	0.00023	NA
Silicon (Si)-Dissolved	mg/L	0.05	3.74	3.65	2.44%
Silver (Ag)-Dissolved	mg/L	0.00001	<0.000010	<0.000010	NA
Sodium (Na)-Dissolved	mg/L	0.05	77.3	74.4	3.82%
Strontium (Sr)-Dissolved	mg/L	0.0002	0.356	0.351	1.41%
Sulfur (S)-Dissolved	mg/L	0.5	88.7	90.5	2.01%
Tellurium (Te)-Dissolved	mg/L	0.0002	<0.00020	<0.00020	NA
Thallium (Tl)-Dissolved	mg/L	0.00001	0.000011	0.000012	NA
Thorium (Th)-Dissolved	mg/L	0.0001	<0.00010	<0.00010	NA
Tin (Sn)-Dissolved	mg/L	0.0001	<0.00010	<0.00010	NA
Titanium (Ti)-Dissolved	mg/L	0.0003	0.00106	0.00089	NA
Tungsten (W)-Dissolved	mg/L	0.0001	<0.00010	<0.00010	NA
Uranium (U)-Dissolved	mg/L	0.00001	0.103	0.106	2.87%
Vanadium (V)-Dissolved	mg/L	0.0005	<0.00050	<0.00050	NA
Zinc (Zn)-Dissolved	mg/L	0.001	0.0039	0.0031	NA
Zirconium (Zr)-Dissolved	mg/L	0.0002	0.00059	0.00057	NA
General Chemistry					
Conductivity	uS/cm	2	1110	1110	0.00%
Hardness (as CaCO3)	mg/L	0.5	523	520	1%
pH	pH	0.1	7.59	7.59	0%
Total Suspended Solids	mg/L	3	<3.0	<3.0	NA
Total Dissolved Solids	mg/L	13	743	758	2%
Bromide (Br)	mg/L	0.05	<0.25	<0.25	NA
Chloride (Cl)	mg/L	0.5	52.5	52.1	1%
Fluoride (F)	mg/L	0.02	0.72	0.69	4%
Nitrate (as N)	mg/L	0.005	1.31	1.33	2%
Nitrite (as N)	mg/L	0.001	<0.0050	<0.0050	NA
Sulfate (SO4)	mg/L	0.3	248	245	1%

Notes:
RDL indicates reported detection limit
RPD indicates relative percent difference

N/A indicates RPD is not applicable as the concentrations of at least one duplicate sample was non-detected or measured at a concentration less than 5 times the RDL
The CCME recommends that Relative Percent Difference (RPD) values less than 40% are considered acceptable for surface water and groundwater samples.

FIGURES





LEGEND

1

REV.	DESCRIPTION	YY/MM/DD	BY	CHK

REFERENCES

PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING. THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

CLIENT

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)

PROJECT

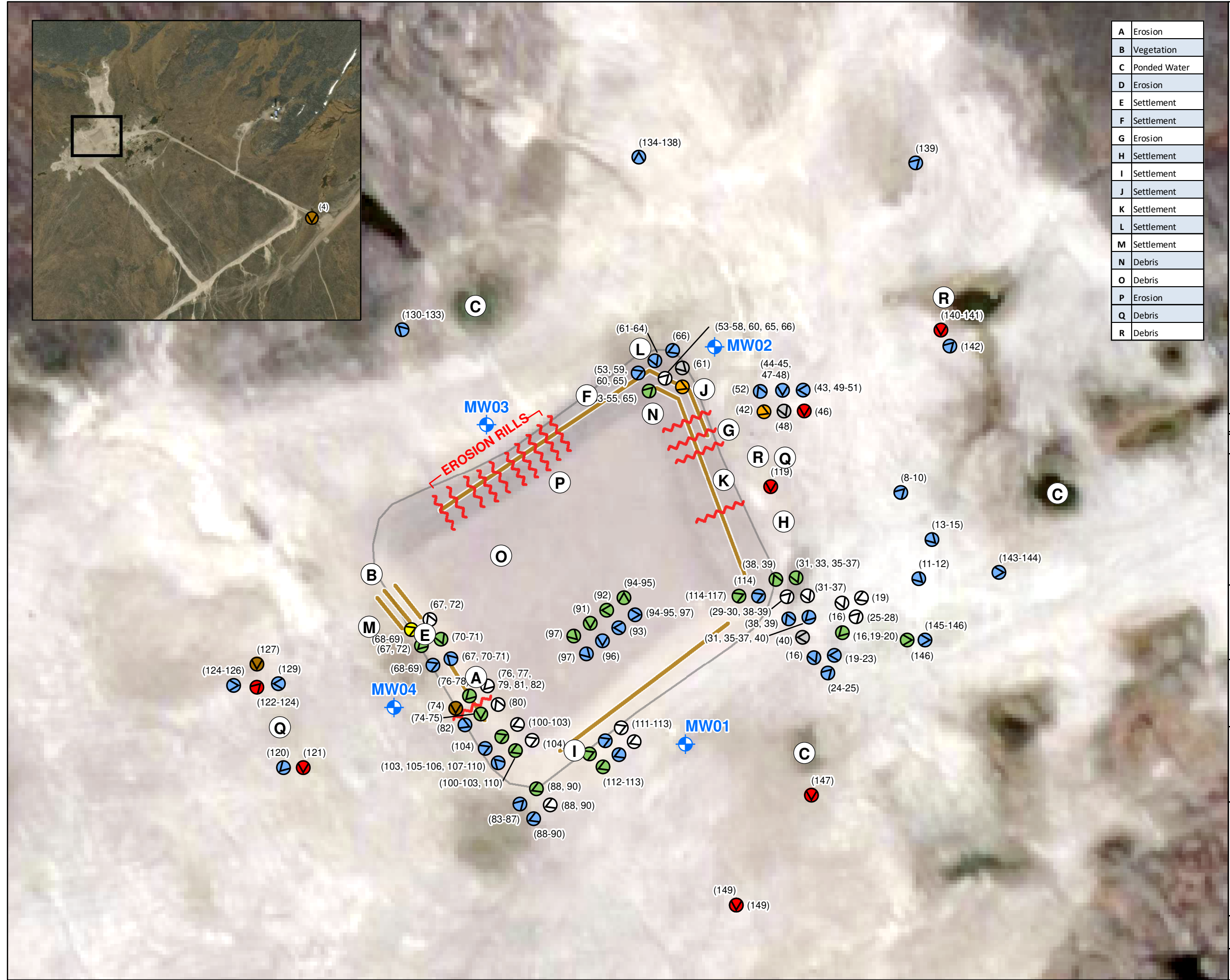
**Long-Term Monitoring 2020
CAM-D, Simpson Lake, Nunavut**

TITLE

Site Location

4916 49th Street,
PO Box 11086
Yellowknife, NT, X1A 1P3
TEL: (867) 873-3500
FAX: (867) 873-3499
Email: info@blumetric.ca
Web: <http://www.blumetric.ca>

PROJECT # 200537		DATE February 12, 2021	
DRAWN KH	CHECKED KP	FIG NO. 01	REV 0



LEGEND

Monitoring Well

Photo Location and Evidence Type

- Animal Tracks
- Condition of Instrument
- Evidence of Erosion
- Evidence of Frost Action
- Limited Plant Cover
- Poor Drainage
- Vegetation Present
- Wire and Misc. Debris
- Erosion
- Settlement
- Landfill Footprint

1				
REV.	DESCRIPTION	YY/MM/DD	BY	CHK
REFERENCES PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING. THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS. 1:800				
CLIENT Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)				
PROJECT Long-Term Monitoring 2020 CAM-D, Simpson Lake, Nunavut				
TITLE CAM-D Non-Hazardous Waste Landfill Plan				
4916 49th Street, PO Box 11086 Yellowknife, NT, X1A 1P3 TEL: (867) 873-3500 FAX: (867) 873-3499 Email: info@blumetric.ca Web: http://www.blumetric.ca				
PROJECT # 200537		DATE February 12, 2021		
DRAWN KH	CHECKED KP	FIG NO. 02	REV 0	

APPENDIX A

Monitoring Checklists and Daily Field Report



Daily Activities

Date:	Friday August 28, 2020				
Project Name:	2020 Long Term Monitoring				
BluMetric Project #	200537				
Client:	CIRNAC				
BluMetric Personnel on site:	Matt Kitchen Jeff Rosnawski				
Client personnel on site:	Selma Al-Soweydawi				
Site Visited:	CAM-E and CAM-D				
Start time (on site):	11:00 and 15:30				
End time (off site):	15:00 and 19:00				
Weather conditions:	10 C, partly cloudy, turning to 10 C light rain and fog				
Project Activities completed today:	<u>CAM-E</u> Visual inspection of NHWL – completed. Wildlife Monitor Interview – completed. No Staining Observed. RTK GPS Survey and RPA aerial imagery acquisition – completed. RPA video of site – completed. The groundwater monitoring program was completed. - All sites were frozen no samples obtained. Thermistors were not downloaded due to missing cable from inventory. <u>CAM-D</u> Visual inspection of NHWL – completed. Wildlife Monitor Interview – completed. No Staining Observed. The groundwater monitoring program was completed. - All sites taken with a duplicate on MW-02				
Health and Safety:	Daily tailgate meeting theme was “See something, say something”. No incidents or near misses to report.				
Visitors and Third Party Enquiries:	n/a				
Wildlife Sightings	Two polar bear sightings at CAM-E. Recon flight getting to site had 5 bear sightings near site at CAM-E. No sightings at CAM-D				
Project activities planned for tomorrow:	Download Thermistors data at CAM-E if cable is found. Mobilize to Cambridge Bay				
Labour Hour Tracking					
Name	Position	From	To	Hours	Notes
Fred Qavvik	Wildlife Monitor	10:00	19:30	9.5	

Equipment Tracking					
Name	Model	From	To	Hours	Notes

Sample Summary

Samples Collected	Total # Samples	Analysis								
		Metals	PHCs	VOCs	PAHs	PFAS	PCBs	Lead Paint	Asbestos	Other
Soil										
Sediment										
Surface Water										
Groundwater	4+ dup	4	4	4	4		4			
Vegetation										
Grain Size										
Building Material										
Other										

Other Notes/Comments	
Prepared by (print):	Matt Kitchen
Reviewed by (print):	Yannick Lanthier
Signature:	

NATURAL ENVIRONMENT CHECKLIST

Date:		28/Aug/20	
Site:		CAM-D	
Note	Response	Extent	Description
	Y/N	Provide information as applicable (i.e. length/width/depth/type)	Features of note, photographic reference with scale, point of view and direction.
Wildlife Sightings	N	- None observed	
Evidence of Wildlife	Y	- Caribou tracks - Wolf tracks - Sik Sik tracks	Photos 127, 74 and 4
Wildlife Activity	Y	- Denning - Wildlife passing through - Hunting	From interview
Relative Number	Y	- 5 Caribou - 1 or 2 Wolves - Sik Sik (Unknown)	From Interview
Evidence of Revegetation	N	- Less plant cover than surrounding tundra. - Limited plant cover on landfill	Photo 40, 48 and 61

Wildlife Monitor Notes

- Potential Wildlife:
 - o Caribou, sik sik, fox, muskox, wolf
- Region used for hunting, fishing (Charr, Lake Trout)

VISUAL MONITORING CHECKLIST

Date:		28/Aug/20	
Landfill Location:		CAM-D	
Note	Response	Extent	Description
	Y/N	Provide information as applicable (i.e. length/width/depth/type)	Features of note, photographic reference with scale, point of view and direction.
Evidence of Settlement	Y	See notes on Frost Action Notes below.	
Evidence of Erosion	Y	On NE corner	Photos 62, 76, 77 and 42
Evidence of Frost Action	Y	Frost cracks around sides of landfill.	Photos 16, 19, 25-39, 53-58, 60, 65 – 67, 72, 79, 80-82, 88, 90, 100-104, 111 and 113.
Animal Burrows	Y	Sik Sik burrows on road.	Photos 4 and 150
Vegetation Present	Y	Small plants found throughout landfill, landfill covered by 10%.	Photos 16, 19, 20, 31, 33, 35-39, 53-55, 65, 67, 70-72, 74-78, 88, 90-97, 100, 102-104, 110-117, and 146
Vegetation Stresses	N	None observed	
Staining Present	N	None observed	
Seepage Points	N	None observed	
Exposed Debris	Y	Wire and misc. debris	Photos 46, 119, 121-124, 140, 141, 147 and 149
Condition of Instruments	Y	Generally in good condition, MW04 was heaving.	Photos 68 and 69
Other Features	Y	Poor drainage around site.	Photos 8-16, 19-25, 31, 35-40, 43-45, 47-53, 59-71, 82-90, 92-97, 103-114, 120, 124-126, 129, 131-139, 142-146, and 149

APPENDIX B

Groundwater Sampling Logs



Water Sampling Log

Page ____ of ____

Project Number: 200537 Date: 2020-Aug-28 Samplers Names: Jeff Rosanowski
Location: CAM-D Start 17:55 End 18:05 Sample Type: GW

Well ID	Depth to Bottom	Water Level Depth	Well Volume	Comments	DO	ORP	Temp	pH	Cond	Turbidity	TDS
eg. MW-19-01	mbtp	mbtp	Litres=H(m)x2.03	Colour, sheen, odour, etc	mg/L	mV	C		ms/cm	NTU	g/L
MW #1	2.11	0.68	2.90	No odour, clear	6.10	201	6.44	7.47	1.65	0.0	1.77
MW #1	2.11	0.85	2.56	No odour, clear	3.94	210	4.05	7.20	3.03	0.0	2.10
MW #1	2.11	0.88	2.50	No odour, clear	3.49	211	4.00	7.35	3.02	0.0	1.93
MW #1	2.11	0.9	2.46	No odour, clear	2.86	211	4.31	7.38	2.98	0.0	1.91
MW #1	2.11	0.92	2.42	No odour, clear	2.64	211	4.45	7.40	2.98	0.0	1.91
MW #1	2.11	0.95	2.35	No odour, clear	2.20	211	4.46	7.47	2.98	0.0	1.90
MW #1	2.11	0.98	2.29	No odour, clear	1.50	211	4.56	7.43	2.98	0.0	1.910

Notes:

Water Sampling Log

Page ____ of ____

Project Number: 200537 Date: 2020-Aug-28 Samplers Names: Jeff Rosanowski
Location: CAM-D Start 16:15 End 16:30 Sample Type: GW

Well ID	Depth to Bottom	Water Level Depth	Well Volume	Comments	DO	ORP	Temp	pH	Cond	Turbidity	TDS
eg. MW-19-01	mbtp	mbtp	Litres=H(m)x2.03	Colour, sheen, odour, etc	mg/L	mV	C		ms/cm	NTU	g/L
MW #2	2.22	0.99	2.50	No odour, clear	1.56	244	10.83	4.93	0.950	0.0	0.615
MW #2	2.22	1.05	2.38	No odour, clear	0.83	230	4.31	5.98	0.982	0.0	0.629
MW #2	2.22	1.07	2.33	No odour, clear	0.69	219	4.09	6.03	0.985	0.0	0.651
MW #2	2.22	1.05	2.38	No odour, clear	0.62	219	4.03	6.17	0.985	0.0	0.635
MW #2	2.22	1.09	2.29	No odour, clear	0.59	212	4.01	6.22	0.985	0.0	0.63
MW #2	2.22	1.09	2.29	No odour, clear	0.59	209	3.97	6.26	0.985	0.0	0.63
MW #2	2.22	1.11	2.25	No odour, clear	0.58	207	3.92	6.30	0.985	0.0	0.63
MW #2	2.22	1.12	2.23	No odour, clear	0.56	206	3.85	6.34	0.986	0.0	0.631
MW #2	2.22	1.12	2.23	No odour, clear	0.5	204	3.81	6.36	0.987	0.0	0.632
MW #2	2.22	1.13	2.21	No odour, clear	0.47	203	3.76	6.38	0.987	0.0	0.637

Notes: Duplicate sample taken here.

Water Sampling Log

Page ____ of ____

Project Number: 200537 Date: 2020-Aug-28 Samplers Names: Jeff Rosanowski
Location: CAM-D Start 17:00 End 17:10 Sample Type: GW

Well ID	Depth to Bottom	Water Level Depth	Well Volume	Comments	DO	ORP	Temp	pH	Cond	Turbidity	TDS
eg. MW-19-01	mbtp	mbtp	Litres=H(m)x2.03	Colour, sheen, odour, etc	mg/L	mV	C		ms/cm	NTU	g/L
MW #3	2.49	0.95	3.13	No odour, clear	1.96	172	6.25	6.77	1.630	8.0	1.39
MW #3	2.49	1.13	2.76	No odour, clear	1.18	177	3.99	6.89	1.610	4.5	1.02
MW #3	2.49	1.16	2.70	No odour, clear	1.07	178	4.09	6.93	1.580	3.8	1.01
MW #3	2.49	1.16	2.70	No odour, clear	1.02	178	4.22	6.94	1.580	4.2	1.01
MW #3	2.49	1.17	2.68	No odour, clear	1.00	178	4.44	6.96	1.570	4.2	1.00
MW #3	2.49	1.17	2.68	No odour, clear	1.00	178	4.57	6.98	1.560	3.7	1.00
MW #3	2.49	1.18	2.66	No odour, clear	1.00	178	4.65	6.99	1.560	3.4	0.998
MW #3	2.49	1.18	2.66	No odour, clear	0.99	177	4.72	7.00	1.560	3.7	0.996
MW #3	2.49	1.19	2.64	No odour, clear	0.98	177	4.75	7.01	1.550	2.5	0.993

Notes:

Water Sampling Log

Page ____ of ____

Project Number: 200537 Date: 2020-Aug-28 Samplers Names: Jeff Rosanowski
 Location: CAM-D Start 17:30 End 17:45 Sample Type: GW

Well ID	Depth to Bottom	Water Level Depth	Well Volume	Comments	DO	ORP	Temp	pH	Cond	Turbidity	TDS
eg. MW-19-01	mbtp	mbtp	Litres=H(m)x2.03	Colour, sheen, odour, etc	mg/L	mV	C		ms/cm	NTU	g/L
MW #4	2.49	0.95	3.13	No odour, clear	13.03	198	6.74	7.30	0.001	24.1	0.38
MW #4	2.49	1.03	2.96	No odour, clear	2.63	199	5.11	7.37	0.970	23.5	0.62
MW #4	2.49	1.04	2.94	No odour, clear	2.08	202	4.98	7.33	0.973	24.1	0.62
MW #4	2.49	1.04	2.94	No odour, clear	1.79	205	5	7.37	0.969	24.6	0.62
MW #4	2.49	1.05	2.92	No odour, clear	1.75	206	4.97	7.32	0.968	24.0	0.62
MW #4	2.49	1.05	2.92	No odour, clear	1.70	207	4.97	7.31	0.967	23.6	0.62
MW #4	2.49	1.05	2.92	No odour, clear	1.68	208	5.03	7.31	0.963	26.5	0.616
MW #4	2.49	1.05	2.92	No odour, clear	1.69	208	5.01	7.30	0.964	20.6	0.617

Notes:

APPENDIX C

Site Photographs





Photo 1: Drainage channel located near NE corner of landfill.



Photo 2: Erosion on NE corner of landfill.



Photo 3: Erosion on NE corner of landfill.



Photo 4: Erosion channels on NE corner.



Photo 5: Frost crack on the southern side of the landfill.



Photo 6: Frost crack on the southern side of the landfill and standing water.



Photo 7: Frost crack looking south on the eastern side of the landfill.



Photo 8: Frost crack looking west on the north side of the landfill.



Photo 9: Frost crack on the western side of the landfill looking east.



Photo 10: Siksik burrow in access road.



Photo 11: Vegetation surrounding the landfill.



Photo 12: Painted wood debris.



Photo 13: Exposed wire outside of landfill.



Photo 14: MW04 frost heaving.



Photo 15: Standing water around landfill.



Photo 16: Caribou tracks in soil



Photo 17: Wolf track in soil.



Photo 18: Revegetation of surrounding work area looking south.



Photo 19: Revegetation of surrounding work area looking north.



Photo 20: Revegetation of surrounding work area looking east.

APPENDIX D

Certificate of Analysis





BluMetric Environmental Inc. (Ottawa)
ATTN: Karen Phong
4916 49 St
Yellowknife NT X1A 1P3

Date Received: 03-SEP-20
Report Date: 17-SEP-20 15:09 (MT)
Version: FINAL

Client Phone: 647-207-7765

Certificate of Analysis

Lab Work Order #: L2498615
Project P.O. #: NOT SUBMITTED
Job Reference: 200537
C of C Numbers:
Legal Site Desc:

Emily Smith
Account Manager

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ADDRESS: 190 Colonnade Road, Unit 7, Ottawa, ON K2E 7J5 Canada | Phone: +1 613 225 8279 | Fax: +1 613 225 2801
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-1	MWLF-3							
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Physical Tests								
Conductivity		175		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		92.7		0.50	mg/L		14-SEP-20	
pH		6.22		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		154		13	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		0.112		0.050	mg/L		14-SEP-20	R5224181
Chloride (Cl)		0.60		0.50	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.090		0.020	mg/L		14-SEP-20	R5224181
Nitrate (as N)		0.0342		0.0050	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0010		0.0010	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		1.58		0.30	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		0.365		0.0030	mg/L		14-SEP-20	R5223324
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		14-SEP-20	R5223324
Arsenic (As)-Total		0.00062		0.00010	mg/L		14-SEP-20	R5223324
Barium (Ba)-Total		0.118		0.00010	mg/L		14-SEP-20	R5223324
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		14-SEP-20	R5223324
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		14-SEP-20	R5223324
Boron (B)-Total		0.020		0.010	mg/L		14-SEP-20	R5223324
Cadmium (Cd)-Total		0.0000761		0.0000050	mg/L		14-SEP-20	R5223324
Calcium (Ca)-Total		22.2		0.050	mg/L		14-SEP-20	R5223324
Cesium (Cs)-Total		0.000011		0.000010	mg/L		14-SEP-20	R5223324
Chromium (Cr)-Total		0.00197		0.00010	mg/L		14-SEP-20	R5223324
Cobalt (Co)-Total		0.00685		0.00010	mg/L		14-SEP-20	R5223324
Copper (Cu)-Total		0.0282		0.00050	mg/L		14-SEP-20	R5223324
Iron (Fe)-Total		0.144		0.010	mg/L		14-SEP-20	R5223324
Lead (Pb)-Total		0.000103		0.000050	mg/L		14-SEP-20	R5223324
Lithium (Li)-Total		0.0028		0.0010	mg/L		14-SEP-20	R5223324
Magnesium (Mg)-Total		7.73		0.0050	mg/L		14-SEP-20	R5223324
Manganese (Mn)-Total		0.838		0.00010	mg/L		14-SEP-20	R5223324
Mercury (Hg)-Total		0.0000131		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.000272		0.000050	mg/L		14-SEP-20	R5223324
Nickel (Ni)-Total		0.0269		0.00050	mg/L		14-SEP-20	R5223324
Phosphorus (P)-Total		<0.050		0.050	mg/L		14-SEP-20	R5223324
Potassium (K)-Total		4.34		0.050	mg/L		14-SEP-20	R5223324
Rubidium (Rb)-Total		0.00349		0.00020	mg/L		14-SEP-20	R5223324
Selenium (Se)-Total		0.000198		0.000050	mg/L		14-SEP-20	R5223324
Silicon (Si)-Total		6.73		0.10	mg/L		14-SEP-20	R5223324
Silver (Ag)-Total		0.000049		0.000010	mg/L		14-SEP-20	R5223324
Sodium (Na)-Total		2.27		0.050	mg/L		14-SEP-20	R5223324

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-1	MWLF-3							
Sampled By:	CLIENT on 27-AUG-20 @ 12:00							
Matrix:	WATER							
Total Metals								
Strontium (Sr)-Total		0.215		0.00020	mg/L		14-SEP-20	R5223324
Sulfur (S)-Total		<0.50		0.50	mg/L		14-SEP-20	R5223324
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		14-SEP-20	R5223324
Thallium (Tl)-Total		0.000012		0.000010	mg/L		14-SEP-20	R5223324
Thorium (Th)-Total		0.00043		0.00010	mg/L		14-SEP-20	R5223324
Tin (Sn)-Total		<0.00010		0.00010	mg/L		14-SEP-20	R5223324
Titanium (Ti)-Total		0.00438		0.00030	mg/L		14-SEP-20	R5223324
Tungsten (W)-Total		<0.00010		0.00010	mg/L		14-SEP-20	R5223324
Uranium (U)-Total		0.00146		0.000010	mg/L		14-SEP-20	R5223324
Vanadium (V)-Total		0.00083		0.00050	mg/L		14-SEP-20	R5223324
Zinc (Zn)-Total		0.0036		0.0030	mg/L		14-SEP-20	R5223324
Zirconium (Zr)-Total		0.00239		0.00020	mg/L		14-SEP-20	R5223324
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					11-SEP-20	R5222500
Aluminum (Al)-Dissolved		0.405		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Antimony (Sb)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Arsenic (As)-Dissolved		0.00072		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Barium (Ba)-Dissolved		0.120		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Boron (B)-Dissolved		0.018		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cadmium (Cd)-Dissolved		0.0000773		0.0000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Calcium (Ca)-Dissolved		22.8		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Cesium (Cs)-Dissolved		0.000010		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Chromium (Cr)-Dissolved		0.00197		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cobalt (Co)-Dissolved		0.00680		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Copper (Cu)-Dissolved		0.0316		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Iron (Fe)-Dissolved		0.133		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Lead (Pb)-Dissolved		0.000103		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Lithium (Li)-Dissolved		0.0031		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Magnesium (Mg)-Dissolved		8.69		0.0050	mg/L	11-SEP-20	11-SEP-20	R5223444
Manganese (Mn)-Dissolved		0.902		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Mercury (Hg)-Dissolved		0.0000149		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.000271		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Nickel (Ni)-Dissolved		0.0295		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Potassium (K)-Dissolved		4.73		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Rubidium (Rb)-Dissolved		0.00424		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Selenium (Se)-Dissolved		0.000202		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silicon (Si)-Dissolved		6.96		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-1 MWLF-3								
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Silver (Ag)-Dissolved		0.000047		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Sodium (Na)-Dissolved		2.59		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Strontium (Sr)-Dissolved		0.235		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Sulfur (S)-Dissolved		0.61		0.50	mg/L	11-SEP-20	11-SEP-20	R5223444
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Thallium (Tl)-Dissolved		0.000015		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Thorium (Th)-Dissolved		0.00054		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Titanium (Ti)-Dissolved		0.00512		0.00030	mg/L	11-SEP-20	11-SEP-20	R5223444
Tungsten (W)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Uranium (U)-Dissolved		0.00176		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Vanadium (V)-Dissolved		0.00072		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Zinc (Zn)-Dissolved		0.0034		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Zirconium (Zr)-Dissolved		0.00260		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		85.5		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		108.9		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		79.7		60-140	%	11-SEP-20	11-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		94.9		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		60.3		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		88.6		50-150	%	15-SEP-20	15-SEP-20	R5224193
MWLF-3-D								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-2	MWLF-3-D							
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Physical Tests								
Conductivity		183		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		86.4		0.50	mg/L		16-SEP-20	
pH		6.20		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		156		13	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		0.111		0.050	mg/L		14-SEP-20	R5224181
Chloride (Cl)		0.60		0.50	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.088		0.020	mg/L		14-SEP-20	R5224181
Nitrate (as N)		0.0318		0.0050	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0010		0.0010	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		1.60		0.30	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		0.335		0.0030	mg/L		16-SEP-20	R5224805
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		16-SEP-20	R5224805
Arsenic (As)-Total		0.00058		0.00010	mg/L		16-SEP-20	R5224805
Barium (Ba)-Total		0.113		0.00010	mg/L		16-SEP-20	R5224805
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		16-SEP-20	R5224805
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		16-SEP-20	R5224805
Boron (B)-Total		0.019		0.010	mg/L		16-SEP-20	R5224805
Cadmium (Cd)-Total		0.0000715		0.0000050	mg/L		16-SEP-20	R5224805
Calcium (Ca)-Total		23.1		0.050	mg/L		16-SEP-20	R5224805
Cesium (Cs)-Total		<0.000010		0.000010	mg/L		16-SEP-20	R5224805
Chromium (Cr)-Total		0.00189		0.00010	mg/L		16-SEP-20	R5224805
Cobalt (Co)-Total		0.00626		0.00010	mg/L		16-SEP-20	R5224805
Copper (Cu)-Total		0.0279		0.00050	mg/L		16-SEP-20	R5224805
Iron (Fe)-Total		0.132		0.010	mg/L		16-SEP-20	R5224805
Lead (Pb)-Total		0.000084		0.000050	mg/L		16-SEP-20	R5224805
Lithium (Li)-Total		0.0033		0.0010	mg/L		16-SEP-20	R5224805
Magnesium (Mg)-Total		7.73		0.0050	mg/L		16-SEP-20	R5224805
Manganese (Mn)-Total		0.798		0.00010	mg/L		16-SEP-20	R5224805
Mercury (Hg)-Total		0.0000143		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.000266		0.000050	mg/L		16-SEP-20	R5224805
Nickel (Ni)-Total		0.0266		0.00050	mg/L		16-SEP-20	R5224805
Phosphorus (P)-Total		<0.050		0.050	mg/L		16-SEP-20	R5224805
Potassium (K)-Total		4.38		0.050	mg/L		16-SEP-20	R5224805
Rubidium (Rb)-Total		0.00371		0.00020	mg/L		16-SEP-20	R5224805
Selenium (Se)-Total		0.000206		0.000050	mg/L		16-SEP-20	R5224805
Silicon (Si)-Total		6.70		0.10	mg/L		16-SEP-20	R5224805
Silver (Ag)-Total		0.000053		0.000010	mg/L		16-SEP-20	R5224805
Sodium (Na)-Total		2.21		0.050	mg/L		16-SEP-20	R5224805

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-2	MWLF-3-D							
Sampled By:	CLIENT on 27-AUG-20 @ 12:00							
Matrix:	WATER							
Total Metals								
Strontium (Sr)-Total		0.222		0.00020	mg/L		16-SEP-20	R5224805
Sulfur (S)-Total		1.06		0.50	mg/L		16-SEP-20	R5224805
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		16-SEP-20	R5224805
Thallium (Tl)-Total		0.000016		0.000010	mg/L		16-SEP-20	R5224805
Thorium (Th)-Total		0.00043		0.00010	mg/L		16-SEP-20	R5224805
Tin (Sn)-Total		<0.00010		0.00010	mg/L		16-SEP-20	R5224805
Titanium (Ti)-Total		0.00434		0.00030	mg/L		16-SEP-20	R5224805
Tungsten (W)-Total		<0.00010		0.00010	mg/L		16-SEP-20	R5224805
Uranium (U)-Total		0.00153		0.000010	mg/L		16-SEP-20	R5224805
Vanadium (V)-Total		0.00080		0.00050	mg/L		16-SEP-20	R5224805
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		16-SEP-20	R5224805
Zirconium (Zr)-Total		0.00267		0.00020	mg/L		16-SEP-20	R5224805
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					15-SEP-20	R5224256
Aluminum (Al)-Dissolved		0.341		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Antimony (Sb)-Dissolved		<0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Arsenic (As)-Dissolved		0.00064		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Barium (Ba)-Dissolved		0.104		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Boron (B)-Dissolved		0.018		0.010	mg/L	15-SEP-20	16-SEP-20	R5224908
Cadmium (Cd)-Dissolved		0.0000721		0.0000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Calcium (Ca)-Dissolved		22.8		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Cesium (Cs)-Dissolved		<0.000010		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Chromium (Cr)-Dissolved		0.00187		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Cobalt (Co)-Dissolved		0.00645		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Copper (Cu)-Dissolved		0.0289		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Iron (Fe)-Dissolved		0.135		0.010	mg/L	15-SEP-20	16-SEP-20	R5224908
Lead (Pb)-Dissolved		0.000097		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Lithium (Li)-Dissolved		0.0029		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Magnesium (Mg)-Dissolved		7.18		0.0050	mg/L	15-SEP-20	16-SEP-20	R5224908
Manganese (Mn)-Dissolved		0.785		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Mercury (Hg)-Dissolved		0.0000144		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.000271		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Nickel (Ni)-Dissolved		0.0275		0.00050	mg/L	15-SEP-20	16-SEP-20	R5224908
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Potassium (K)-Dissolved		4.30		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Rubidium (Rb)-Dissolved		0.00355		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Selenium (Se)-Dissolved		0.000223		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Silicon (Si)-Dissolved		6.67		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-2 MWLF-3-D								
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Silver (Ag)-Dissolved		0.000044		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Sodium (Na)-Dissolved		2.43		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Strontium (Sr)-Dissolved		0.198		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Sulfur (S)-Dissolved		0.72		0.50	mg/L	15-SEP-20	16-SEP-20	R5224908
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Thallium (Tl)-Dissolved		0.000020		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Thorium (Th)-Dissolved		0.00041		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Titanium (Ti)-Dissolved		0.00430		0.00030	mg/L	15-SEP-20	16-SEP-20	R5224908
Tungsten (W)-Dissolved		<0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Uranium (U)-Dissolved		0.00150		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Vanadium (V)-Dissolved		0.00063		0.00050	mg/L	15-SEP-20	16-SEP-20	R5224908
Zinc (Zn)-Dissolved		0.0028		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Zirconium (Zr)-Dissolved		0.00243		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		90.1		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		113.4		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	11-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		81.7		60-140	%	11-SEP-20	11-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		89.9		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		56.2		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		90.1		50-150	%	15-SEP-20	15-SEP-20	R5224193
MWLF-1								

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-3 MWLF-1								
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Physical Tests								
Hardness (as CaCO3)		12.0		0.50	mg/L		15-SEP-20	
Total Metals								
Aluminum (Al)-Total		0.171		0.0030	mg/L		15-SEP-20	R5224180
Antimony (Sb)-Total		0.00019		0.00010	mg/L		15-SEP-20	R5224180
Arsenic (As)-Total		0.00015		0.00010	mg/L		15-SEP-20	R5224180
Barium (Ba)-Total		0.0614		0.00010	mg/L		15-SEP-20	R5224180
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Boron (B)-Total		0.014		0.010	mg/L		15-SEP-20	R5224180
Cadmium (Cd)-Total		0.000350		0.0000050	mg/L		15-SEP-20	R5224180
Calcium (Ca)-Total		2.89		0.050	mg/L		15-SEP-20	R5224180
Cesium (Cs)-Total		0.000010		0.000010	mg/L		15-SEP-20	R5224180
Chromium (Cr)-Total		0.00174		0.00010	mg/L		15-SEP-20	R5224180
Cobalt (Co)-Total		0.00278		0.00010	mg/L		15-SEP-20	R5224180
Copper (Cu)-Total		0.0195		0.00050	mg/L		15-SEP-20	R5224180
Iron (Fe)-Total		0.088		0.010	mg/L		15-SEP-20	R5224180
Lead (Pb)-Total		0.000364		0.000050	mg/L		15-SEP-20	R5224180
Lithium (Li)-Total		<0.0010		0.0010	mg/L		15-SEP-20	R5224180
Magnesium (Mg)-Total		1.04		0.0050	mg/L		15-SEP-20	R5224180
Manganese (Mn)-Total		0.0437		0.00010	mg/L		15-SEP-20	R5224180
Mercury (Hg)-Total		0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.000182		0.000050	mg/L		15-SEP-20	R5224180
Nickel (Ni)-Total		0.101		0.00050	mg/L		15-SEP-20	R5224180
Phosphorus (P)-Total		<0.050		0.050	mg/L		15-SEP-20	R5224180
Potassium (K)-Total		0.855		0.050	mg/L		15-SEP-20	R5224180
Rubidium (Rb)-Total		0.00299		0.00020	mg/L		15-SEP-20	R5224180
Selenium (Se)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Silicon (Si)-Total		3.18		0.10	mg/L		15-SEP-20	R5224180
Silver (Ag)-Total		0.000019		0.000010	mg/L		15-SEP-20	R5224180
Sodium (Na)-Total		5.37		0.050	mg/L		15-SEP-20	R5224180
Strontium (Sr)-Total		0.0301		0.00020	mg/L		15-SEP-20	R5224180
Sulfur (S)-Total		1.88		0.50	mg/L		15-SEP-20	R5224180
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		15-SEP-20	R5224180
Thallium (Tl)-Total		0.000013		0.000010	mg/L		15-SEP-20	R5224180
Thorium (Th)-Total		0.00012		0.00010	mg/L		15-SEP-20	R5224180
Tin (Sn)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Titanium (Ti)-Total		0.00180		0.00030	mg/L		15-SEP-20	R5224180
Tungsten (W)-Total		0.00021		0.00010	mg/L		15-SEP-20	R5224180
Uranium (U)-Total		0.000129		0.000010	mg/L		15-SEP-20	R5224180
Vanadium (V)-Total		<0.00050		0.00050	mg/L		15-SEP-20	R5224180
Zinc (Zn)-Total		0.0498		0.0030	mg/L		15-SEP-20	R5224180

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-3 MWLF-1								
Sampled By: CLIENT on 27-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Zirconium (Zr)-Total		0.00035		0.00020	mg/L		15-SEP-20	R5224180
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					11-SEP-20	R5222500
Aluminum (Al)-Dissolved		0.179		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Antimony (Sb)-Dissolved		0.00021		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Arsenic (As)-Dissolved		0.00019		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Barium (Ba)-Dissolved		0.0602		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Boron (B)-Dissolved		0.014		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cadmium (Cd)-Dissolved		0.000361		0.0000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Calcium (Ca)-Dissolved		2.99		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Cesium (Cs)-Dissolved		<0.000010		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Chromium (Cr)-Dissolved		0.00174		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cobalt (Co)-Dissolved		0.00299		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Copper (Cu)-Dissolved		0.0213		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Iron (Fe)-Dissolved		0.083		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Lead (Pb)-Dissolved		0.000418		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Lithium (Li)-Dissolved		<0.0010		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Magnesium (Mg)-Dissolved		1.09		0.0050	mg/L	11-SEP-20	11-SEP-20	R5223444
Manganese (Mn)-Dissolved		0.0475		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.000189		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Nickel (Ni)-Dissolved		0.107		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Potassium (K)-Dissolved		0.961		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Rubidium (Rb)-Dissolved		0.00351		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Selenium (Se)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silicon (Si)-Dissolved		3.23		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silver (Ag)-Dissolved		0.000022		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Sodium (Na)-Dissolved		6.11		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Strontium (Sr)-Dissolved		0.0356		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Sulfur (S)-Dissolved		1.82		0.50	mg/L	11-SEP-20	11-SEP-20	R5223444
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Thallium (Tl)-Dissolved		0.000013		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Thorium (Th)-Dissolved		0.00017		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Tin (Sn)-Dissolved		0.00011		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Titanium (Ti)-Dissolved		0.00247	DTMF	0.00030	mg/L	11-SEP-20	11-SEP-20	R5223444
Tungsten (W)-Dissolved		0.00024		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Uranium (U)-Dissolved		0.000137		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-3 MWLF-1 Sampled By: CLIENT on 27-AUG-20 @ 12:00 Matrix: WATER Dissolved Metals Vanadium (V)-Dissolved Zinc (Zn)-Dissolved Zirconium (Zr)-Dissolved Polychlorinated Biphenyls Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Surrogate: Decachlorobiphenyl Total PCBs Surrogate: Tetrachloro-m-xylene								
		<0.00050		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
		0.0588		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
		0.00035		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
		74.3		50-150	%	15-SEP-20	15-SEP-20	R5224193
		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
		91.4		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-4 MW01 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER Physical Tests Conductivity Hardness (as CaCO3) pH Total Suspended Solids Total Dissolved Solids Anions and Nutrients Bromide (Br) Chloride (Cl) Fluoride (F) Nitrate (as N) Nitrite (as N) Sulfate (SO4) Total Metals Aluminum (Al)-Total Antimony (Sb)-Total Arsenic (As)-Total Barium (Ba)-Total Beryllium (Be)-Total Bismuth (Bi)-Total Boron (B)-Total Cadmium (Cd)-Total Calcium (Ca)-Total Cesium (Cs)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Iron (Fe)-Total								
		2830		2.0	uS/cm		12-SEP-20	R5223184
		408		0.50	mg/L		16-SEP-20	
		8.10		0.10	pH		12-SEP-20	R5223184
		6.9		3.0	mg/L		11-SEP-20	R5222647
		1980		20	mg/L		11-SEP-20	R5223182
		<1.0	DLDS	1.0	mg/L		14-SEP-20	R5224181
		119		10	mg/L		14-SEP-20	R5224181
		0.86		0.40	mg/L		14-SEP-20	R5224181
		0.44		0.10	mg/L		14-SEP-20	R5224181
		<0.020	DLDS	0.020	mg/L		14-SEP-20	R5224181
		1020		6.0	mg/L		14-SEP-20	R5224181
		0.155		0.0030	mg/L		16-SEP-20	R5224942
		0.00106		0.00010	mg/L		16-SEP-20	R5224942
		0.00202		0.00010	mg/L		16-SEP-20	R5224942
		0.0130		0.00010	mg/L		16-SEP-20	R5224942
		<0.00010		0.00010	mg/L		16-SEP-20	R5224942
		0.000299		0.000050	mg/L		16-SEP-20	R5224942
		0.060		0.010	mg/L		16-SEP-20	R5224942
		0.000126		0.0000050	mg/L		16-SEP-20	R5224942
		58.6		0.050	mg/L		16-SEP-20	R5224942
		0.000061		0.000010	mg/L		16-SEP-20	R5224942
		0.00221		0.00010	mg/L		16-SEP-20	R5224942
		0.00039		0.00010	mg/L		16-SEP-20	R5224942
		0.0107		0.00050	mg/L		16-SEP-20	R5224942
		0.117		0.010	mg/L		16-SEP-20	R5224942

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-4	MW01							
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Lead (Pb)-Total		0.000357		0.000050	mg/L		16-SEP-20	R5224942
Lithium (Li)-Total		0.107		0.0010	mg/L		16-SEP-20	R5224942
Magnesium (Mg)-Total		53.9		0.0050	mg/L		16-SEP-20	R5224942
Manganese (Mn)-Total		0.0872		0.00010	mg/L		16-SEP-20	R5224942
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.0451		0.000050	mg/L		16-SEP-20	R5224942
Nickel (Ni)-Total		0.0159		0.00050	mg/L		16-SEP-20	R5224942
Phosphorus (P)-Total		<0.050		0.050	mg/L		16-SEP-20	R5224942
Potassium (K)-Total		20.6		0.050	mg/L		16-SEP-20	R5224942
Rubidium (Rb)-Total		0.00502		0.00020	mg/L		16-SEP-20	R5224942
Selenium (Se)-Total		0.00156		0.000050	mg/L		16-SEP-20	R5224942
Silicon (Si)-Total		4.84		0.10	mg/L		16-SEP-20	R5224942
Silver (Ag)-Total		<0.000010		0.000010	mg/L		16-SEP-20	R5224942
Sodium (Na)-Total		511		0.050	mg/L		16-SEP-20	R5224942
Strontium (Sr)-Total		0.494		0.00020	mg/L		16-SEP-20	R5224942
Sulfur (S)-Total		350		0.50	mg/L		16-SEP-20	R5224942
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		16-SEP-20	R5224942
Thallium (Tl)-Total		0.000068		0.000010	mg/L		16-SEP-20	R5224942
Thorium (Th)-Total		0.00010		0.00010	mg/L		16-SEP-20	R5224942
Tin (Sn)-Total		0.00019		0.00010	mg/L		16-SEP-20	R5224942
Titanium (Ti)-Total		0.00609		0.00030	mg/L		16-SEP-20	R5224942
Tungsten (W)-Total		0.00188		0.00010	mg/L		16-SEP-20	R5224942
Uranium (U)-Total		0.214		0.000010	mg/L		16-SEP-20	R5224942
Vanadium (V)-Total		0.00082		0.00050	mg/L		16-SEP-20	R5224942
Zinc (Zn)-Total		0.0062		0.0030	mg/L		16-SEP-20	R5224942
Zirconium (Zr)-Total		0.00047		0.00020	mg/L		16-SEP-20	R5224942
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					15-SEP-20	R5224256
Aluminum (Al)-Dissolved		0.0903		0.0020	mg/L	15-SEP-20	16-SEP-20	R5224908
Antimony (Sb)-Dissolved		0.00124		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Arsenic (As)-Dissolved		0.00158		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Barium (Ba)-Dissolved		0.0119		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Beryllium (Be)-Dissolved		<0.00020	DLA	0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Bismuth (Bi)-Dissolved		0.00031		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Boron (B)-Dissolved		0.068		0.020	mg/L	15-SEP-20	16-SEP-20	R5224908
Cadmium (Cd)-Dissolved		<0.000075	DLM	0.000075	mg/L	15-SEP-20	16-SEP-20	R5224908
Calcium (Ca)-Dissolved		70.3		0.10	mg/L	15-SEP-20	16-SEP-20	R5224908
Cesium (Cs)-Dissolved		0.000061		0.000020	mg/L	15-SEP-20	16-SEP-20	R5224908
Chromium (Cr)-Dissolved		0.00103		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Cobalt (Co)-Dissolved		0.00041		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-4 MW01								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Copper (Cu)-Dissolved		0.0168	DTC	0.00040	mg/L	15-SEP-20	16-SEP-20	R5224908
Iron (Fe)-Dissolved		0.097		0.020	mg/L	15-SEP-20	16-SEP-20	R5224908
Lead (Pb)-Dissolved		0.00066	DTC	0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Lithium (Li)-Dissolved		0.108		0.0020	mg/L	15-SEP-20	16-SEP-20	R5224908
Magnesium (Mg)-Dissolved		56.4		0.010	mg/L	15-SEP-20	16-SEP-20	R5224908
Manganese (Mn)-Dissolved		0.0537		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.0485		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Nickel (Ni)-Dissolved		0.0203		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Phosphorus (P)-Dissolved		<0.10	DLA	0.10	mg/L	15-SEP-20	16-SEP-20	R5224908
Potassium (K)-Dissolved		20.2		0.10	mg/L	15-SEP-20	16-SEP-20	R5224908
Rubidium (Rb)-Dissolved		0.00582		0.00040	mg/L	15-SEP-20	16-SEP-20	R5224908
Selenium (Se)-Dissolved		0.00183		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Silicon (Si)-Dissolved		4.78		0.10	mg/L	15-SEP-20	16-SEP-20	R5224908
Silver (Ag)-Dissolved		<0.000020	DLA	0.000020	mg/L	15-SEP-20	16-SEP-20	R5224908
Sodium (Na)-Dissolved		625		0.10	mg/L	15-SEP-20	16-SEP-20	R5224908
Strontium (Sr)-Dissolved		0.574		0.00040	mg/L	15-SEP-20	16-SEP-20	R5224908
Sulfur (S)-Dissolved		428		1.0	mg/L	15-SEP-20	16-SEP-20	R5224908
Tellurium (Te)-Dissolved		<0.00040	DLA	0.00040	mg/L	15-SEP-20	16-SEP-20	R5224908
Thallium (Tl)-Dissolved		0.000056		0.000020	mg/L	15-SEP-20	16-SEP-20	R5224908
Thorium (Th)-Dissolved		<0.00020	DLA	0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Tin (Sn)-Dissolved		<0.00020	DLA	0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Titanium (Ti)-Dissolved		0.00464		0.00060	mg/L	15-SEP-20	16-SEP-20	R5224908
Tungsten (W)-Dissolved		0.00509	DTC	0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Uranium (U)-Dissolved		0.186		0.000020	mg/L	15-SEP-20	16-SEP-20	R5224908
Vanadium (V)-Dissolved		<0.0010	DLA	0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Zinc (Zn)-Dissolved		0.0035		0.0020	mg/L	15-SEP-20	16-SEP-20	R5224908
Zirconium (Zr)-Dissolved		<0.00040	DLA	0.00040	mg/L	15-SEP-20	16-SEP-20	R5224908
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		81.7		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		113.0		70-130	%		11-SEP-20	R5203993
Hydrocarbons								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-4 MW01 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER								
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		78.6		60-140	%	11-SEP-20	15-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		79.6		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		85.6		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		88.5		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-5 MW02 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER								
Physical Tests								
Conductivity		1110		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		523		0.50	mg/L		15-SEP-20	
pH		7.59		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		743		20	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		<0.25	DLDS	0.25	mg/L		14-SEP-20	R5224181
Chloride (Cl)		52.5		2.5	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.72		0.10	mg/L		14-SEP-20	R5224181
Nitrate (as N)		1.31		0.025	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0050	DLDS	0.0050	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		248		1.5	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		0.0183		0.0030	mg/L		15-SEP-20	R5224180
Antimony (Sb)-Total		0.00031		0.00010	mg/L		15-SEP-20	R5224180
Arsenic (As)-Total		0.00041		0.00010	mg/L		15-SEP-20	R5224180
Barium (Ba)-Total		0.0263		0.00010	mg/L		15-SEP-20	R5224180
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Boron (B)-Total		0.036		0.010	mg/L		15-SEP-20	R5224180
Cadmium (Cd)-Total		0.0000284		0.0000050	mg/L		15-SEP-20	R5224180
Calcium (Ca)-Total		83.0		0.050	mg/L		15-SEP-20	R5224180
Cesium (Cs)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Chromium (Cr)-Total		0.00035		0.00010	mg/L		15-SEP-20	R5224180

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-5	MW02							
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Cobalt (Co)-Total		0.00027		0.00010	mg/L		15-SEP-20	R5224180
Copper (Cu)-Total		0.0103		0.00050	mg/L		15-SEP-20	R5224180
Iron (Fe)-Total		0.014		0.010	mg/L		15-SEP-20	R5224180
Lead (Pb)-Total		0.000337		0.000050	mg/L		15-SEP-20	R5224180
Lithium (Li)-Total		0.0352		0.0010	mg/L		15-SEP-20	R5224180
Magnesium (Mg)-Total		71.4		0.0050	mg/L		15-SEP-20	R5224180
Manganese (Mn)-Total		0.117		0.00010	mg/L		15-SEP-20	R5224180
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.00698		0.000050	mg/L		15-SEP-20	R5224180
Nickel (Ni)-Total		0.00449		0.00050	mg/L		15-SEP-20	R5224180
Phosphorus (P)-Total		<0.050		0.050	mg/L		15-SEP-20	R5224180
Potassium (K)-Total		9.14		0.050	mg/L		15-SEP-20	R5224180
Rubidium (Rb)-Total		0.00136		0.00020	mg/L		15-SEP-20	R5224180
Selenium (Se)-Total		0.000216		0.000050	mg/L		15-SEP-20	R5224180
Silicon (Si)-Total		3.71		0.10	mg/L		15-SEP-20	R5224180
Silver (Ag)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Sodium (Na)-Total		66.6		0.050	mg/L		15-SEP-20	R5224180
Strontium (Sr)-Total		0.328		0.00020	mg/L		15-SEP-20	R5224180
Sulfur (S)-Total		92.4		0.50	mg/L		15-SEP-20	R5224180
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		15-SEP-20	R5224180
Thallium (Tl)-Total		0.000013		0.000010	mg/L		15-SEP-20	R5224180
Thorium (Th)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Tin (Sn)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Titanium (Ti)-Total		0.00067		0.00030	mg/L		15-SEP-20	R5224180
Tungsten (W)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Uranium (U)-Total		0.0959		0.000010	mg/L		15-SEP-20	R5224180
Vanadium (V)-Total		<0.00050		0.00050	mg/L		15-SEP-20	R5224180
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		15-SEP-20	R5224180
Zirconium (Zr)-Total		0.00061		0.00020	mg/L		15-SEP-20	R5224180
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					11-SEP-20	R5222500
Aluminum (Al)-Dissolved		0.0238		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Antimony (Sb)-Dissolved		0.00034		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Arsenic (As)-Dissolved		0.00045		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Barium (Ba)-Dissolved		0.0257		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Boron (B)-Dissolved		0.033		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cadmium (Cd)-Dissolved		0.0000268		0.0000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Calcium (Ca)-Dissolved		85.5		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-5	MW02							
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Cesium (Cs)-Dissolved		0.000012		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Chromium (Cr)-Dissolved		0.00035		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cobalt (Co)-Dissolved		0.00026		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Copper (Cu)-Dissolved		0.0107		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Iron (Fe)-Dissolved		0.017		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Lead (Pb)-Dissolved		0.000329		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Lithium (Li)-Dissolved		0.0379		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Magnesium (Mg)-Dissolved		75.1		0.0050	mg/L	11-SEP-20	11-SEP-20	R5223444
Manganese (Mn)-Dissolved		0.117		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.00637		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Nickel (Ni)-Dissolved		0.00460		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Potassium (K)-Dissolved		10.2		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Rubidium (Rb)-Dissolved		0.00160		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Selenium (Se)-Dissolved		0.000197		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silicon (Si)-Dissolved		3.74		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silver (Ag)-Dissolved		<0.000010		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Sodium (Na)-Dissolved		77.3		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Strontium (Sr)-Dissolved		0.356		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Sulfur (S)-Dissolved		88.7		0.50	mg/L	11-SEP-20	11-SEP-20	R5223444
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Thallium (Tl)-Dissolved		0.000011		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Thorium (Th)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Titanium (Ti)-Dissolved		0.00106		0.00030	mg/L	11-SEP-20	11-SEP-20	R5223444
Tungsten (W)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Uranium (U)-Dissolved		0.103		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Vanadium (V)-Dissolved		<0.00050		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Zinc (Zn)-Dissolved		0.0039		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Zirconium (Zr)-Dissolved		0.00059		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-5 MW02								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Volatile Organic Compounds								
Surrogate: 4-Bromofluorobenzene (SS)		84.0		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		114.5		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		82.6		60-140	%	11-SEP-20	15-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		83.6		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		74.8		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		86.3		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-6 MW02-D								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Physical Tests								
Conductivity		1110		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		520		0.50	mg/L		15-SEP-20	
pH		7.59		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		758		20	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		<0.25	DLDS	0.25	mg/L		14-SEP-20	R5224181
Chloride (Cl)		52.1		2.5	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.69		0.10	mg/L		14-SEP-20	R5224181
Nitrate (as N)		1.33		0.025	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0050	DLDS	0.0050	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		245		1.5	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		0.0222		0.0030	mg/L		15-SEP-20	R5224180
Antimony (Sb)-Total		0.00031		0.00010	mg/L		15-SEP-20	R5224180
Arsenic (As)-Total		0.00041		0.00010	mg/L		15-SEP-20	R5224180
Barium (Ba)-Total		0.0264		0.00010	mg/L		15-SEP-20	R5224180
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Boron (B)-Total		0.036		0.010	mg/L		15-SEP-20	R5224180
Cadmium (Cd)-Total		0.0000288		0.0000050	mg/L		15-SEP-20	R5224180

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-6	MW02-D							
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Calcium (Ca)-Total		82.1		0.050	mg/L		15-SEP-20	R5224180
Cesium (Cs)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Chromium (Cr)-Total		0.00033		0.00010	mg/L		15-SEP-20	R5224180
Cobalt (Co)-Total		0.00027		0.00010	mg/L		15-SEP-20	R5224180
Copper (Cu)-Total		0.0100		0.00050	mg/L		15-SEP-20	R5224180
Iron (Fe)-Total		0.015		0.010	mg/L		15-SEP-20	R5224180
Lead (Pb)-Total		0.000293		0.000050	mg/L		15-SEP-20	R5224180
Lithium (Li)-Total		0.0353		0.0010	mg/L		15-SEP-20	R5224180
Magnesium (Mg)-Total		71.8		0.0050	mg/L		15-SEP-20	R5224180
Manganese (Mn)-Total		0.115		0.00010	mg/L		15-SEP-20	R5224180
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.00694		0.000050	mg/L		15-SEP-20	R5224180
Nickel (Ni)-Total		0.00463		0.00050	mg/L		15-SEP-20	R5224180
Phosphorus (P)-Total		<0.050		0.050	mg/L		15-SEP-20	R5224180
Potassium (K)-Total		9.50		0.050	mg/L		15-SEP-20	R5224180
Rubidium (Rb)-Total		0.00134		0.00020	mg/L		15-SEP-20	R5224180
Selenium (Se)-Total		0.000218		0.000050	mg/L		15-SEP-20	R5224180
Silicon (Si)-Total		3.80		0.10	mg/L		15-SEP-20	R5224180
Silver (Ag)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Sodium (Na)-Total		68.1		0.050	mg/L		15-SEP-20	R5224180
Strontium (Sr)-Total		0.321		0.00020	mg/L		15-SEP-20	R5224180
Sulfur (S)-Total		93.7		0.50	mg/L		15-SEP-20	R5224180
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		15-SEP-20	R5224180
Thallium (Tl)-Total		0.000011		0.000010	mg/L		15-SEP-20	R5224180
Thorium (Th)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Tin (Sn)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Titanium (Ti)-Total		0.00067		0.00030	mg/L		15-SEP-20	R5224180
Tungsten (W)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Uranium (U)-Total		0.0955		0.000010	mg/L		15-SEP-20	R5224180
Vanadium (V)-Total		<0.00050		0.00050	mg/L		15-SEP-20	R5224180
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		15-SEP-20	R5224180
Zirconium (Zr)-Total		0.00095		0.00020	mg/L		15-SEP-20	R5224180
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					11-SEP-20	R5222500
Aluminum (Al)-Dissolved		0.0248		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Antimony (Sb)-Dissolved		0.00031		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Arsenic (As)-Dissolved		0.00046		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Barium (Ba)-Dissolved		0.0256		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-6 MW02-D								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Boron (B)-Dissolved		0.035		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cadmium (Cd)-Dissolved		0.0000345		0.0000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Calcium (Ca)-Dissolved		86.1		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Cesium (Cs)-Dissolved		0.000011		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Chromium (Cr)-Dissolved		0.00038		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cobalt (Co)-Dissolved		0.00026		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Copper (Cu)-Dissolved		0.0104		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Iron (Fe)-Dissolved		0.015		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Lead (Pb)-Dissolved		0.000285		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Lithium (Li)-Dissolved		0.0391		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Magnesium (Mg)-Dissolved		74.0		0.0050	mg/L	11-SEP-20	11-SEP-20	R5223444
Manganese (Mn)-Dissolved		0.117		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.00637		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Nickel (Ni)-Dissolved		0.00465		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Potassium (K)-Dissolved		9.94		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Rubidium (Rb)-Dissolved		0.00150		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Selenium (Se)-Dissolved		0.000230		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silicon (Si)-Dissolved		3.65		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silver (Ag)-Dissolved		<0.000010		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Sodium (Na)-Dissolved		74.4		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Strontium (Sr)-Dissolved		0.351		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Sulfur (S)-Dissolved		90.5		0.50	mg/L	11-SEP-20	11-SEP-20	R5223444
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Thallium (Tl)-Dissolved		0.000012		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Thorium (Th)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Titanium (Ti)-Dissolved		0.00089		0.00030	mg/L	11-SEP-20	11-SEP-20	R5223444
Tungsten (W)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Uranium (U)-Dissolved		0.106		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Vanadium (V)-Dissolved		<0.00050		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Zinc (Zn)-Dissolved		0.0031		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Zirconium (Zr)-Dissolved		0.00057		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-6 MW02-D								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Volatile Organic Compounds								
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		85.8		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		113.7		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		82.5		60-140	%	11-SEP-20	15-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		92.4		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		74.1		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		90.0		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-7 MW03								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Physical Tests								
Conductivity		1930		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		608		0.50	mg/L		15-SEP-20	
pH		7.83		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		13.1		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		1230		20	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		0.75		0.50	mg/L		14-SEP-20	R5224181
Chloride (Cl)		200		5.0	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.79		0.20	mg/L		14-SEP-20	R5224181
Nitrate (as N)		0.221		0.050	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.010	DLDS	0.010	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		422		3.0	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		0.187		0.0030	mg/L		15-SEP-20	R5224180
Antimony (Sb)-Total		0.00026		0.00010	mg/L		15-SEP-20	R5224180
Arsenic (As)-Total		0.00094		0.00010	mg/L		15-SEP-20	R5224180
Barium (Ba)-Total		0.0288		0.00010	mg/L		15-SEP-20	R5224180
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-7 MW03								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Boron (B)-Total		0.071		0.010	mg/L		15-SEP-20	R5224180
Cadmium (Cd)-Total		0.000151		0.0000050	mg/L		15-SEP-20	R5224180
Calcium (Ca)-Total		90.9		0.050	mg/L		15-SEP-20	R5224180
Cesium (Cs)-Total		0.000023		0.000010	mg/L		15-SEP-20	R5224180
Chromium (Cr)-Total		0.00163		0.00010	mg/L		15-SEP-20	R5224180
Cobalt (Co)-Total		0.00030		0.00010	mg/L		15-SEP-20	R5224180
Copper (Cu)-Total		0.0112		0.00050	mg/L		15-SEP-20	R5224180
Iron (Fe)-Total		0.123		0.010	mg/L		15-SEP-20	R5224180
Lead (Pb)-Total		0.000366		0.000050	mg/L		15-SEP-20	R5224180
Lithium (Li)-Total		0.0830		0.0010	mg/L		15-SEP-20	R5224180
Magnesium (Mg)-Total		86.0		0.0050	mg/L		15-SEP-20	R5224180
Manganese (Mn)-Total		0.0840		0.00010	mg/L		15-SEP-20	R5224180
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.0222		0.000050	mg/L		15-SEP-20	R5224180
Nickel (Ni)-Total		0.00461		0.00050	mg/L		15-SEP-20	R5224180
Phosphorus (P)-Total		<0.050		0.050	mg/L		15-SEP-20	R5224180
Potassium (K)-Total		30.6		0.050	mg/L		15-SEP-20	R5224180
Rubidium (Rb)-Total		0.00344		0.00020	mg/L		15-SEP-20	R5224180
Selenium (Se)-Total		0.000210		0.000050	mg/L		15-SEP-20	R5224180
Silicon (Si)-Total		3.51		0.10	mg/L		15-SEP-20	R5224180
Silver (Ag)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Sodium (Na)-Total		205		0.050	mg/L		15-SEP-20	R5224180
Strontium (Sr)-Total		0.536		0.00020	mg/L		15-SEP-20	R5224180
Sulfur (S)-Total		161		0.50	mg/L		15-SEP-20	R5224180
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		15-SEP-20	R5224180
Thallium (Tl)-Total		0.000081		0.000010	mg/L		15-SEP-20	R5224180
Thorium (Th)-Total		0.00012		0.00010	mg/L		15-SEP-20	R5224180
Tin (Sn)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Titanium (Ti)-Total		<0.0054	DLM	0.0054	mg/L		15-SEP-20	R5224180
Tungsten (W)-Total		0.00035		0.00010	mg/L		15-SEP-20	R5224180
Uranium (U)-Total		0.0756		0.000010	mg/L		15-SEP-20	R5224180
Vanadium (V)-Total		0.00097		0.00050	mg/L		15-SEP-20	R5224180
Zinc (Zn)-Total		0.0085		0.0030	mg/L		15-SEP-20	R5224180
Zirconium (Zr)-Total		0.00061		0.00020	mg/L		15-SEP-20	R5224180
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					11-SEP-20	R5222500
Aluminum (Al)-Dissolved		0.176		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Antimony (Sb)-Dissolved		0.00028		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Arsenic (As)-Dissolved		0.00091		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-7	MW03							
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Barium (Ba)-Dissolved		0.0268		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Boron (B)-Dissolved		0.071		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cadmium (Cd)-Dissolved		0.000153		0.0000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Calcium (Ca)-Dissolved		94.0		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Cesium (Cs)-Dissolved		0.000027		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Chromium (Cr)-Dissolved		0.00123		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Cobalt (Co)-Dissolved		0.00024		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Copper (Cu)-Dissolved		0.0118		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Iron (Fe)-Dissolved		0.113		0.010	mg/L	11-SEP-20	11-SEP-20	R5223444
Lead (Pb)-Dissolved		0.000493		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Lithium (Li)-Dissolved		0.0858		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Magnesium (Mg)-Dissolved		90.6		0.0050	mg/L	11-SEP-20	11-SEP-20	R5223444
Manganese (Mn)-Dissolved		0.0866		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.0220		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Nickel (Ni)-Dissolved		0.00491		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Potassium (K)-Dissolved		33.8		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Rubidium (Rb)-Dissolved		0.00384		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Selenium (Se)-Dissolved		0.000219		0.000050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silicon (Si)-Dissolved		3.50		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Silver (Ag)-Dissolved		0.000010		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Sodium (Na)-Dissolved		222		0.050	mg/L	11-SEP-20	11-SEP-20	R5223444
Strontium (Sr)-Dissolved		0.622		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Sulfur (S)-Dissolved		157		0.50	mg/L	11-SEP-20	11-SEP-20	R5223444
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Thallium (Tl)-Dissolved		0.000094		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Thorium (Th)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Titanium (Ti)-Dissolved		0.00586		0.00030	mg/L	11-SEP-20	11-SEP-20	R5223444
Tungsten (W)-Dissolved		0.00039		0.00010	mg/L	11-SEP-20	11-SEP-20	R5223444
Uranium (U)-Dissolved		0.0865		0.000010	mg/L	11-SEP-20	11-SEP-20	R5223444
Vanadium (V)-Dissolved		0.00087		0.00050	mg/L	11-SEP-20	11-SEP-20	R5223444
Zinc (Zn)-Dissolved		0.0103		0.0010	mg/L	11-SEP-20	11-SEP-20	R5223444
Zirconium (Zr)-Dissolved		0.00056		0.00020	mg/L	11-SEP-20	11-SEP-20	R5223444
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-7 MW03 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER								
Volatile Organic Compounds								
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		83.6		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		113.9		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		79.1		60-140	%	11-SEP-20	15-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		86.0		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		86.8		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		92.3		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-8 MW04 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER								
Physical Tests								
Conductivity		1170		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		243		0.50	mg/L		16-SEP-20	
pH		7.87		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		16.5		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		719		20	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		0.30		0.25	mg/L		14-SEP-20	R5224181
Chloride (Cl)		90.9		2.5	mg/L		14-SEP-20	R5224181
Fluoride (F)		0.50		0.10	mg/L		14-SEP-20	R5224181
Nitrate (as N)		0.455		0.025	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0050	DLDS	0.0050	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		275		1.5	mg/L		14-SEP-20	R5224181
Total Metals								
Aluminum (Al)-Total		1.73		0.0030	mg/L		16-SEP-20	R5224805
Antimony (Sb)-Total		0.00040		0.00010	mg/L		16-SEP-20	R5224805

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-8 MW04								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Total Metals								
Arsenic (As)-Total		0.00073		0.00010	mg/L		16-SEP-20	R5224805
Barium (Ba)-Total		0.0421		0.00010	mg/L		16-SEP-20	R5224805
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		16-SEP-20	R5224805
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		16-SEP-20	R5224805
Boron (B)-Total		0.084		0.010	mg/L		16-SEP-20	R5224805
Cadmium (Cd)-Total		0.0000549		0.0000050	mg/L		16-SEP-20	R5224805
Calcium (Ca)-Total		52.6		0.050	mg/L		16-SEP-20	R5224805
Cesium (Cs)-Total		0.000118		0.000010	mg/L		16-SEP-20	R5224805
Chromium (Cr)-Total		0.00216		0.00010	mg/L		16-SEP-20	R5224805
Cobalt (Co)-Total		0.00034		0.00010	mg/L		16-SEP-20	R5224805
Copper (Cu)-Total		0.00819		0.00050	mg/L		16-SEP-20	R5224805
Iron (Fe)-Total		0.853		0.010	mg/L		16-SEP-20	R5224805
Lead (Pb)-Total		0.000424		0.000050	mg/L		16-SEP-20	R5224805
Lithium (Li)-Total		0.0141		0.0010	mg/L		16-SEP-20	R5224805
Magnesium (Mg)-Total		33.6		0.0050	mg/L		16-SEP-20	R5224805
Manganese (Mn)-Total		0.0205		0.00010	mg/L		16-SEP-20	R5224805
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.0162		0.000050	mg/L		16-SEP-20	R5224805
Nickel (Ni)-Total		0.00353		0.00050	mg/L		16-SEP-20	R5224805
Phosphorus (P)-Total		<0.050		0.050	mg/L		16-SEP-20	R5224805
Potassium (K)-Total		20.2		0.050	mg/L		16-SEP-20	R5224805
Rubidium (Rb)-Total		0.00550		0.00020	mg/L		16-SEP-20	R5224805
Selenium (Se)-Total		0.000145		0.000050	mg/L		16-SEP-20	R5224805
Silicon (Si)-Total		5.68		0.10	mg/L		16-SEP-20	R5224805
Silver (Ag)-Total		0.000011		0.000010	mg/L		16-SEP-20	R5224805
Sodium (Na)-Total		168		0.050	mg/L		16-SEP-20	R5224805
Strontium (Sr)-Total		0.265		0.00020	mg/L		16-SEP-20	R5224805
Sulfur (S)-Total		106		0.50	mg/L		16-SEP-20	R5224805
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		16-SEP-20	R5224805
Thallium (Tl)-Total		0.000061		0.000010	mg/L		16-SEP-20	R5224805
Thorium (Th)-Total		0.00060		0.00010	mg/L		16-SEP-20	R5224805
Tin (Sn)-Total		0.00011		0.00010	mg/L		16-SEP-20	R5224805
Titanium (Ti)-Total		0.0524		0.00030	mg/L		16-SEP-20	R5224805
Tungsten (W)-Total		0.00071		0.00010	mg/L		16-SEP-20	R5224805
Uranium (U)-Total		0.0155		0.000010	mg/L		16-SEP-20	R5224805
Vanadium (V)-Total		0.00237		0.00050	mg/L		16-SEP-20	R5224805
Zinc (Zn)-Total		0.0071		0.0030	mg/L		16-SEP-20	R5224805
Zirconium (Zr)-Total		0.00177		0.00020	mg/L		16-SEP-20	R5224805
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					15-SEP-20	R5224256

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-8 MW04								
Sampled By: CLIENT on 28-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Aluminum (Al)-Dissolved		2.46	DTC	0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Antimony (Sb)-Dissolved		0.00037		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Arsenic (As)-Dissolved		0.00075		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Barium (Ba)-Dissolved		0.0398		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Boron (B)-Dissolved		0.078		0.010	mg/L	15-SEP-20	16-SEP-20	R5224908
Cadmium (Cd)-Dissolved		0.0000706		0.0000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Calcium (Ca)-Dissolved		49.2		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Cesium (Cs)-Dissolved		0.000186	DTC	0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Chromium (Cr)-Dissolved		0.00324	DTC	0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Cobalt (Co)-Dissolved		0.00057	DTC	0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Copper (Cu)-Dissolved		0.00983		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Iron (Fe)-Dissolved		1.48	DTC	0.010	mg/L	15-SEP-20	16-SEP-20	R5224908
Lead (Pb)-Dissolved		0.000630	DTC	0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Lithium (Li)-Dissolved		0.0147		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Magnesium (Mg)-Dissolved		29.1		0.0050	mg/L	15-SEP-20	16-SEP-20	R5224908
Manganese (Mn)-Dissolved		0.0313	DTC	0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.0157		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Nickel (Ni)-Dissolved		0.00519	DTC	0.00050	mg/L	15-SEP-20	16-SEP-20	R5224908
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Potassium (K)-Dissolved		19.0		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Rubidium (Rb)-Dissolved		0.00708		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Selenium (Se)-Dissolved		0.000120		0.000050	mg/L	15-SEP-20	16-SEP-20	R5224908
Silicon (Si)-Dissolved		5.95		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Silver (Ag)-Dissolved		<0.000010		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Sodium (Na)-Dissolved		160		0.050	mg/L	15-SEP-20	16-SEP-20	R5224908
Strontium (Sr)-Dissolved		0.238		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Sulfur (S)-Dissolved		97.7		0.50	mg/L	15-SEP-20	16-SEP-20	R5224908
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Thallium (Tl)-Dissolved		0.000071		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Thorium (Th)-Dissolved		0.00066		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Tin (Sn)-Dissolved		0.00010		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Titanium (Ti)-Dissolved		0.0864	DTC	0.00030	mg/L	15-SEP-20	16-SEP-20	R5224908
Tungsten (W)-Dissolved		0.00068		0.00010	mg/L	15-SEP-20	16-SEP-20	R5224908
Uranium (U)-Dissolved		0.0141		0.000010	mg/L	15-SEP-20	16-SEP-20	R5224908
Vanadium (V)-Dissolved		0.00310		0.00050	mg/L	15-SEP-20	16-SEP-20	R5224908
Zinc (Zn)-Dissolved		0.0095		0.0010	mg/L	15-SEP-20	16-SEP-20	R5224908
Zirconium (Zr)-Dissolved		0.00181		0.00020	mg/L	15-SEP-20	16-SEP-20	R5224908
Volatile Organic Compounds								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-8 MW04 Sampled By: CLIENT on 28-AUG-20 @ 12:00 Matrix: WATER								
Volatile Organic Compounds								
Benzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Ethylbenzene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Methyl t-butyl ether (MTBE)		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Styrene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Toluene		<0.00045		0.00045	mg/L	10-SEP-20	11-SEP-20	R5203993
ortho-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
meta- & para-Xylene		<0.00050		0.00050	mg/L	10-SEP-20	11-SEP-20	R5203993
Xylenes		<0.00075		0.00075	mg/L		11-SEP-20	
F1 (C6-C10)		<0.10		0.10	mg/L	10-SEP-20	11-SEP-20	R5204137
Surrogate: 4-Bromofluorobenzene (SS)		85.3		70-130	%		11-SEP-20	R5203993
Surrogate: 1,4-Difluorobenzene (SS)		114.2		70-130	%		11-SEP-20	R5203993
Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		11-SEP-20	
F2 (C10-C16)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F3 (C16-C34)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
F4 (C34-C50)		<0.30		0.30	mg/L	11-SEP-20	15-SEP-20	R5200147
Surrogate: 2-Bromobenzotrifluoride, F2-F4		79.0		60-140	%	11-SEP-20	15-SEP-20	R5200147
Surrogate: 3,4-Dichlorotoluene (SS)		84.7		70-130	%		11-SEP-20	R5204137
Polychlorinated Biphenyls								
Aroclor 1242		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1248		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1254		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Aroclor 1260		<0.000020		0.000020	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Decachlorobiphenyl		82.8		50-150	%	15-SEP-20	15-SEP-20	R5224193
Total PCBs		<0.000040		0.000040	mg/L	15-SEP-20	15-SEP-20	R5224193
Surrogate: Tetrachloro-m-xylene		94.1		50-150	%	15-SEP-20	15-SEP-20	R5224193
L2498615-9 MW103 Sampled By: CLIENT on 30-AUG-20 @ 12:00 Matrix: WATER								
Physical Tests								
Conductivity		771		2.0	uS/cm		12-SEP-20	R5223184
Hardness (as CaCO3)		451		0.50	mg/L		15-SEP-20	
pH		8.21		0.10	pH		12-SEP-20	R5223184
Total Suspended Solids		33.3		3.0	mg/L		11-SEP-20	R5222647
Total Dissolved Solids		440		20	mg/L		11-SEP-20	R5223182
Anions and Nutrients								
Bromide (Br)		<0.25	DLDS	0.25	mg/L		14-SEP-20	R5224181
Chloride (Cl)		20.4		2.5	mg/L		14-SEP-20	R5224181
Fluoride (F)		<0.10	DLDS	0.10	mg/L		14-SEP-20	R5224181
Nitrate (as N)		5.50		0.025	mg/L		14-SEP-20	R5224181
Nitrite (as N)		<0.0050	DLDS	0.0050	mg/L		14-SEP-20	R5224181
Sulfate (SO4)		18.6		1.5	mg/L		14-SEP-20	R5224181

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-9 MW103								
Sampled By: CLIENT on 30-AUG-20 @ 12:00								
Matrix: WATER								
Anions and Nutrients								
Total Metals								
Aluminum (Al)-Total		0.192		0.0030	mg/L		15-SEP-20	R5224180
Antimony (Sb)-Total		0.00052		0.00010	mg/L		15-SEP-20	R5224180
Arsenic (As)-Total		0.00058		0.00010	mg/L		15-SEP-20	R5224180
Barium (Ba)-Total		0.0780		0.00010	mg/L		15-SEP-20	R5224180
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		15-SEP-20	R5224180
Boron (B)-Total		0.028		0.010	mg/L		15-SEP-20	R5224180
Cadmium (Cd)-Total		0.0000621		0.0000050	mg/L		15-SEP-20	R5224180
Calcium (Ca)-Total		69.3		0.050	mg/L		15-SEP-20	R5224180
Cesium (Cs)-Total		0.000038		0.000010	mg/L		15-SEP-20	R5224180
Chromium (Cr)-Total		0.0127		0.00010	mg/L		15-SEP-20	R5224180
Cobalt (Co)-Total		0.00045		0.00010	mg/L		15-SEP-20	R5224180
Copper (Cu)-Total		0.00861		0.00050	mg/L		15-SEP-20	R5224180
Iron (Fe)-Total		0.262		0.010	mg/L		15-SEP-20	R5224180
Lead (Pb)-Total		0.000649		0.000050	mg/L		15-SEP-20	R5224180
Lithium (Li)-Total		0.0020		0.0010	mg/L		15-SEP-20	R5224180
Magnesium (Mg)-Total		61.4		0.0050	mg/L		15-SEP-20	R5224180
Manganese (Mn)-Total		0.0203		0.00010	mg/L		15-SEP-20	R5224180
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		15-SEP-20	R5223601
Molybdenum (Mo)-Total		0.000591		0.000050	mg/L		15-SEP-20	R5224180
Nickel (Ni)-Total		0.00911		0.00050	mg/L		15-SEP-20	R5224180
Phosphorus (P)-Total		<0.050		0.050	mg/L		15-SEP-20	R5224180
Potassium (K)-Total		1.75		0.050	mg/L		15-SEP-20	R5224180
Rubidium (Rb)-Total		0.00091		0.00020	mg/L		15-SEP-20	R5224180
Selenium (Se)-Total		0.000114		0.000050	mg/L		15-SEP-20	R5224180
Silicon (Si)-Total		2.11		0.10	mg/L		15-SEP-20	R5224180
Silver (Ag)-Total		0.000017		0.000010	mg/L		15-SEP-20	R5224180
Sodium (Na)-Total		25.8		0.050	mg/L		15-SEP-20	R5224180
Strontium (Sr)-Total		0.105		0.00020	mg/L		15-SEP-20	R5224180
Sulfur (S)-Total		7.61		0.50	mg/L		15-SEP-20	R5224180
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		15-SEP-20	R5224180
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		15-SEP-20	R5224180
Thorium (Th)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Tin (Sn)-Total		<0.00010		0.00010	mg/L		15-SEP-20	R5224180
Titanium (Ti)-Total		0.00559		0.00030	mg/L		15-SEP-20	R5224180
Tungsten (W)-Total		0.00011		0.00010	mg/L		15-SEP-20	R5224180
Uranium (U)-Total		0.00156		0.000010	mg/L		15-SEP-20	R5224180
Vanadium (V)-Total		0.00071		0.00050	mg/L		15-SEP-20	R5224180
Zinc (Zn)-Total		0.0529		0.0030	mg/L		15-SEP-20	R5224180
Zirconium (Zr)-Total		0.00091		0.00020	mg/L		15-SEP-20	R5224180

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2498615-9 MW103								
Sampled By: CLIENT on 30-AUG-20 @ 12:00								
Matrix: WATER								
Dissolved Metals								
Dissolved Mercury Filtration Location		FIELD					15-SEP-20	R5223539
Dissolved Metals Filtration Location		FIELD					14-SEP-20	R5223376
Aluminum (Al)-Dissolved		0.244		0.0010	mg/L	14-SEP-20	14-SEP-20	R5223442
Antimony (Sb)-Dissolved		0.00044		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Arsenic (As)-Dissolved		0.00056		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Barium (Ba)-Dissolved		0.0826		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Beryllium (Be)-Dissolved		<0.00010		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L	14-SEP-20	14-SEP-20	R5223442
Boron (B)-Dissolved		0.030		0.010	mg/L	14-SEP-20	14-SEP-20	R5223442
Cadmium (Cd)-Dissolved		0.0000597		0.0000050	mg/L	14-SEP-20	14-SEP-20	R5223442
Calcium (Ca)-Dissolved		77.9		0.050	mg/L	14-SEP-20	14-SEP-20	R5223442
Cesium (Cs)-Dissolved		0.000011		0.000010	mg/L	14-SEP-20	14-SEP-20	R5223442
Chromium (Cr)-Dissolved		0.00240		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Cobalt (Co)-Dissolved		0.00032		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Copper (Cu)-Dissolved		0.00759		0.00020	mg/L	14-SEP-20	14-SEP-20	R5223442
Iron (Fe)-Dissolved		0.214		0.010	mg/L	14-SEP-20	14-SEP-20	R5223442
Lead (Pb)-Dissolved		0.00115	DTMF	0.000050	mg/L	14-SEP-20	14-SEP-20	R5223442
Lithium (Li)-Dissolved		0.0020		0.0010	mg/L	14-SEP-20	14-SEP-20	R5223442
Magnesium (Mg)-Dissolved		62.2		0.0050	mg/L	14-SEP-20	14-SEP-20	R5223442
Manganese (Mn)-Dissolved		0.0227		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Mercury (Hg)-Dissolved		<0.0000050		0.0000050	mg/L	15-SEP-20	15-SEP-20	R5223601
Molybdenum (Mo)-Dissolved		0.000311		0.000050	mg/L	14-SEP-20	14-SEP-20	R5223442
Nickel (Ni)-Dissolved		0.00392		0.00050	mg/L	14-SEP-20	14-SEP-20	R5223442
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	14-SEP-20	14-SEP-20	R5223442
Potassium (K)-Dissolved		1.61		0.050	mg/L	14-SEP-20	14-SEP-20	R5223442
Rubidium (Rb)-Dissolved		0.00074		0.00020	mg/L	14-SEP-20	14-SEP-20	R5223442
Selenium (Se)-Dissolved		0.000142		0.000050	mg/L	14-SEP-20	14-SEP-20	R5223442
Silicon (Si)-Dissolved		2.17		0.050	mg/L	14-SEP-20	14-SEP-20	R5223442
Silver (Ag)-Dissolved		<0.000010		0.000010	mg/L	14-SEP-20	14-SEP-20	R5223442
Sodium (Na)-Dissolved		27.7		0.050	mg/L	14-SEP-20	14-SEP-20	R5223442
Strontium (Sr)-Dissolved		0.114		0.00020	mg/L	14-SEP-20	14-SEP-20	R5223442
Sulfur (S)-Dissolved		7.38		0.50	mg/L	14-SEP-20	14-SEP-20	R5223442
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L	14-SEP-20	14-SEP-20	R5223442
Thallium (Tl)-Dissolved		<0.000010		0.000010	mg/L	14-SEP-20	14-SEP-20	R5223442
Thorium (Th)-Dissolved		0.00011		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Tin (Sn)-Dissolved		<0.00010		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Titanium (Ti)-Dissolved		0.00436		0.00030	mg/L	14-SEP-20	14-SEP-20	R5223442
Tungsten (W)-Dissolved		<0.00010		0.00010	mg/L	14-SEP-20	14-SEP-20	R5223442
Uranium (U)-Dissolved		0.00160		0.000010	mg/L	14-SEP-20	14-SEP-20	R5223442
Vanadium (V)-Dissolved		0.00052		0.00050	mg/L	14-SEP-20	14-SEP-20	R5223442
Zinc (Zn)-Dissolved		0.0453		0.0010	mg/L	14-SEP-20	14-SEP-20	R5223442

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Aluminum (Al)-Dissolved	B	L2498615-2, -4, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2498615-9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2498615-9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2498615-9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2498615-9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2498615-9
Matrix Spike	Arsenic (As)-Total	MS-B	L2498615-1
Matrix Spike	Barium (Ba)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Calcium (Ca)-Total	MS-B	L2498615-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Calcium (Ca)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Cobalt (Co)-Total	MS-B	L2498615-1
Matrix Spike	Cobalt (Co)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Lithium (Li)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Lithium (Li)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2498615-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Manganese (Mn)-Total	MS-B	L2498615-1
Matrix Spike	Manganese (Mn)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Nickel (Ni)-Total	MS-B	L2498615-1
Matrix Spike	Nickel (Ni)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Nickel (Ni)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Potassium (K)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Potassium (K)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Rubidium (Rb)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Sodium (Na)-Total	MS-B	L2498615-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Sodium (Na)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Strontium (Sr)-Total	MS-B	L2498615-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Sulfur (S)-Total	MS-B	L2498615-1
Matrix Spike	Sulfur (S)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Sulfur (S)-Total	MS-B	L2498615-2, -4, -8
Matrix Spike	Uranium (U)-Total	MS-B	L2498615-3, -5, -6, -7, -9
Matrix Spike	Uranium (U)-Total	MS-B	L2498615-2, -4, -8

Qualifiers for Sample Submission Listed:

Qualifier	Description
WSMD	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Sample Parameter Qualifier key listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLA	Detection Limit adjusted for required dilution
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
F1-BTX-CALC-VA	Water	F1-Total BTX	CCME CWS PHC TIER 1 (2001)
This analysis is based on the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For F1 (C6-C10), the sample undergoes a purge and trap extraction prior to analysis by GC/FID. The F1-BTEX result is calculated as follows:			
F1-BTEX: F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).			
F1-HSFID-VA	Water	CCME F1 By Headspace with GCFID	EPA 5021A/CCME CWS PHC (Pub# 1310)
This analysis is based on the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For F1 (C6-C10), the sample undergoes a headspace purge prior to analysis by GC/FID.			
F1 (C6-C10): Sum of all hydrocarbons that elute between nC6 and nC10.			
F2-F4-ME-FID-VA	Water	CCME F2-F4 Hydrocarbons in Water	CCME CWS-PHC, Pub #1310, Dec 2001
F2-F4 is extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, Dec 2001.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
PCB-WT	Water	Polychlorinated Biphenyls	EPA 8082

Reference Information

PCBs are extracted from an aqueous sample at neutral pH with aliquots of dichloromethane using a modified separatory funnel technique. The extracts are analyzed by GC/MSD.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.			
VH-SURR-FID-VA	Water	VH Surrogates for Waters	BC Env. Lab Manual (VH in Solids)
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylenes			
Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2498615

Report Date: 17-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HSFID-VA		Water						
Batch	R5204137							
WG3402276-3	DUP	L2498294-1						
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	11-SEP-20
WG3402276-2	LCS							
F1 (C6-C10)			110.0		%		70-130	11-SEP-20
WG3402276-1	MB							
F1 (C6-C10)			<0.10		mg/L		0.1	11-SEP-20
F2-F4-ME-FID-VA		Water						
Batch	R5200147							
WG3402364-2	LCS							
F2 (C10-C16)			119.0		%		70-130	11-SEP-20
F3 (C16-C34)			110.0		%		70-130	11-SEP-20
F4 (C34-C50)			113.4		%		70-130	11-SEP-20
WG3402364-1	MB							
F2 (C10-C16)			<0.30		mg/L		0.3	11-SEP-20
F3 (C16-C34)			<0.30		mg/L		0.3	11-SEP-20
F4 (C34-C50)			<0.30		mg/L		0.3	11-SEP-20
Surrogate: 2-Bromobenzotrifluoride, F2-F4			69.6		%		60-140	11-SEP-20
HG-D-CVAA-VA		Water						
Batch	R5223601							
WG3404401-3	DUP	L2498615-7						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	15-SEP-20
WG3404401-2	LCS							
Mercury (Hg)-Dissolved			96.8		%		80-120	15-SEP-20
WG3404401-1	MB							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	15-SEP-20
WG3404401-4	MS	L2500670-3						
Mercury (Hg)-Dissolved			95.9		%		70-130	15-SEP-20
HG-T-CVAA-VA		Water						
Batch	R5223601							
WG3404490-3	DUP	L2498423-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	15-SEP-20
WG3404490-2	LCS							
Mercury (Hg)-Total			96.8		%		80-120	15-SEP-20
WG3404490-1	MB							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	15-SEP-20
WG3404490-4	MS	L2496996-1						
Mercury (Hg)-Total			96.3		%		70-130	15-SEP-20



Quality Control Report

Workorder: L2498615

Report Date: 17-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223442							
WG3404183-3	DUP	L2498942-1						
Aluminum (Al)-Dissolved		0.0234	0.0242		mg/L	3.7	20	14-SEP-20
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Arsenic (As)-Dissolved		0.00054	0.00053		mg/L	1.8	20	14-SEP-20
Barium (Ba)-Dissolved		0.00740	0.00767		mg/L	3.6	20	14-SEP-20
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Boron (B)-Dissolved		0.065	0.071		mg/L	8.6	20	14-SEP-20
Cadmium (Cd)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Calcium (Ca)-Dissolved		44.5	47.2		mg/L	5.8	20	14-SEP-20
Cesium (Cs)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-SEP-20
Chromium (Cr)-Dissolved		0.00024	0.00024		mg/L	2.4	20	14-SEP-20
Cobalt (Co)-Dissolved		0.00013	0.00012		mg/L	7.0	20	14-SEP-20
Copper (Cu)-Dissolved		0.00671	0.00670		mg/L	0.2	20	14-SEP-20
Iron (Fe)-Dissolved		0.085	0.086		mg/L	1.7	20	14-SEP-20
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Lithium (Li)-Dissolved		0.0029	0.0031		mg/L	5.8	20	14-SEP-20
Magnesium (Mg)-Dissolved		11.6	11.9		mg/L	3.1	20	14-SEP-20
Manganese (Mn)-Dissolved		0.00626	0.00597		mg/L	4.6	20	14-SEP-20
Molybdenum (Mo)-Dissolved		0.000876	0.000933		mg/L	6.3	20	14-SEP-20
Nickel (Ni)-Dissolved		0.00112	0.00105		mg/L	6.5	20	14-SEP-20
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	14-SEP-20
Potassium (K)-Dissolved		1.84	1.87		mg/L	1.3	20	14-SEP-20
Rubidium (Rb)-Dissolved		0.00084	0.00085		mg/L	1.4	20	14-SEP-20
Selenium (Se)-Dissolved		0.000364	0.000387		mg/L	6.3	20	14-SEP-20
Silicon (Si)-Dissolved		3.73	3.88		mg/L	3.8	20	14-SEP-20
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-SEP-20
Sodium (Na)-Dissolved		32.5	33.4		mg/L	2.7	20	14-SEP-20
Strontium (Sr)-Dissolved		0.0684	0.0743		mg/L	8.3	20	14-SEP-20
Sulfur (S)-Dissolved		19.0	20.0		mg/L	5.5	20	14-SEP-20
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	14-SEP-20
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-SEP-20
Thorium (Th)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Tin (Sn)-Dissolved		<0.00010	<0.00010		mg/L			14-SEP-20

Quality Control Report

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223442							
WG3404183-3 DUP		L2498942-1						
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Titanium (Ti)-Dissolved		0.00052	0.00048		mg/L	7.4	20	14-SEP-20
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Uranium (U)-Dissolved		0.000225	0.000222		mg/L	1.1	20	14-SEP-20
Vanadium (V)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	14-SEP-20
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	14-SEP-20
Zirconium (Zr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	14-SEP-20
WG3404183-2 LCS								
Aluminum (Al)-Dissolved			102.0		%		80-120	14-SEP-20
Antimony (Sb)-Dissolved			99.8		%		80-120	14-SEP-20
Arsenic (As)-Dissolved			96.6		%		80-120	14-SEP-20
Barium (Ba)-Dissolved			100.6		%		80-120	14-SEP-20
Beryllium (Be)-Dissolved			103.4		%		80-120	14-SEP-20
Bismuth (Bi)-Dissolved			109.7		%		80-120	14-SEP-20
Boron (B)-Dissolved			105.9		%		80-120	14-SEP-20
Cadmium (Cd)-Dissolved			100.3		%		80-120	14-SEP-20
Calcium (Ca)-Dissolved			101.7		%		80-120	14-SEP-20
Cesium (Cs)-Dissolved			96.9		%		80-120	14-SEP-20
Chromium (Cr)-Dissolved			95.9		%		80-120	14-SEP-20
Cobalt (Co)-Dissolved			98.2		%		80-120	14-SEP-20
Copper (Cu)-Dissolved			95.5		%		80-120	14-SEP-20
Iron (Fe)-Dissolved			87.8		%		80-120	14-SEP-20
Lead (Pb)-Dissolved			99.5		%		80-120	14-SEP-20
Lithium (Li)-Dissolved			102.2		%		80-120	14-SEP-20
Magnesium (Mg)-Dissolved			111.9		%		80-120	14-SEP-20
Manganese (Mn)-Dissolved			95.4		%		80-120	14-SEP-20
Molybdenum (Mo)-Dissolved			99.2		%		80-120	14-SEP-20
Nickel (Ni)-Dissolved			100.5		%		80-120	14-SEP-20
Phosphorus (P)-Dissolved			106.8		%		70-130	14-SEP-20
Potassium (K)-Dissolved			98.1		%		80-120	14-SEP-20
Rubidium (Rb)-Dissolved			101.6		%		80-120	14-SEP-20
Selenium (Se)-Dissolved			101.6		%		80-120	14-SEP-20
Silicon (Si)-Dissolved			103.3		%		60-140	14-SEP-20



Quality Control Report

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223442							
WG3404183-2	LCS							
Silver (Ag)-Dissolved			102.7		%		80-120	14-SEP-20
Sodium (Na)-Dissolved			111.6		%		80-120	14-SEP-20
Strontium (Sr)-Dissolved			104.8		%		80-120	14-SEP-20
Sulfur (S)-Dissolved			99.1		%		80-120	14-SEP-20
Tellurium (Te)-Dissolved			105.8		%		80-120	14-SEP-20
Thallium (Tl)-Dissolved			101.9		%		80-120	14-SEP-20
Thorium (Th)-Dissolved			94.3		%		80-120	14-SEP-20
Tin (Sn)-Dissolved			99.2		%		80-120	14-SEP-20
Titanium (Ti)-Dissolved			92.4		%		80-120	14-SEP-20
Tungsten (W)-Dissolved			101.2		%		80-120	14-SEP-20
Uranium (U)-Dissolved			102.4		%		80-120	14-SEP-20
Vanadium (V)-Dissolved			99.5		%		80-120	14-SEP-20
Zinc (Zn)-Dissolved			93.0		%		80-120	14-SEP-20
Zirconium (Zr)-Dissolved			99.2		%		80-120	14-SEP-20
WG3404183-1	MB							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	14-SEP-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	14-SEP-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	14-SEP-20
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	14-SEP-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	14-SEP-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	14-SEP-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	14-SEP-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	14-SEP-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	14-SEP-20

Quality Control Report

Workorder: L2498615

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223442							
WG3404183-1 MB								
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-20
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	14-SEP-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	14-SEP-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	14-SEP-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	14-SEP-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	14-SEP-20
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	14-SEP-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	14-SEP-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	14-SEP-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-20
WG3404183-4 MS		L2498942-2						
Aluminum (Al)-Dissolved			97.9		%		70-130	14-SEP-20
Antimony (Sb)-Dissolved			103.4		%		70-130	14-SEP-20
Arsenic (As)-Dissolved			97.0		%		70-130	14-SEP-20
Barium (Ba)-Dissolved			92.4		%		70-130	14-SEP-20
Beryllium (Be)-Dissolved			102.7		%		70-130	14-SEP-20
Bismuth (Bi)-Dissolved			89.0		%		70-130	14-SEP-20
Boron (B)-Dissolved			97.6		%		70-130	14-SEP-20
Cadmium (Cd)-Dissolved			99.1		%		70-130	14-SEP-20
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	14-SEP-20
Cesium (Cs)-Dissolved			96.8		%		70-130	14-SEP-20
Chromium (Cr)-Dissolved			95.6		%		70-130	14-SEP-20
Cobalt (Co)-Dissolved			96.4		%		70-130	14-SEP-20
Copper (Cu)-Dissolved			91.3		%		70-130	14-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223442							
WG3404183-4 MS		L2498942-2						
Iron (Fe)-Dissolved			94.8		%		70-130	14-SEP-20
Lead (Pb)-Dissolved			91.0		%		70-130	14-SEP-20
Lithium (Li)-Dissolved			108.5		%		70-130	14-SEP-20
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	14-SEP-20
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	14-SEP-20
Molybdenum (Mo)-Dissolved			100.8		%		70-130	14-SEP-20
Nickel (Ni)-Dissolved			95.9		%		70-130	14-SEP-20
Phosphorus (P)-Dissolved			107.6		%		70-130	14-SEP-20
Potassium (K)-Dissolved			107.4		%		70-130	14-SEP-20
Rubidium (Rb)-Dissolved			101.6		%		70-130	14-SEP-20
Selenium (Se)-Dissolved			107.5		%		70-130	14-SEP-20
Silicon (Si)-Dissolved			93.7		%		70-130	14-SEP-20
Silver (Ag)-Dissolved			98.8		%		70-130	14-SEP-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	14-SEP-20
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	14-SEP-20
Sulfur (S)-Dissolved			103.9		%		70-130	14-SEP-20
Tellurium (Te)-Dissolved			102.5		%		70-130	14-SEP-20
Thallium (Tl)-Dissolved			89.1		%		70-130	14-SEP-20
Thorium (Th)-Dissolved			92.9		%		70-130	14-SEP-20
Tin (Sn)-Dissolved			99.5		%		70-130	14-SEP-20
Titanium (Ti)-Dissolved			94.7		%		70-130	14-SEP-20
Tungsten (W)-Dissolved			97.4		%		70-130	14-SEP-20
Uranium (U)-Dissolved			97.0		%		70-130	14-SEP-20
Vanadium (V)-Dissolved			97.6		%		70-130	14-SEP-20
Zinc (Zn)-Dissolved			90.7		%		70-130	14-SEP-20
Zirconium (Zr)-Dissolved			111.6		%		70-130	14-SEP-20
Batch	R5223444							
WG3403109-3 DUP		L2498615-1						
Aluminum (Al)-Dissolved		0.405	0.427		mg/L	5.4	20	11-SEP-20
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	11-SEP-20
Arsenic (As)-Dissolved		0.00072	0.00069		mg/L	4.4	20	11-SEP-20
Barium (Ba)-Dissolved		0.120	0.121		mg/L	0.3	20	11-SEP-20
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	11-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223444							
WG3403109-3	DUP	L2498615-1						
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	11-SEP-20
Boron (B)-Dissolved		0.018	0.017		mg/L	3.4	20	11-SEP-20
Cadmium (Cd)-Dissolved		0.0000773	0.0000758		mg/L	1.9	20	11-SEP-20
Calcium (Ca)-Dissolved		22.8	22.9		mg/L	0.5	20	11-SEP-20
Cesium (Cs)-Dissolved		0.000010	0.000011		mg/L	5.7	20	11-SEP-20
Chromium (Cr)-Dissolved		0.00197	0.00206		mg/L	4.1	20	11-SEP-20
Cobalt (Co)-Dissolved		0.00680	0.00690		mg/L	1.4	20	11-SEP-20
Copper (Cu)-Dissolved		0.0316	0.0325		mg/L	2.9	20	11-SEP-20
Iron (Fe)-Dissolved		0.133	0.151		mg/L	13	20	11-SEP-20
Lead (Pb)-Dissolved		0.000103	0.000096		mg/L	6.8	20	11-SEP-20
Lithium (Li)-Dissolved		0.0031	0.0030		mg/L	0.7	20	11-SEP-20
Magnesium (Mg)-Dissolved		8.69	9.16		mg/L	5.3	20	11-SEP-20
Manganese (Mn)-Dissolved		0.902	0.900		mg/L	0.2	20	11-SEP-20
Molybdenum (Mo)-Dissolved		0.000271	0.000267		mg/L	1.8	20	11-SEP-20
Nickel (Ni)-Dissolved		0.0295	0.0299		mg/L	1.4	20	11-SEP-20
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-SEP-20
Potassium (K)-Dissolved		4.73	4.83		mg/L	2.1	20	11-SEP-20
Rubidium (Rb)-Dissolved		0.00424	0.00414		mg/L	2.4	20	11-SEP-20
Selenium (Se)-Dissolved		0.000202	0.000214		mg/L	5.6	20	11-SEP-20
Silicon (Si)-Dissolved		6.96	7.23		mg/L	3.7	20	11-SEP-20
Silver (Ag)-Dissolved		0.000047	0.000053		mg/L	12	20	11-SEP-20
Sodium (Na)-Dissolved		2.59	2.67		mg/L	3.2	20	11-SEP-20
Strontium (Sr)-Dissolved		0.235	0.240		mg/L	2.1	20	11-SEP-20
Sulfur (S)-Dissolved		0.61	0.65		mg/L	6.8	20	11-SEP-20
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	11-SEP-20
Thallium (Tl)-Dissolved		0.000015	0.000014		mg/L	9.2	20	11-SEP-20
Thorium (Th)-Dissolved		0.00054	0.00056		mg/L	3.0	20	11-SEP-20
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	11-SEP-20
Titanium (Ti)-Dissolved		0.00512	0.00617		mg/L	19	20	11-SEP-20
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	11-SEP-20
Uranium (U)-Dissolved		0.00176	0.00173		mg/L	1.5	20	11-SEP-20
Vanadium (V)-Dissolved		0.00072	0.00077		mg/L	6.8	20	11-SEP-20
Zinc (Zn)-Dissolved		0.0034	0.0031		mg/L			11-SEP-20



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Client:

BluMetric Environmental Inc. (Ottawa)

4916 49 St

Yellowknife NT X1A 1P3

Contact:

Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223444							
WG3403109-3	DUP	L2498615-1						
Zinc (Zn)-Dissolved		0.0034	0.0031		mg/L	7.7	20	11-SEP-20
Zirconium (Zr)-Dissolved		0.00260	0.00270		mg/L	4.0	20	11-SEP-20
WG3403109-2	LCS							
Aluminum (Al)-Dissolved			100.9		%		80-120	11-SEP-20
Antimony (Sb)-Dissolved			100.6		%		80-120	11-SEP-20
Arsenic (As)-Dissolved			106.2		%		80-120	11-SEP-20
Barium (Ba)-Dissolved			100.6		%		80-120	11-SEP-20
Beryllium (Be)-Dissolved			105.3		%		80-120	11-SEP-20
Bismuth (Bi)-Dissolved			116.1		%		80-120	11-SEP-20
Boron (B)-Dissolved			99.1		%		80-120	11-SEP-20
Cadmium (Cd)-Dissolved			103.9		%		80-120	11-SEP-20
Calcium (Ca)-Dissolved			101.5		%		80-120	11-SEP-20
Cesium (Cs)-Dissolved			100.2		%		80-120	11-SEP-20
Chromium (Cr)-Dissolved			104.1		%		80-120	11-SEP-20
Cobalt (Co)-Dissolved			105.8		%		80-120	11-SEP-20
Copper (Cu)-Dissolved			104.8		%		80-120	11-SEP-20
Iron (Fe)-Dissolved			98.8		%		80-120	11-SEP-20
Lead (Pb)-Dissolved			105.1		%		80-120	11-SEP-20
Lithium (Li)-Dissolved			106.7		%		80-120	11-SEP-20
Magnesium (Mg)-Dissolved			106.5		%		80-120	11-SEP-20
Manganese (Mn)-Dissolved			119.8		%		80-120	11-SEP-20
Molybdenum (Mo)-Dissolved			98.9		%		80-120	11-SEP-20
Nickel (Ni)-Dissolved			104.7		%		80-120	11-SEP-20
Phosphorus (P)-Dissolved			112.9		%		70-130	11-SEP-20
Potassium (K)-Dissolved			106.0		%		80-120	11-SEP-20
Rubidium (Rb)-Dissolved			112.2		%		80-120	11-SEP-20
Selenium (Se)-Dissolved			103.1		%		80-120	11-SEP-20
Silicon (Si)-Dissolved			107.7		%		60-140	11-SEP-20
Silver (Ag)-Dissolved			101.1		%		80-120	11-SEP-20
Sodium (Na)-Dissolved			114.5		%		80-120	11-SEP-20
Strontium (Sr)-Dissolved			109.5		%		80-120	11-SEP-20
Sulfur (S)-Dissolved			101.0		%		80-120	11-SEP-20
Tellurium (Te)-Dissolved			100.9		%		80-120	11-SEP-20
Thallium (Tl)-Dissolved			105.9		%		80-120	11-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
 4916 49 St
 Yellowknife NT X1A 1P3
 Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5223444							
WG3403109-2 LCS								
Thorium (Th)-Dissolved			102.6		%		80-120	11-SEP-20
Tin (Sn)-Dissolved			100.3		%		80-120	11-SEP-20
Titanium (Ti)-Dissolved			104.0		%		80-120	11-SEP-20
Tungsten (W)-Dissolved			108.3		%		80-120	11-SEP-20
Uranium (U)-Dissolved			114.2		%		80-120	11-SEP-20
Vanadium (V)-Dissolved			102.5		%		80-120	11-SEP-20
Zinc (Zn)-Dissolved			106.9		%		80-120	11-SEP-20
Zirconium (Zr)-Dissolved			103.1		%		80-120	11-SEP-20
WG3403109-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	11-SEP-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	11-SEP-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	11-SEP-20
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	11-SEP-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	11-SEP-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	11-SEP-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	11-SEP-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	11-SEP-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	11-SEP-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	11-SEP-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	11-SEP-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	11-SEP-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	11-SEP-20
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	11-SEP-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	11-SEP-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	11-SEP-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	11-SEP-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	11-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch R5223444								
WG3403109-1 MB								
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	11-SEP-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	11-SEP-20
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	11-SEP-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	11-SEP-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	11-SEP-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	11-SEP-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	11-SEP-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	11-SEP-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	11-SEP-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	11-SEP-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	11-SEP-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	11-SEP-20
Batch R5224908								
WG3405191-3 DUP		L2498615-2						
Aluminum (Al)-Dissolved		0.341	0.348		mg/L	1.9	20	16-SEP-20
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Arsenic (As)-Dissolved		0.00064	0.00061		mg/L	5.1	20	16-SEP-20
Barium (Ba)-Dissolved		0.104	0.107		mg/L	3.2	20	16-SEP-20
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-20
Boron (B)-Dissolved		0.018	0.018		mg/L	2.5	20	16-SEP-20
Cadmium (Cd)-Dissolved		0.0000721	0.0000799		mg/L	10	20	16-SEP-20
Calcium (Ca)-Dissolved		22.8	22.3		mg/L	2.1	20	16-SEP-20
Cesium (Cs)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-SEP-20
Chromium (Cr)-Dissolved		0.00187	0.00181		mg/L	3.6	20	16-SEP-20
Cobalt (Co)-Dissolved		0.00645	0.00639		mg/L	1.0	20	16-SEP-20
Copper (Cu)-Dissolved		0.0289	0.0290		mg/L	0.3	20	16-SEP-20
Iron (Fe)-Dissolved		0.135	0.136		mg/L	0.1	20	16-SEP-20
Lead (Pb)-Dissolved		0.000097	0.000094		mg/L	3.2	20	16-SEP-20
Lithium (Li)-Dissolved		0.0029	0.0029		mg/L	0.9	20	16-SEP-20
Magnesium (Mg)-Dissolved		7.18	7.38		mg/L	2.8	20	16-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5224908							
WG3405191-3	DUP	L2498615-2						
Manganese (Mn)-Dissolved		0.785	0.810		mg/L	3.1	20	16-SEP-20
Molybdenum (Mo)-Dissolved		0.000271	0.000271		mg/L	0.3	20	16-SEP-20
Nickel (Ni)-Dissolved		0.0275	0.0271		mg/L	1.4	20	16-SEP-20
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	16-SEP-20
Potassium (K)-Dissolved		4.30	4.27		mg/L	0.7	20	16-SEP-20
Rubidium (Rb)-Dissolved		0.00355	0.00354		mg/L	0.4	20	16-SEP-20
Selenium (Se)-Dissolved		0.000223	0.000216		mg/L	2.9	20	16-SEP-20
Silicon (Si)-Dissolved		6.67	6.75		mg/L	1.2	20	16-SEP-20
Silver (Ag)-Dissolved		0.000044	0.000052		mg/L	15	20	16-SEP-20
Sodium (Na)-Dissolved		2.43	2.46		mg/L	1.4	20	16-SEP-20
Strontium (Sr)-Dissolved		0.198	0.211		mg/L	6.1	20	16-SEP-20
Sulfur (S)-Dissolved		0.72	0.81		mg/L	12	20	16-SEP-20
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	16-SEP-20
Thallium (Tl)-Dissolved		0.000020	0.000015	J	mg/L	0.000005	0.00002	16-SEP-20
Thorium (Th)-Dissolved		0.00041	0.00042		mg/L	0.9	20	16-SEP-20
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Titanium (Ti)-Dissolved		0.00430	0.00405		mg/L	5.9	20	16-SEP-20
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Uranium (U)-Dissolved		0.00150	0.00154		mg/L	2.6	20	16-SEP-20
Vanadium (V)-Dissolved		0.00063	0.00065		mg/L	2.5	20	16-SEP-20
Zinc (Zn)-Dissolved		0.0028	0.0029		mg/L	3.2	20	16-SEP-20
Zirconium (Zr)-Dissolved		0.00243	0.00247		mg/L	1.7	20	16-SEP-20
WG3405191-2	LCS							
Aluminum (Al)-Dissolved			95.2		%		80-120	16-SEP-20
Antimony (Sb)-Dissolved			107.1		%		80-120	16-SEP-20
Arsenic (As)-Dissolved			96.7		%		80-120	16-SEP-20
Barium (Ba)-Dissolved			96.9		%		80-120	16-SEP-20
Beryllium (Be)-Dissolved			94.6		%		80-120	16-SEP-20
Bismuth (Bi)-Dissolved			97.6		%		80-120	16-SEP-20
Boron (B)-Dissolved			96.2		%		80-120	16-SEP-20
Cadmium (Cd)-Dissolved			102.2		%		80-120	16-SEP-20
Calcium (Ca)-Dissolved			103.8		%		80-120	16-SEP-20
Cesium (Cs)-Dissolved			105.6		%		80-120	16-SEP-20



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Client:

BluMetric Environmental Inc. (Ottawa)
 4916 49 St
 Yellowknife NT X1A 1P3

Contact:

Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5224908							
WG3405191-2		LCS						
Chromium (Cr)-Dissolved			97.3		%		80-120	16-SEP-20
Cobalt (Co)-Dissolved			99.5		%		80-120	16-SEP-20
Copper (Cu)-Dissolved			98.5		%		80-120	16-SEP-20
Iron (Fe)-Dissolved			100.1		%		80-120	16-SEP-20
Lead (Pb)-Dissolved			104.4		%		80-120	16-SEP-20
Lithium (Li)-Dissolved			95.6		%		80-120	16-SEP-20
Magnesium (Mg)-Dissolved			88.6		%		80-120	16-SEP-20
Manganese (Mn)-Dissolved			95.3		%		80-120	16-SEP-20
Molybdenum (Mo)-Dissolved			109.9		%		80-120	16-SEP-20
Nickel (Ni)-Dissolved			98.5		%		80-120	16-SEP-20
Phosphorus (P)-Dissolved			90.4		%		70-130	16-SEP-20
Potassium (K)-Dissolved			97.2		%		80-120	16-SEP-20
Rubidium (Rb)-Dissolved			99.3		%		80-120	16-SEP-20
Selenium (Se)-Dissolved			106.5		%		80-120	16-SEP-20
Silicon (Si)-Dissolved			104.7		%		60-140	16-SEP-20
Silver (Ag)-Dissolved			112.4		%		80-120	16-SEP-20
Sodium (Na)-Dissolved			98.6		%		80-120	16-SEP-20
Strontium (Sr)-Dissolved			113.0		%		80-120	16-SEP-20
Sulfur (S)-Dissolved			99.4		%		80-120	16-SEP-20
Tellurium (Te)-Dissolved			109.1		%		80-120	16-SEP-20
Thallium (Tl)-Dissolved			104.8		%		80-120	16-SEP-20
Thorium (Th)-Dissolved			95.5		%		80-120	16-SEP-20
Tin (Sn)-Dissolved			103.1		%		80-120	16-SEP-20
Titanium (Ti)-Dissolved			95.5		%		80-120	16-SEP-20
Tungsten (W)-Dissolved			102.8		%		80-120	16-SEP-20
Uranium (U)-Dissolved			106.9		%		80-120	16-SEP-20
Vanadium (V)-Dissolved			100.5		%		80-120	16-SEP-20
Zinc (Zn)-Dissolved			101.5		%		80-120	16-SEP-20
Zirconium (Zr)-Dissolved			105.3		%		80-120	16-SEP-20
WG3405191-1		MB						
Aluminum (Al)-Dissolved			0.0037	B	mg/L		0.001	16-SEP-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5224908							
WG3405191-1	MB							
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	16-SEP-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	16-SEP-20
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	16-SEP-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	16-SEP-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	16-SEP-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	16-SEP-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	16-SEP-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	16-SEP-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	16-SEP-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-20
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	16-SEP-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	16-SEP-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	16-SEP-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	16-SEP-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	16-SEP-20
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	16-SEP-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	16-SEP-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
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Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R5224908							
WG3405191-1 MB								
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	16-SEP-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-20
MET-T-CCMS-VA		Water						
Batch	R5223324							
WG3403461-3 DUP		L2498551-1						
Aluminum (Al)-Total		0.0223	0.0227		mg/L	1.6	20	14-SEP-20
Antimony (Sb)-Total		0.00012	0.00011		mg/L	9.5	20	14-SEP-20
Arsenic (As)-Total		0.00579	0.00557		mg/L	3.9	20	14-SEP-20
Barium (Ba)-Total		0.00980	0.00964		mg/L	1.6	20	14-SEP-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Boron (B)-Total		0.041	0.041		mg/L	0.6	20	14-SEP-20
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Calcium (Ca)-Total		25.6	24.3		mg/L	5.0	20	14-SEP-20
Cesium (Cs)-Total		0.000113	0.000116		mg/L	2.5	20	14-SEP-20
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Cobalt (Co)-Total		0.00054	0.00051		mg/L	6.4	20	14-SEP-20
Copper (Cu)-Total		0.00106	0.00102		mg/L	4.5	20	14-SEP-20
Iron (Fe)-Total		0.132	0.126		mg/L	4.4	20	14-SEP-20
Lead (Pb)-Total		<0.000050	0.000053	RPD-NA	mg/L	N/A	20	14-SEP-20
Lithium (Li)-Total		0.0161	0.0154		mg/L	4.1	20	14-SEP-20
Magnesium (Mg)-Total		6.09	5.81		mg/L	4.7	20	14-SEP-20
Manganese (Mn)-Total		0.0114	0.0110		mg/L	2.9	20	14-SEP-20
Molybdenum (Mo)-Total		0.000521	0.000463		mg/L	12	20	14-SEP-20
Nickel (Ni)-Total		0.00433	0.00413		mg/L	4.7	20	14-SEP-20
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	14-SEP-20
Potassium (K)-Total		2.59	2.49		mg/L	4.3	20	14-SEP-20
Rubidium (Rb)-Total		0.00567	0.00539		mg/L	5.1	20	14-SEP-20
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	14-SEP-20
Silicon (Si)-Total		0.11	0.10		mg/L	6.1	20	14-SEP-20
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-SEP-20
Sodium (Na)-Total		10.2	9.79		mg/L	4.3	20	14-SEP-20
Strontium (Sr)-Total		0.157	0.161		mg/L	2.5	20	14-SEP-20



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Client:

BluMetric Environmental Inc. (Ottawa)
 4916 49 St
 Yellowknife NT X1A 1P3

Contact:

Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5223324							
WG3403461-3	DUP	L2498551-1						
Sulfur (S)-Total		26.8	25.1		mg/L	6.5	20	14-SEP-20
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	14-SEP-20
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-SEP-20
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Titanium (Ti)-Total		0.00065	0.00070		mg/L	8.2	20	14-SEP-20
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	14-SEP-20
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	14-SEP-20
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	14-SEP-20
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	14-SEP-20
WG3403461-2	LCS							
Aluminum (Al)-Total			97.9		%		80-120	14-SEP-20
Antimony (Sb)-Total			104.8		%		80-120	14-SEP-20
Arsenic (As)-Total			96.4		%		80-120	14-SEP-20
Barium (Ba)-Total			99.0		%		80-120	14-SEP-20
Beryllium (Be)-Total			98.6		%		80-120	14-SEP-20
Bismuth (Bi)-Total			103.3		%		80-120	14-SEP-20
Boron (B)-Total			94.2		%		80-120	14-SEP-20
Cadmium (Cd)-Total			99.6		%		80-120	14-SEP-20
Calcium (Ca)-Total			100.4		%		80-120	14-SEP-20
Cesium (Cs)-Total			101.2		%		80-120	14-SEP-20
Chromium (Cr)-Total			98.9		%		80-120	14-SEP-20
Cobalt (Co)-Total			99.7		%		80-120	14-SEP-20
Copper (Cu)-Total			97.9		%		80-120	14-SEP-20
Iron (Fe)-Total			102.1		%		80-120	14-SEP-20
Lead (Pb)-Total			102.7		%		80-120	14-SEP-20
Lithium (Li)-Total			96.3		%		80-120	14-SEP-20
Magnesium (Mg)-Total			96.5		%		80-120	14-SEP-20
Manganese (Mn)-Total			99.5		%		80-120	14-SEP-20
Molybdenum (Mo)-Total			100.9		%		80-120	14-SEP-20
Nickel (Ni)-Total			98.6		%		80-120	14-SEP-20
Phosphorus (P)-Total			103.1		%		80-120	14-SEP-20
Potassium (K)-Total			99.4		%		80-120	14-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
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Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5223324							
WG3403461-2	LCS							
Rubidium (Rb)-Total			98.0		%		80-120	14-SEP-20
Selenium (Se)-Total			102.1		%		80-120	14-SEP-20
Silicon (Si)-Total			101.0		%		80-120	14-SEP-20
Silver (Ag)-Total			102.7		%		80-120	14-SEP-20
Sodium (Na)-Total			104.2		%		80-120	14-SEP-20
Strontium (Sr)-Total			105.9		%		80-120	14-SEP-20
Sulfur (S)-Total			91.8		%		80-120	14-SEP-20
Tellurium (Te)-Total			97.3		%		80-120	14-SEP-20
Thallium (Tl)-Total			102.5		%		80-120	14-SEP-20
Thorium (Th)-Total			97.8		%		80-120	14-SEP-20
Tin (Sn)-Total			100.3		%		80-120	14-SEP-20
Titanium (Ti)-Total			93.4		%		80-120	14-SEP-20
Tungsten (W)-Total			100.8		%		80-120	14-SEP-20
Uranium (U)-Total			103.7		%		80-120	14-SEP-20
Vanadium (V)-Total			98.0		%		80-120	14-SEP-20
Zinc (Zn)-Total			104.4		%		80-120	14-SEP-20
Zirconium (Zr)-Total			99.6		%		80-120	14-SEP-20
WG3403461-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	14-SEP-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	14-SEP-20
Boron (B)-Total			<0.010		mg/L		0.01	14-SEP-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	14-SEP-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	14-SEP-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	14-SEP-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	14-SEP-20
Iron (Fe)-Total			<0.010		mg/L		0.01	14-SEP-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	14-SEP-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	14-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5223324							
WG3403461-1 MB								
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	14-SEP-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	14-SEP-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	14-SEP-20
Phosphorus (P)-Total			<0.050		mg/L		0.05	14-SEP-20
Potassium (K)-Total			<0.050		mg/L		0.05	14-SEP-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	14-SEP-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	14-SEP-20
Silicon (Si)-Total			<0.10		mg/L		0.1	14-SEP-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	14-SEP-20
Sodium (Na)-Total			<0.050		mg/L		0.05	14-SEP-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	14-SEP-20
Sulfur (S)-Total			<0.50		mg/L		0.5	14-SEP-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	14-SEP-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	14-SEP-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	14-SEP-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	14-SEP-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	14-SEP-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	14-SEP-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	14-SEP-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	14-SEP-20
WG3403461-4 MS		L2498425-1						
Aluminum (Al)-Total			92.6		%		70-130	14-SEP-20
Antimony (Sb)-Total			99.2		%		70-130	14-SEP-20
Arsenic (As)-Total			N/A	MS-B	%		-	14-SEP-20
Barium (Ba)-Total			84.3		%		70-130	14-SEP-20
Beryllium (Be)-Total			100.5		%		70-130	14-SEP-20
Bismuth (Bi)-Total			96.9		%		70-130	14-SEP-20
Boron (B)-Total			92.2		%		70-130	14-SEP-20
Cadmium (Cd)-Total			98.5		%		70-130	14-SEP-20
Calcium (Ca)-Total			N/A	MS-B	%		-	14-SEP-20
Cesium (Cs)-Total			99.2		%		70-130	14-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
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Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5223324							
WG3403461-4 MS		L2498425-1						
Chromium (Cr)-Total			91.5		%		70-130	14-SEP-20
Cobalt (Co)-Total			N/A	MS-B	%		-	14-SEP-20
Copper (Cu)-Total			92.7		%		70-130	14-SEP-20
Iron (Fe)-Total			95.3		%		70-130	14-SEP-20
Lead (Pb)-Total			94.5		%		70-130	14-SEP-20
Lithium (Li)-Total			101.1		%		70-130	14-SEP-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	14-SEP-20
Manganese (Mn)-Total			N/A	MS-B	%		-	14-SEP-20
Molybdenum (Mo)-Total			99.5		%		70-130	14-SEP-20
Nickel (Ni)-Total			N/A	MS-B	%		-	14-SEP-20
Phosphorus (P)-Total			102.5		%		70-130	14-SEP-20
Potassium (K)-Total			95.0		%		70-130	14-SEP-20
Rubidium (Rb)-Total			93.3		%		70-130	14-SEP-20
Selenium (Se)-Total			100.4		%		70-130	14-SEP-20
Silicon (Si)-Total			90.7		%		70-130	14-SEP-20
Silver (Ag)-Total			98.1		%		70-130	14-SEP-20
Sodium (Na)-Total			N/A	MS-B	%		-	14-SEP-20
Strontium (Sr)-Total			N/A	MS-B	%		-	14-SEP-20
Sulfur (S)-Total			N/A	MS-B	%		-	14-SEP-20
Tellurium (Te)-Total			98.5		%		70-130	14-SEP-20
Thallium (Tl)-Total			94.3		%		70-130	14-SEP-20
Thorium (Th)-Total			101.0		%		70-130	14-SEP-20
Tin (Sn)-Total			98.2		%		70-130	14-SEP-20
Titanium (Ti)-Total			92.4		%		70-130	14-SEP-20
Tungsten (W)-Total			94.3		%		70-130	14-SEP-20
Uranium (U)-Total			95.8		%		70-130	14-SEP-20
Vanadium (V)-Total			95.8		%		70-130	14-SEP-20
Zinc (Zn)-Total			98.2		%		70-130	14-SEP-20
Zirconium (Zr)-Total			102.6		%		70-130	14-SEP-20
Batch	R5224180							
WG3403910-3 DUP		L2501367-2						
Aluminum (Al)-Total		0.0099	0.0091		mg/L	8.6	20	15-SEP-20
Antimony (Sb)-Total		0.00276	0.00278		mg/L	0.8	20	15-SEP-20
Arsenic (As)-Total		0.00020	0.00019		mg/L			15-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224180							
WG3403910-3	DUP	L2501367-2						
Arsenic (As)-Total		0.00020	0.00019		mg/L	2.7	20	15-SEP-20
Barium (Ba)-Total		0.0289	0.0294		mg/L	1.8	20	15-SEP-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-SEP-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-SEP-20
Boron (B)-Total		0.080	0.079		mg/L	0.7	20	15-SEP-20
Cadmium (Cd)-Total		0.000319	0.000322		mg/L	1.2	20	15-SEP-20
Calcium (Ca)-Total		324	332		mg/L	2.4	20	15-SEP-20
Cesium (Cs)-Total		0.000567	0.000576		mg/L	1.5	20	15-SEP-20
Chromium (Cr)-Total		0.00017	0.00023	J	mg/L	0.00006	0.0002	15-SEP-20
Cobalt (Co)-Total		0.0401	0.0401		mg/L	0.2	20	15-SEP-20
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-SEP-20
Iron (Fe)-Total		0.013	0.018	J	mg/L	0.005	0.02	15-SEP-20
Lead (Pb)-Total		0.00124	0.00121		mg/L	2.2	20	15-SEP-20
Lithium (Li)-Total		0.886	0.890		mg/L	0.4	20	15-SEP-20
Magnesium (Mg)-Total		126	127		mg/L	0.7	20	15-SEP-20
Manganese (Mn)-Total		0.255	0.253		mg/L	0.6	20	15-SEP-20
Molybdenum (Mo)-Total		0.00466	0.00456		mg/L	2.0	20	15-SEP-20
Nickel (Ni)-Total		0.196	0.195		mg/L	0.5	20	15-SEP-20
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	15-SEP-20
Potassium (K)-Total		15.8	15.1		mg/L	5.1	20	15-SEP-20
Rubidium (Rb)-Total		0.0257	0.0260		mg/L	0.8	20	15-SEP-20
Selenium (Se)-Total		0.00290	0.00308		mg/L	6.0	20	15-SEP-20
Silicon (Si)-Total		3.48	3.51		mg/L	0.9	20	15-SEP-20
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	15-SEP-20
Sodium (Na)-Total		14.8	14.8		mg/L	0.2	20	15-SEP-20
Strontium (Sr)-Total		0.821	0.827		mg/L	0.7	20	15-SEP-20
Sulfur (S)-Total		169	173		mg/L	2.2	20	15-SEP-20
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-SEP-20
Thallium (Tl)-Total		0.000171	0.000163		mg/L	5.0	20	15-SEP-20
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-SEP-20
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-SEP-20
Titanium (Ti)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	15-SEP-20
Tungsten (W)-Total		<0.00010	<0.00010		mg/L			15-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224180							
WG3403910-3 DUP		L2501367-2						
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-SEP-20
Uranium (U)-Total		0.0240	0.0238		mg/L	0.8	20	15-SEP-20
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-SEP-20
Zinc (Zn)-Total		0.0322	0.0314		mg/L	2.5	20	15-SEP-20
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-SEP-20
WG3403910-2 LCS								
Aluminum (Al)-Total			104.0		%		80-120	15-SEP-20
Antimony (Sb)-Total			103.5		%		80-120	15-SEP-20
Arsenic (As)-Total			97.9		%		80-120	15-SEP-20
Barium (Ba)-Total			106.2		%		80-120	15-SEP-20
Beryllium (Be)-Total			98.4		%		80-120	15-SEP-20
Bismuth (Bi)-Total			101.1		%		80-120	15-SEP-20
Boron (B)-Total			95.8		%		80-120	15-SEP-20
Cadmium (Cd)-Total			100.6		%		80-120	15-SEP-20
Calcium (Ca)-Total			102.7		%		80-120	15-SEP-20
Cesium (Cs)-Total			99.7		%		80-120	15-SEP-20
Chromium (Cr)-Total			101.3		%		80-120	15-SEP-20
Cobalt (Co)-Total			99.0		%		80-120	15-SEP-20
Copper (Cu)-Total			100.0		%		80-120	15-SEP-20
Iron (Fe)-Total			101.2		%		80-120	15-SEP-20
Lead (Pb)-Total			100.0		%		80-120	15-SEP-20
Lithium (Li)-Total			97.3		%		80-120	15-SEP-20
Magnesium (Mg)-Total			100.2		%		80-120	15-SEP-20
Manganese (Mn)-Total			103.9		%		80-120	15-SEP-20
Molybdenum (Mo)-Total			104.9		%		80-120	15-SEP-20
Nickel (Ni)-Total			99.8		%		80-120	15-SEP-20
Phosphorus (P)-Total			107.5		%		80-120	15-SEP-20
Potassium (K)-Total			101.6		%		80-120	15-SEP-20
Rubidium (Rb)-Total			96.5		%		80-120	15-SEP-20
Selenium (Se)-Total			104.3		%		80-120	15-SEP-20
Silicon (Si)-Total			102.4		%		80-120	15-SEP-20
Silver (Ag)-Total			105.4		%		80-120	15-SEP-20
Sodium (Na)-Total			100.1		%		80-120	15-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224180							
WG3403910-2	LCS							
Strontium (Sr)-Total			106.4		%		80-120	15-SEP-20
Sulfur (S)-Total			98.0		%		80-120	15-SEP-20
Tellurium (Te)-Total			94.2		%		80-120	15-SEP-20
Thallium (Tl)-Total			101.2		%		80-120	15-SEP-20
Thorium (Th)-Total			90.1		%		80-120	15-SEP-20
Tin (Sn)-Total			99.5		%		80-120	15-SEP-20
Titanium (Ti)-Total			92.0		%		80-120	15-SEP-20
Tungsten (W)-Total			100.1		%		80-120	15-SEP-20
Uranium (U)-Total			109.6		%		80-120	15-SEP-20
Vanadium (V)-Total			102.1		%		80-120	15-SEP-20
Zinc (Zn)-Total			101.1		%		80-120	15-SEP-20
Zirconium (Zr)-Total			101.2		%		80-120	15-SEP-20
WG3403910-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	15-SEP-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	15-SEP-20
Boron (B)-Total			<0.010		mg/L		0.01	15-SEP-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	15-SEP-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	15-SEP-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	15-SEP-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	15-SEP-20
Iron (Fe)-Total			<0.010		mg/L		0.01	15-SEP-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	15-SEP-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	15-SEP-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	15-SEP-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	15-SEP-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	15-SEP-20
Phosphorus (P)-Total			<0.050		mg/L		0.05	15-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
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Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224180							
WG3403910-1 MB								
Potassium (K)-Total			<0.050		mg/L		0.05	15-SEP-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	15-SEP-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	15-SEP-20
Silicon (Si)-Total			<0.10		mg/L		0.1	15-SEP-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	15-SEP-20
Sodium (Na)-Total			<0.050		mg/L		0.05	15-SEP-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	15-SEP-20
Sulfur (S)-Total			<0.50		mg/L		0.5	15-SEP-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	15-SEP-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	15-SEP-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	15-SEP-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	15-SEP-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	15-SEP-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-SEP-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	15-SEP-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	15-SEP-20
WG3403910-4 MS		L2501367-3						
Aluminum (Al)-Total			99.0		%		70-130	15-SEP-20
Antimony (Sb)-Total			101.3		%		70-130	15-SEP-20
Arsenic (As)-Total			100.6		%		70-130	15-SEP-20
Barium (Ba)-Total			N/A	MS-B	%		-	15-SEP-20
Beryllium (Be)-Total			96.7		%		70-130	15-SEP-20
Bismuth (Bi)-Total			87.6		%		70-130	15-SEP-20
Boron (B)-Total			88.3		%		70-130	15-SEP-20
Cadmium (Cd)-Total			95.9		%		70-130	15-SEP-20
Calcium (Ca)-Total			N/A	MS-B	%		-	15-SEP-20
Cesium (Cs)-Total			99.8		%		70-130	15-SEP-20
Chromium (Cr)-Total			97.0		%		70-130	15-SEP-20
Cobalt (Co)-Total			N/A	MS-B	%		-	15-SEP-20
Copper (Cu)-Total			88.6		%		70-130	15-SEP-20
Iron (Fe)-Total			95.3		%		70-130	15-SEP-20
Lead (Pb)-Total			89.8		%		70-130	15-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224180							
WG3403910-4 MS		L2501367-3						
Lithium (Li)-Total			N/A	MS-B	%		-	15-SEP-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	15-SEP-20
Manganese (Mn)-Total			N/A	MS-B	%		-	15-SEP-20
Molybdenum (Mo)-Total			105.3		%		70-130	15-SEP-20
Nickel (Ni)-Total			N/A	MS-B	%		-	15-SEP-20
Phosphorus (P)-Total			106.7		%		70-130	15-SEP-20
Potassium (K)-Total			N/A	MS-B	%		-	15-SEP-20
Rubidium (Rb)-Total			N/A	MS-B	%		-	15-SEP-20
Selenium (Se)-Total			108.4		%		70-130	15-SEP-20
Silicon (Si)-Total			95.6		%		70-130	15-SEP-20
Silver (Ag)-Total			100.0		%		70-130	15-SEP-20
Sodium (Na)-Total			N/A	MS-B	%		-	15-SEP-20
Strontium (Sr)-Total			N/A	MS-B	%		-	15-SEP-20
Sulfur (S)-Total			N/A	MS-B	%		-	15-SEP-20
Tellurium (Te)-Total			93.9		%		70-130	15-SEP-20
Thallium (Tl)-Total			88.6		%		70-130	15-SEP-20
Thorium (Th)-Total			99.9		%		70-130	15-SEP-20
Tin (Sn)-Total			100.2		%		70-130	15-SEP-20
Titanium (Ti)-Total			96.5		%		70-130	15-SEP-20
Tungsten (W)-Total			96.9		%		70-130	15-SEP-20
Uranium (U)-Total			N/A	MS-B	%		-	15-SEP-20
Vanadium (V)-Total			102.8		%		70-130	15-SEP-20
Zinc (Zn)-Total			91.6		%		70-130	15-SEP-20
Zirconium (Zr)-Total			111.7		%		70-130	15-SEP-20
Batch	R5224805							
WG3405217-3 DUP		L2498404-2						
Aluminum (Al)-Total		0.0147	0.0164		mg/L	11	20	16-SEP-20
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Arsenic (As)-Total		0.00037	0.00040		mg/L	7.0	20	16-SEP-20
Barium (Ba)-Total		0.0195	0.0211		mg/L	8.2	20	16-SEP-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-20
Boron (B)-Total		0.016	0.016		mg/L	1.0	20	16-SEP-20



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Client:

BluMetric Environmental Inc. (Ottawa)

4916 49 St

Yellowknife NT X1A 1P3

Contact:

Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224805							
WG3405217-2		LCS						
Aluminum (Al)-Total			105.4		%		80-120	16-SEP-20
Antimony (Sb)-Total			105.3		%		80-120	16-SEP-20
Arsenic (As)-Total			101.0		%		80-120	16-SEP-20
Barium (Ba)-Total			99.9		%		80-120	16-SEP-20
Beryllium (Be)-Total			101.5		%		80-120	16-SEP-20
Bismuth (Bi)-Total			106.3		%		80-120	16-SEP-20
Boron (B)-Total			99.0		%		80-120	16-SEP-20
Cadmium (Cd)-Total			101.2		%		80-120	16-SEP-20
Calcium (Ca)-Total			103.1		%		80-120	16-SEP-20
Cesium (Cs)-Total			101.8		%		80-120	16-SEP-20
Chromium (Cr)-Total			102.1		%		80-120	16-SEP-20
Cobalt (Co)-Total			101.5		%		80-120	16-SEP-20
Copper (Cu)-Total			99.5		%		80-120	16-SEP-20
Iron (Fe)-Total			101.4		%		80-120	16-SEP-20
Lead (Pb)-Total			102.1		%		80-120	16-SEP-20
Lithium (Li)-Total			95.7		%		80-120	16-SEP-20
Magnesium (Mg)-Total			101.5		%		80-120	16-SEP-20
Manganese (Mn)-Total			106.0		%		80-120	16-SEP-20
Molybdenum (Mo)-Total			100.1		%		80-120	16-SEP-20
Nickel (Ni)-Total			100.8		%		80-120	16-SEP-20
Phosphorus (P)-Total			105.4		%		80-120	16-SEP-20
Potassium (K)-Total			102.4		%		80-120	16-SEP-20
Rubidium (Rb)-Total			104.9		%		80-120	16-SEP-20
Selenium (Se)-Total			99.4		%		80-120	16-SEP-20
Silicon (Si)-Total			99.2		%		80-120	16-SEP-20
Silver (Ag)-Total			103.7		%		80-120	16-SEP-20
Sodium (Na)-Total			102.3		%		80-120	16-SEP-20
Strontium (Sr)-Total			104.9		%		80-120	16-SEP-20
Sulfur (S)-Total			115.8		%		80-120	16-SEP-20
Tellurium (Te)-Total			101.8		%		80-120	16-SEP-20
Thallium (Tl)-Total			102.3		%		80-120	16-SEP-20
Thorium (Th)-Total			100.8		%		80-120	16-SEP-20
Tin (Sn)-Total			103.2		%		80-120	16-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
 4916 49 St
 Yellowknife NT X1A 1P3
 Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224805							
WG3405217-2 LCS								
Titanium (Ti)-Total			97.0		%		80-120	16-SEP-20
Tungsten (W)-Total			105.0		%		80-120	16-SEP-20
Uranium (U)-Total			106.0		%		80-120	16-SEP-20
Vanadium (V)-Total			104.7		%		80-120	16-SEP-20
Zinc (Zn)-Total			103.5		%		80-120	16-SEP-20
Zirconium (Zr)-Total			101.8		%		80-120	16-SEP-20
WG3405217-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	16-SEP-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	16-SEP-20
Boron (B)-Total			<0.010		mg/L		0.01	16-SEP-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	16-SEP-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-SEP-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	16-SEP-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	16-SEP-20
Iron (Fe)-Total			<0.010		mg/L		0.01	16-SEP-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	16-SEP-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	16-SEP-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	16-SEP-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	16-SEP-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	16-SEP-20
Phosphorus (P)-Total			<0.050		mg/L		0.05	16-SEP-20
Potassium (K)-Total			<0.050		mg/L		0.05	16-SEP-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	16-SEP-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	16-SEP-20
Silicon (Si)-Total			<0.10		mg/L		0.1	16-SEP-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	16-SEP-20
Sodium (Na)-Total			<0.050		mg/L		0.05	16-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224805							
WG3405217-1 MB								
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	16-SEP-20
Sulfur (S)-Total			<0.50		mg/L		0.5	16-SEP-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	16-SEP-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	16-SEP-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	16-SEP-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	16-SEP-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	16-SEP-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	16-SEP-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	16-SEP-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	16-SEP-20
WG3405217-4 MS		L2502291-1						
Aluminum (Al)-Total			102.0		%		70-130	16-SEP-20
Antimony (Sb)-Total			105.9		%		70-130	16-SEP-20
Arsenic (As)-Total			102.6		%		70-130	16-SEP-20
Barium (Ba)-Total			96.6		%		70-130	16-SEP-20
Beryllium (Be)-Total			102.8		%		70-130	16-SEP-20
Bismuth (Bi)-Total			98.2		%		70-130	16-SEP-20
Boron (B)-Total			98.1		%		70-130	16-SEP-20
Cadmium (Cd)-Total			98.9		%		70-130	16-SEP-20
Calcium (Ca)-Total			N/A	MS-B	%		-	16-SEP-20
Cesium (Cs)-Total			105.4		%		70-130	16-SEP-20
Chromium (Cr)-Total			101.1		%		70-130	16-SEP-20
Cobalt (Co)-Total			94.2		%		70-130	16-SEP-20
Copper (Cu)-Total			94.5		%		70-130	16-SEP-20
Iron (Fe)-Total			102.3		%		70-130	16-SEP-20
Lead (Pb)-Total			95.8		%		70-130	16-SEP-20
Lithium (Li)-Total			N/A	MS-B	%		-	16-SEP-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	16-SEP-20
Manganese (Mn)-Total			93.2		%		70-130	16-SEP-20
Molybdenum (Mo)-Total			101.0		%		70-130	16-SEP-20
Nickel (Ni)-Total			N/A	MS-B	%		-	16-SEP-20
Phosphorus (P)-Total			109.0		%		70-130	16-SEP-20



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R5224805							
WG3405217-4 MS		L2502291-1						
Potassium (K)-Total			N/A	MS-B	%		-	16-SEP-20
Rubidium (Rb)-Total			98.7		%		70-130	16-SEP-20
Selenium (Se)-Total			106.7		%		70-130	16-SEP-20
Silicon (Si)-Total			94.2		%		70-130	16-SEP-20
Silver (Ag)-Total			102.4		%		70-130	16-SEP-20
Sodium (Na)-Total			N/A	MS-B	%		-	16-SEP-20
Strontium (Sr)-Total			N/A	MS-B	%		-	16-SEP-20
Sulfur (S)-Total			N/A	MS-B	%		-	16-SEP-20
Tellurium (Te)-Total			105.8		%		70-130	16-SEP-20
Thallium (Tl)-Total			95.1		%		70-130	16-SEP-20
Thorium (Th)-Total			106.3		%		70-130	16-SEP-20
Tin (Sn)-Total			103.1		%		70-130	16-SEP-20
Titanium (Ti)-Total			101.8		%		70-130	16-SEP-20
Tungsten (W)-Total			103.8		%		70-130	16-SEP-20
Uranium (U)-Total			N/A	MS-B	%		-	16-SEP-20
Vanadium (V)-Total			103.8		%		70-130	16-SEP-20
Zinc (Zn)-Total			99.6		%		70-130	16-SEP-20
Zirconium (Zr)-Total			108.2		%		70-130	16-SEP-20
NO2-L-IC-N-VA		Water						
Batch	R5224181							
WG3403335-3 DUP		L2498615-1						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	14-SEP-20
WG3403335-2 LCS			101.1		%		90-110	14-SEP-20
WG3403335-1 MB			<0.0010		mg/L		0.001	14-SEP-20
WG3403335-4 MS		L2498615-2	98.2		%		75-125	14-SEP-20
NO3-L-IC-N-VA		Water						
Batch	R5224181							
WG3403335-3 DUP		L2498615-1						
Nitrate (as N)		0.0342	0.0348		mg/L	2.0	20	14-SEP-20
WG3403335-2 LCS			102.0		%		90-110	14-SEP-20
WG3403335-1 MB								



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-L-IC-N-VA								
Water								
Batch	R5224181							
WG3403335-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	14-SEP-20
WG3403335-4	MS	L2498615-2						
Nitrate (as N)			100.3		%		75-125	14-SEP-20
PCB-WT								
Water								
Batch	R5224193							
WG3403672-2	LCS							
Aroclor 1242			97.7		%		65-130	15-SEP-20
Aroclor 1248			87.3		%		65-130	15-SEP-20
Aroclor 1254			94.4		%		65-130	15-SEP-20
Aroclor 1260			95.5		%		65-130	15-SEP-20
WG3403672-1	MB							
Aroclor 1242			<0.020		ug/L		0.02	15-SEP-20
Aroclor 1248			<0.020		ug/L		0.02	15-SEP-20
Aroclor 1254			<0.020		ug/L		0.02	15-SEP-20
Aroclor 1260			<0.020		ug/L		0.02	15-SEP-20
Surrogate: Decachlorobiphenyl			85.5		%		50-150	15-SEP-20
Surrogate: Tetrachloro-m-xylene			61.4		%		50-150	15-SEP-20
PH-PCT-VA								
Water								
Batch	R5223184							
WG3403340-2	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	12-SEP-20
WG3403340-4	DUP	L2498615-1						
pH		6.22	6.25	J	pH	0.03	0.3	12-SEP-20
SO4-IC-N-VA								
Water								
Batch	R5224181							
WG3403335-3	DUP	L2498615-1						
Sulfate (SO4)		1.58	1.58		mg/L	0.0	20	14-SEP-20
WG3403335-2	LCS							
Sulfate (SO4)			102.9		%		90-110	14-SEP-20
WG3403335-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	14-SEP-20
WG3403335-4	MS	L2498615-2						
Sulfate (SO4)			100.8		%		75-125	14-SEP-20
TDS-VA								
Water								



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Client: BluMetric Environmental Inc. (Ottawa)
4916 49 St
Yellowknife NT X1A 1P3

Contact: Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA		Water						
Batch	R5223182							
WG3402705-6	DUP	L2498615-4						
Total Dissolved Solids		1980	2090		mg/L	5.1	20	11-SEP-20
WG3402705-5	LCS							
Total Dissolved Solids			101.6		%		85-115	11-SEP-20
WG3402705-4	MB							
Total Dissolved Solids			<10		mg/L		10	11-SEP-20
TSS-VA		Water						
Batch	R5222647							
WG3402701-3	DUP	L2497936-2						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	11-SEP-20
WG3402701-6	DUP	L2498914-1						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	11-SEP-20
WG3402701-2	LCS							
Total Suspended Solids			105.2		%		85-115	11-SEP-20
WG3402701-5	LCS							
Total Suspended Solids			102.8		%		85-115	11-SEP-20
WG3402701-1	MB							
Total Suspended Solids			<3.0		mg/L		3	11-SEP-20
WG3402701-4	MB							
Total Suspended Solids			<3.0		mg/L		3	11-SEP-20
VOC7-HSMS-VA		Water						
Batch	R5203993							
WG3402276-3	DUP	L2498294-1						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
Ethylbenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
Methyl t-butyl ether (MTBE)		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
Styrene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
Toluene		<0.00045	<0.00045	RPD-NA	mg/L	N/A	30	11-SEP-20
meta- & para-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
ortho-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-SEP-20
WG3402276-2	LCS							
Benzene			98.4		%		70-130	11-SEP-20
Ethylbenzene			92.2		%		70-130	11-SEP-20
Methyl t-butyl ether (MTBE)			105.3		%		70-130	11-SEP-20
Styrene			87.8		%		70-130	11-SEP-20
Toluene			95.6		%		70-130	11-SEP-20



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Client:

BluMetric Environmental Inc. (Ottawa)
 4916 49 St
 Yellowknife NT X1A 1P3

Contact:

Karen Phong

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC7-HSMS-VA		Water						
Batch	R5203993							
WG3402276-2	LCS							
meta- & para-Xylene			103.3		%		70-130	11-SEP-20
ortho-Xylene			93.4		%		70-130	11-SEP-20
WG3402276-1	MB							
Benzene			<0.00050		mg/L		0.0005	11-SEP-20
Ethylbenzene			<0.00050		mg/L		0.0005	11-SEP-20
Methyl t-butyl ether (MTBE)			<0.00050		mg/L		0.0005	11-SEP-20
Styrene			<0.00050		mg/L		0.0005	11-SEP-20
Toluene			<0.00045		mg/L		0.00045	11-SEP-20
meta- & para-Xylene			<0.00050		mg/L		0.0005	11-SEP-20
ortho-Xylene			<0.00050		mg/L		0.0005	11-SEP-20
WG3402276-5	MS	L2498615-1						
Benzene			97.0		%		50-150	11-SEP-20
Ethylbenzene			87.4		%		50-150	11-SEP-20
Methyl t-butyl ether (MTBE)			104.7		%		50-150	11-SEP-20
Styrene			84.3		%		50-150	11-SEP-20
Toluene			91.5		%		50-150	11-SEP-20
meta- & para-Xylene			99.0		%		50-150	11-SEP-20
ortho-Xylene			89.6		%		50-150	11-SEP-20

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Client: BluMetric Environmental Inc. (Ottawa)
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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Dissolved Solids by Gravimetric							
	1	27-AUG-20 12:00	11-SEP-20 12:30	7	15	days	EHTR
	2	27-AUG-20 12:00	11-SEP-20 12:30	7	15	days	EHTR
	4	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	5	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	6	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	7	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	8	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	9	30-AUG-20 12:00	11-SEP-20 12:30	7	12	days	EHT
Total Suspended Solids by Gravimetric							
	1	27-AUG-20 12:00	11-SEP-20 12:30	7	15	days	EHTR
	2	27-AUG-20 12:00	11-SEP-20 12:30	7	15	days	EHTR
	4	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	5	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	6	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	7	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	8	28-AUG-20 12:00	11-SEP-20 12:30	7	14	days	EHTL
	9	30-AUG-20 12:00	11-SEP-20 12:30	7	12	days	EHT
pH by Meter (Automated)							
	1	27-AUG-20 12:00	12-SEP-20 10:54	0.25	383	hours	EHTR-FM
	2	27-AUG-20 12:00	12-SEP-20 10:54	0.25	383	hours	EHTR-FM
	4	28-AUG-20 12:00	12-SEP-20 10:54	0.25	359	hours	EHTR-FM
	5	28-AUG-20 12:00	12-SEP-20 10:54	0.25	359	hours	EHTR-FM
	6	28-AUG-20 12:00	12-SEP-20 10:54	0.25	359	hours	EHTR-FM
	7	28-AUG-20 12:00	12-SEP-20 10:54	0.25	359	hours	EHTR-FM
	8	28-AUG-20 12:00	12-SEP-20 10:54	0.25	359	hours	EHTR-FM
	9	30-AUG-20 12:00	12-SEP-20 10:54	0.25	311	hours	EHTR-FM
Anions and Nutrients							
Nitrate in Water by IC (Low Level)							
	1	27-AUG-20 12:00	14-SEP-20 14:06	3	18	days	EHTR
	2	27-AUG-20 12:00	14-SEP-20 14:06	3	18	days	EHTR
	4	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	5	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	6	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	7	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	8	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	9	30-AUG-20 12:00	14-SEP-20 14:06	3	15	days	EHTR
Nitrite in Water by IC (Low Level)							
	1	27-AUG-20 12:00	14-SEP-20 14:06	3	18	days	EHTR
	2	27-AUG-20 12:00	14-SEP-20 14:06	3	18	days	EHTR
	4	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	5	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	6	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	7	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	8	28-AUG-20 12:00	14-SEP-20 14:06	3	17	days	EHTR
	9	30-AUG-20 12:00	14-SEP-20 14:06	3	15	days	EHTR
Hydrocarbons							
CCME F2-F4 Hydrocarbons in Water							
	1	27-AUG-20 12:00	11-SEP-20 04:08	14	15	days	EHT
	2	27-AUG-20 12:00	11-SEP-20 04:08	14	15	days	EHT
Polychlorinated Biphenyls							

Quality Control Report

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Report Date: 17-SEP-20

Client: BluMetric Environmental Inc. (Ottawa)
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Contact: Karen Phong

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Polychlorinated Biphenyls							
Polychlorinated Biphenyls	1	27-AUG-20 12:00	14-SEP-20 20:21	14	18	days	EHT
	2	27-AUG-20 12:00	14-SEP-20 20:21	14	18	days	EHT
	3	27-AUG-20 12:00	14-SEP-20 20:21	14	18	days	EHT
	4	28-AUG-20 12:00	14-SEP-20 20:21	14	17	days	EHT
	5	28-AUG-20 12:00	14-SEP-20 20:21	14	17	days	EHT
	6	28-AUG-20 12:00	14-SEP-20 20:21	14	17	days	EHT
	7	28-AUG-20 12:00	14-SEP-20 20:21	14	17	days	EHT
	8	28-AUG-20 12:00	14-SEP-20 20:21	14	17	days	EHT

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2498615 were received on 03-SEP-20 12:30.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

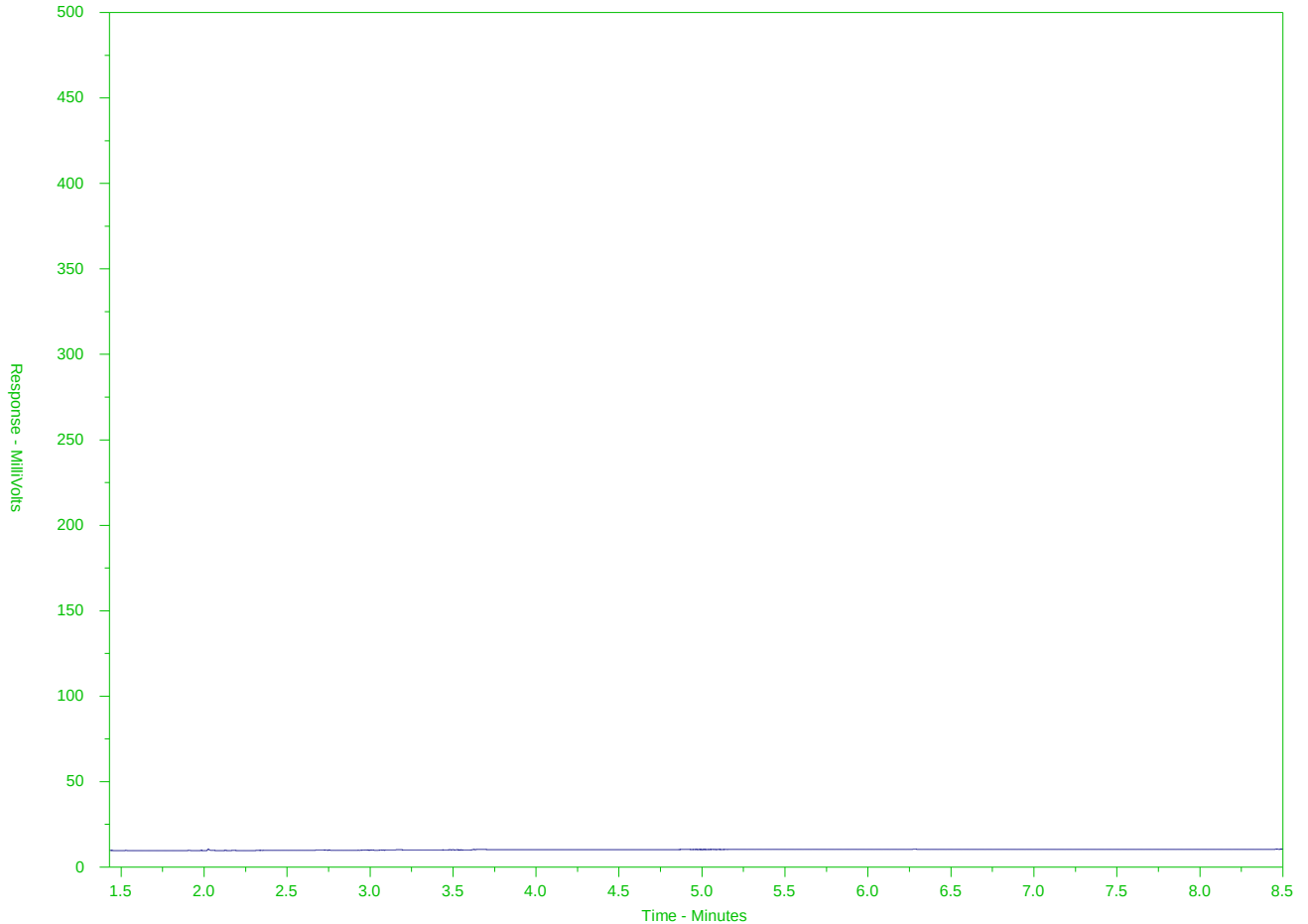
Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-1

Client Sample ID: MWLF-3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

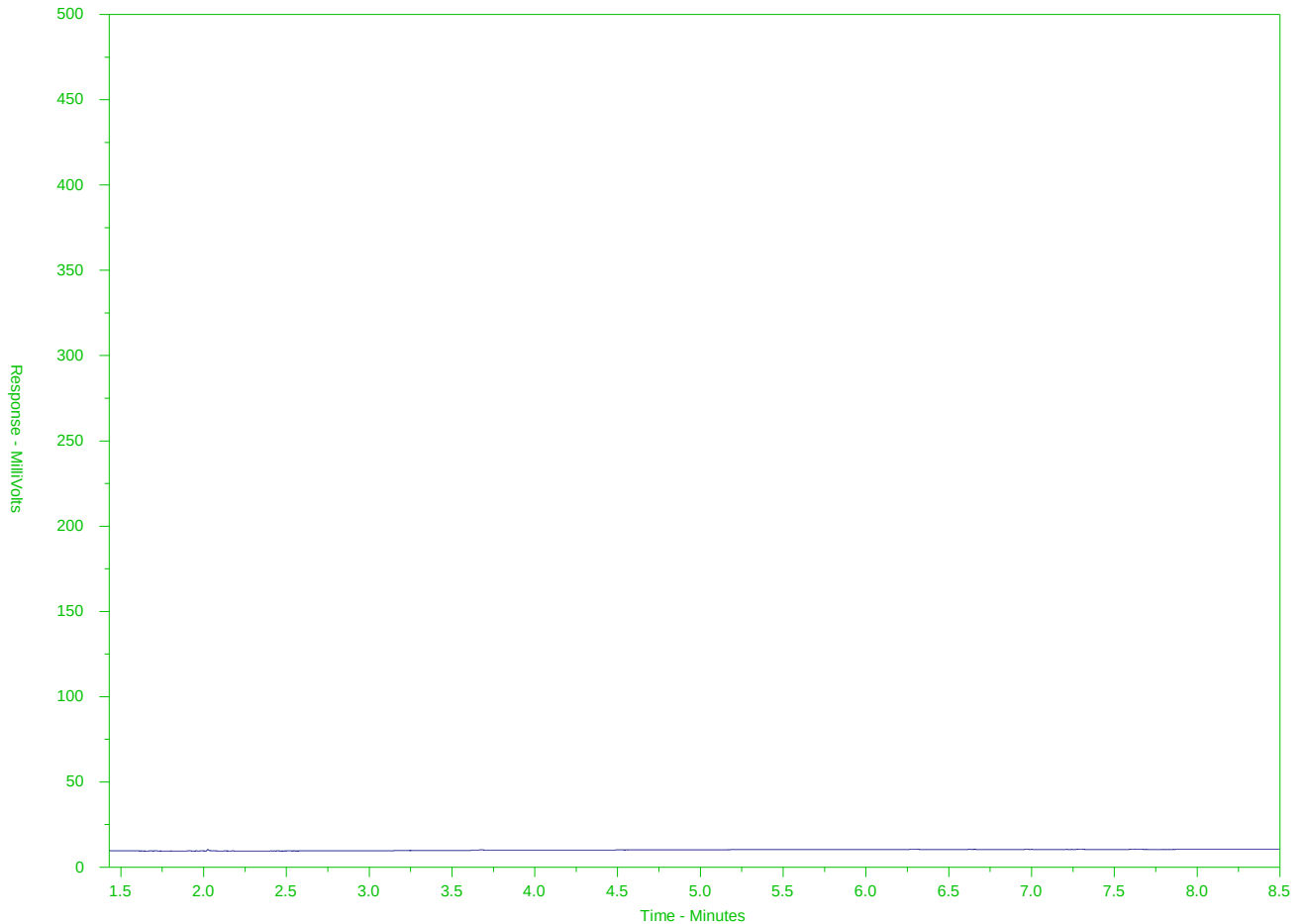
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-2

Client Sample ID: MWLF-3-D



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34		nC50	
174°C	287°C	481°C		575°C	
346°F	549°F	898°F		1067°F	
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

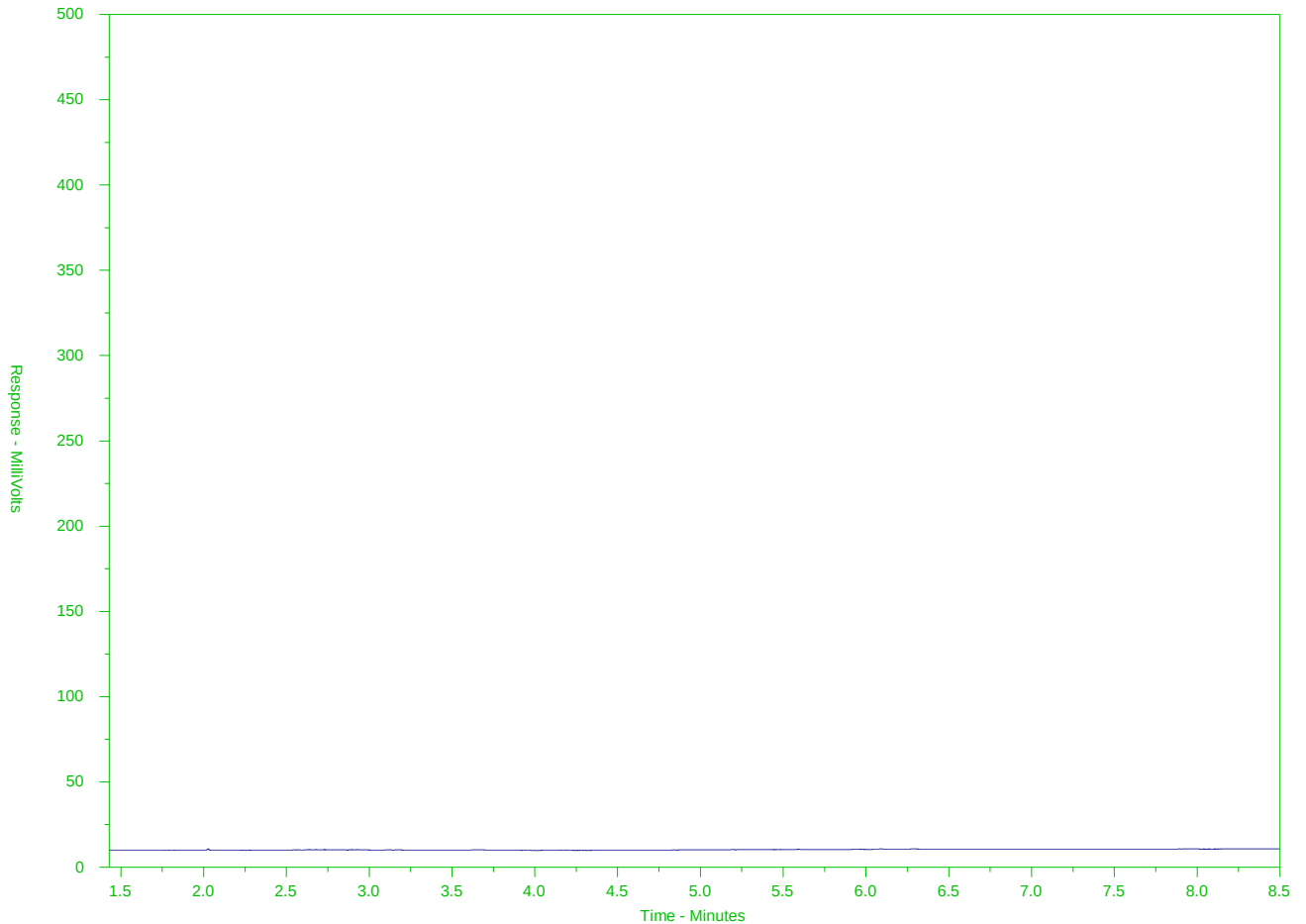
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-4

Client Sample ID: MW01



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

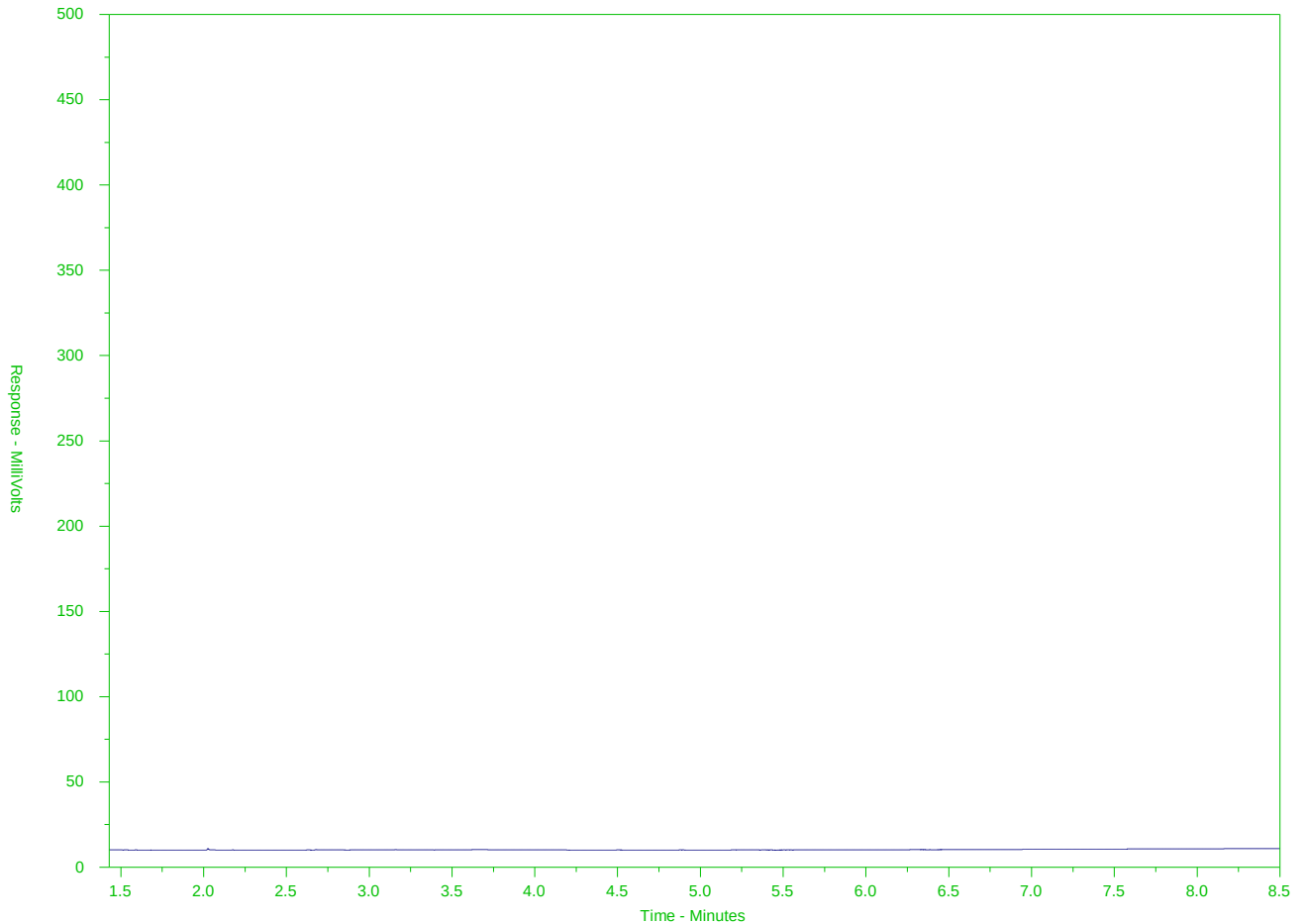
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-5

Client Sample ID: MW02



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

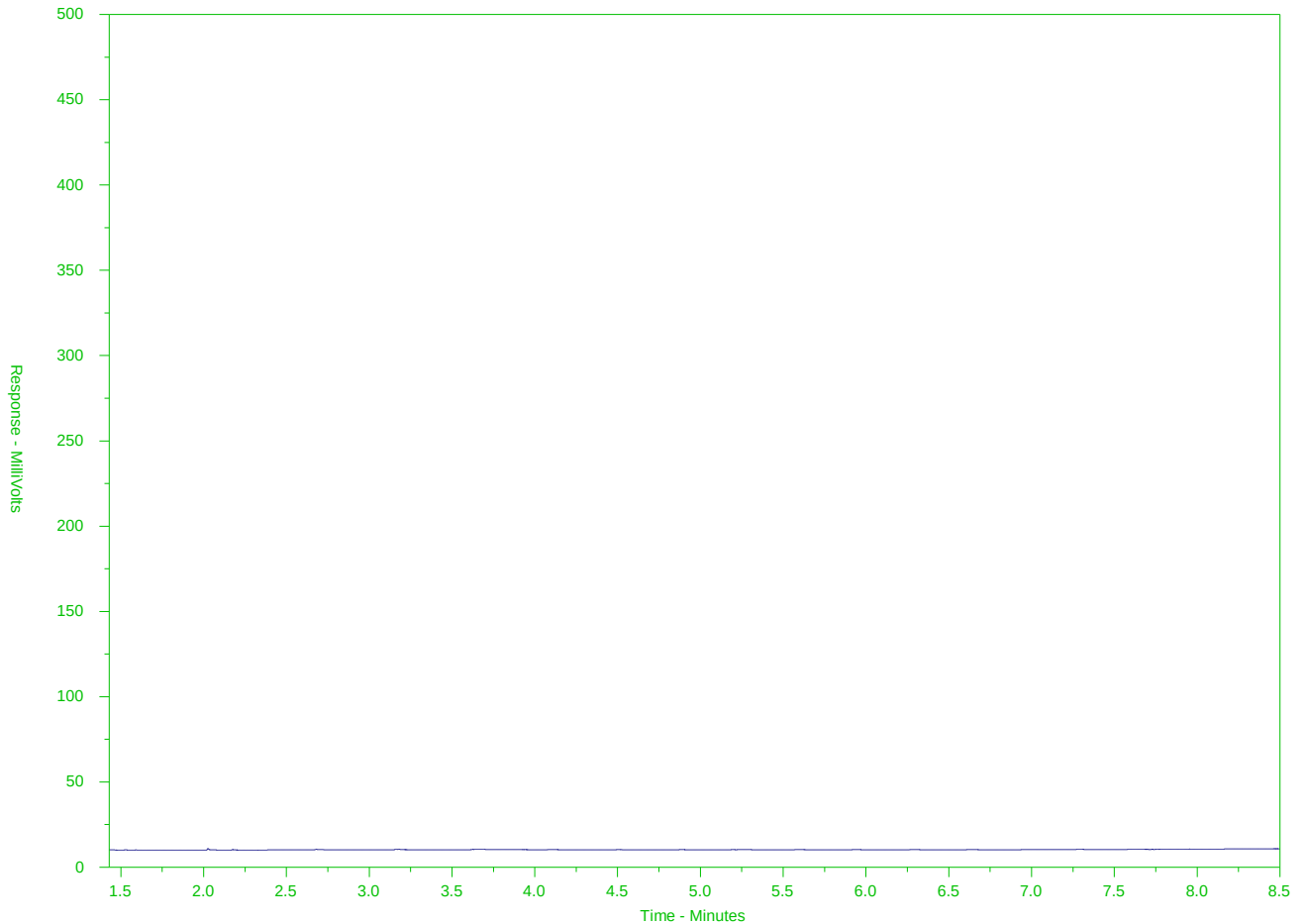
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-6

Client Sample ID: MW02-D



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

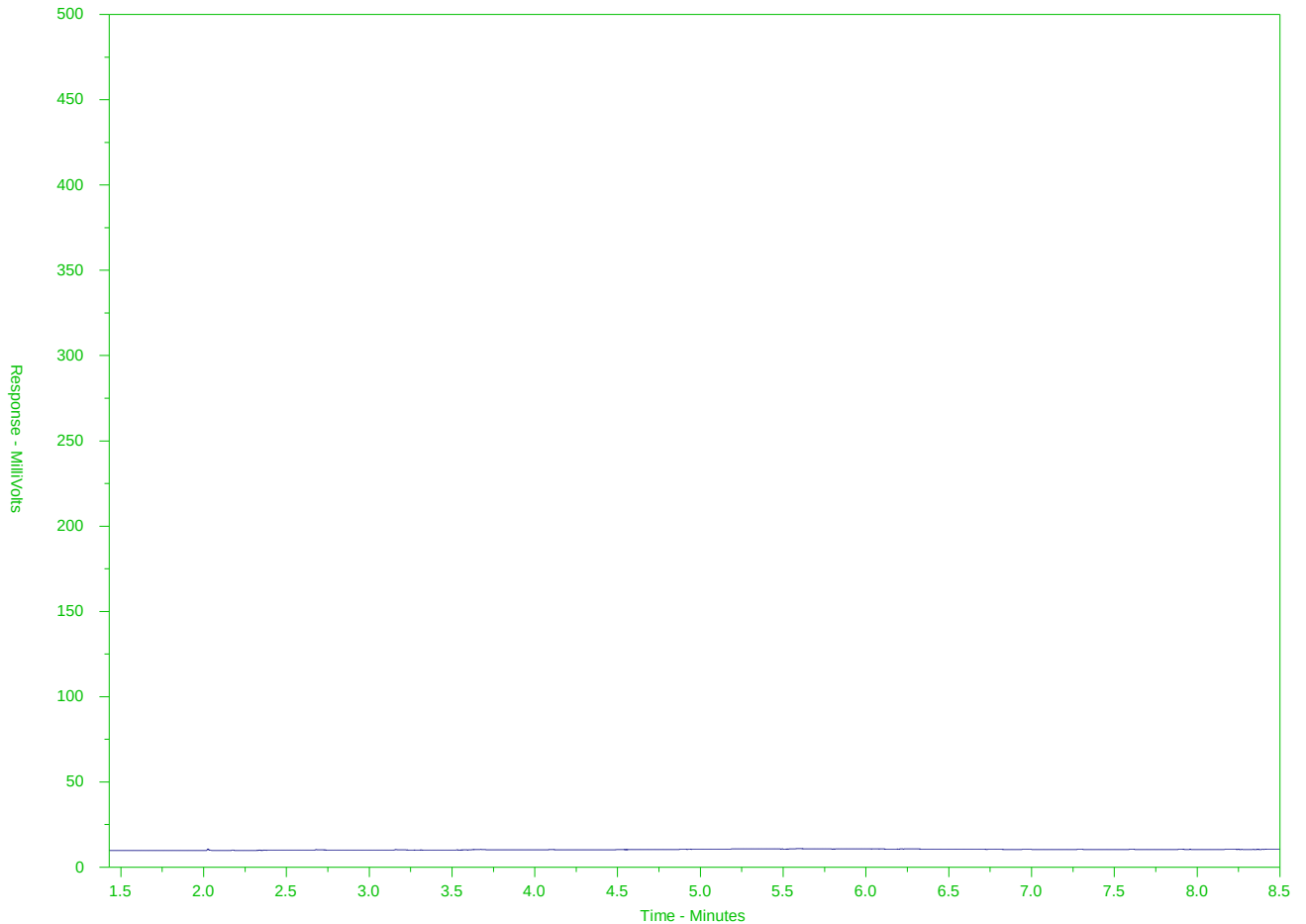
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-7

Client Sample ID: MW03



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

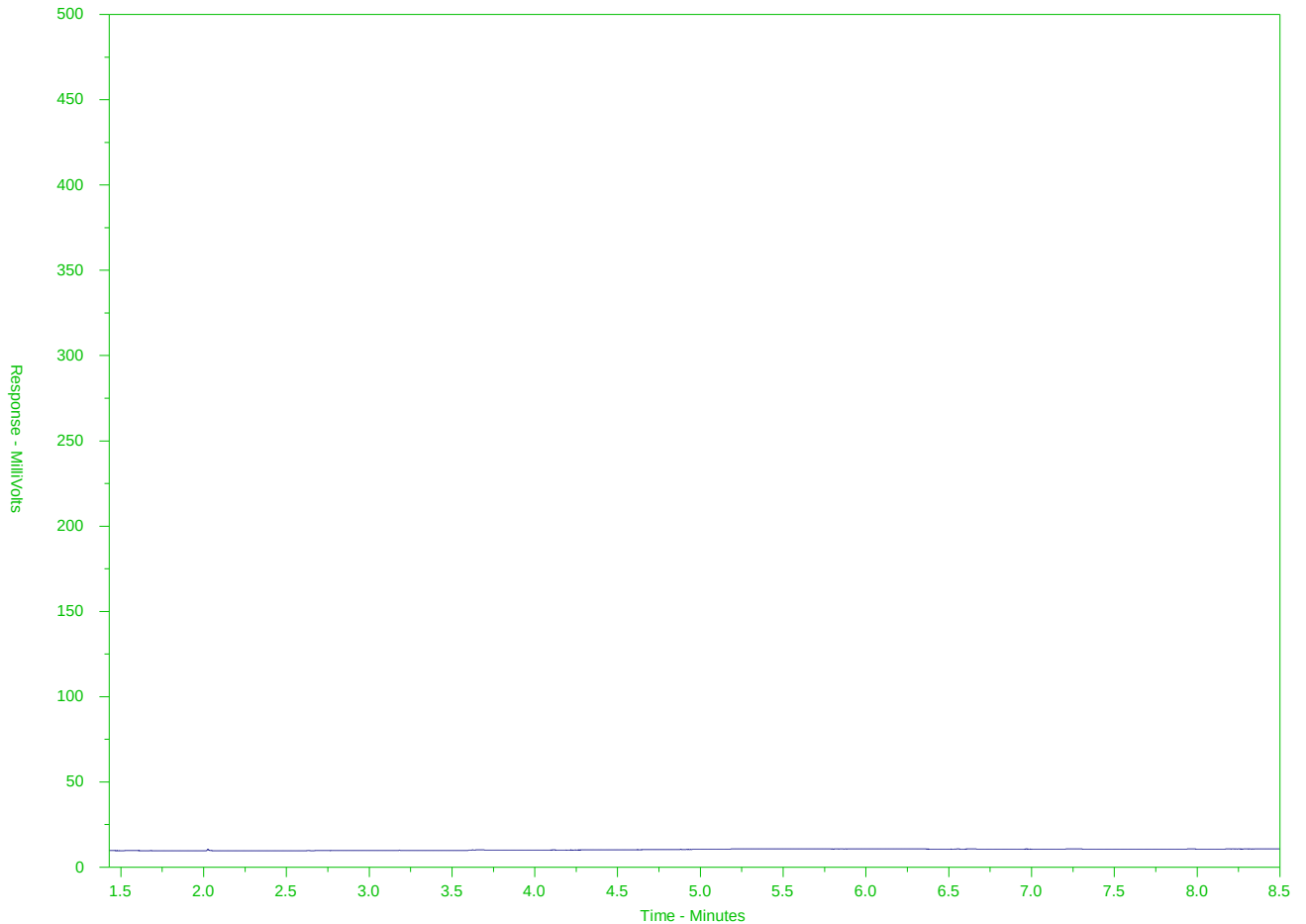
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2498615-C-8

Client Sample ID: MW04



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34		nC50	
174°C	287°C	481°C		575°C	
346°F	549°F	898°F		1067°F	
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →					

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Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.



Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 14 - 448314

Page ____ of ____

Report To Company: <u>BLM Inc</u> Contact: <u>Karen Phang</u> Address: <u>4976 XIA 1P3 Kelowna BC</u> Phone: <u>647 207 7765</u>		Report Format / Distribution Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL) Quality Control (QC) Report with Report ☐ Yes ☐ No ☐ Criteria on Report - provide details below if box checked Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: <u>KPhang@blminc.ca</u> Email 2:		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) ☒ Regular (Standard TAT if received by 3pm) ☐ Priority (2-4 business days if received by 3pm) ☐ Emergency (1-2 business days if received by 3pm) ☐ Same day or weekend emergency if received by 10am - contact ALS for surcharge.	
Invoice To Same as Report To ☒ Yes ☐ No Copy of Invoice with Report ☒ Yes ☐ No		Invoice Distribution Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: Email 2:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company: Contact:		Project Information ALS Quote #: <u>200537</u> Job #: <u>200537</u> PO / AFE: LSD:		Number of Containers	
ALS Lab Work Order # (lab use only) <u>12498615</u>		Sample Identification and/or Coordinates (This description will appear on the report) <u>MWLF-3</u> <u>MWLF-3-D</u> <u>MWLF-1</u> <u>MW01</u> <u>MW02</u> <u>MW02-D</u> <u>MW03</u> <u>MW04</u> <u>MW103</u>		Date (dd-mm-yy) <u>27 Aug 20</u> <u>27 Aug 20</u> <u>27 Aug 20</u> <u>28 Aug 20</u> <u>28 Aug 20</u> <u>28 Aug 20</u> <u>28 Aug 20</u> <u>30 Aug 20</u>	
Time (hh:mm) <u>PM</u>		Sample Type <u>Water</u> <u>Water</u>		Time <u>PM</u>	
ALS Contact:		Sampler:		Time (hh:mm)	
Special Instructions / Specify Criteria to add on report (client use)		Sample Condition AS RECEIVED (lab use only) Frozen ☐ SIF Observations Yes ☐ No ☐ Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐ Cooling initiated ☐ INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C		FINAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:	
Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? ☐ Yes ☐ No Are samples for human drinking water use? ☐ Yes ☐ No		SHIPMENT RELEASE (client use) Released by: <u>M. H. K. Tan</u> Date: <u>Aug 20</u> Time: <u>16:15</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION
 Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer. (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any change of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting the analytical results.
8. Test Results are Not Guaranteed. Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the samples.
11. Holds. If the Client requests a sample to be placed on hold, ALS will store the sample for 30 days from date of receipt, after which ALS will invoice the Client and discard the sample. Longer hold periods are available upon request.
12. Archives. If the Client requests a sample be archived, ALS will invoice in advance and store the sample for the period requested, after which ALS may discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS charges a minimum 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate safety data sheets (previously referred to as 'MSDS') that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
22. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 22 and 24, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
24. Notice of Liability. Notwithstanding paragraph 23, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
25. Entire Agreement. The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
26. Term. Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and terms and conditions will automatically lapse if the offer has not been accepted, and samples not delivered to ALS, within the Closing Date.
27. Termination. (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all Services performed up to the expiry of the Notice Period.

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