Lake Manitoba Outlet Channel 2019 Surface Water and Groundwater Monitoring Report

FINAL REPORT

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Executive Summary

The Lake Manitoba Lake St. Martin Outlet Channels Project is proposed to be developed by Manitoba Infrastructure (MI) as a permanent flood control management system for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region. This will be accomplished through construction of a new outlet channel from Lake Manitoba to Lake St. Martin and a new outlet channel from Lake St. Martin to Lake Winnipeg in the Manitoba Interlake region. These new channels will facilitate better management and control of floodwater on these lakes by providing additional capacity to move floodwater from Lake Manitoba through Lake St. Martin into Lake Winnipeg. The Project will reduce or completely avoid overland inundation flooding during high water events in Manitoba such as the 2011 flood.

The Lake Manitoba Outlet Channel (LMOC) will join Watchorn Bay on Lake Manitoba to Lake St. Martin near the outlet of Birch Creek. Associated components of the LMOC include a water control structure, three road bridges, and the realignment and/or new construction of PR 239 and affected municipal roads. The LMOC will work in parallel with the existing Fairford River Water Control Structure and will carry water directly into Lake St. Martin during periods when the water level on Lake Manitoba is above the top of its target operating range (812.5 ftasl).

Stantec Consulting Ltd. (Stantec), as part of the Hatch team, was retained by Manitoba Infrastructure to complete a groundwater and surface water monitoring program in the spring of 2019 that will form part of annual monitoring during the open water season, prior to, during, and following construction of the LMOC.

Lakes and watercourses identified from previous studies and selected by Stantec as integral to understanding surface water quality conditions in the LMOC area were sampled, and the results were compared to the Canadian Water Quality Guidelines for Freshwater Aquatic Life and the Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life to identify guideline exceedances.

Groundwater wells identified by Stantec and Trek Geotechnical Inc. as integral to understanding groundwater conditions in the LMOC area were sampled, and groundwater quality results were referenced to the Canadian Water Quality Guidelines for Freshwater Aquatic Life, the Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life, and compared to Guidelines for Canadian Drinking Water Quality to identify guideline exceedances. Groundwater levels were also manually recorded for hydrogeological investigation of the site, with data loggers installed in selected wells for long term groundwater level monitoring.

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Abbreviations

CDWQ	Canadian Drinking Water Quality
CWQG-FAL	Canadian Water Quality Guideline – Freshwater Aquatic Life
DQO	data quality objective
ftasl	Feet above sea level
LMOC	Lake Manitoba Outlet Channel
masl	Meters above sea level
MI	Manitoba Infrastructure
MSOG-FAL	Manitoba Standards, Objectives, and Guidelines – Freshwater Aquatic Life
RPD	relative percent difference
QA/QC	quality assurance/quality control

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

The Lake Manitoba Lake/St. Martin Outlet Channels Project (the Project) is proposed by Manitoba Infrastructure (MI) as a permanent flood control management system for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region. This will be accomplished through construction of a new outlet channel from Lake Manitoba to Lake St. Martin and a new outlet channel from Lake St. Martin to Lake Winnipeg in the Manitoba Interlake region. These new channels will facilitate management and control of floodwater on these lakes by providing additional capacity to move floodwater from Lake Manitoba through Lake St. Martin into Lake Winnipeg. The Project will reduce or completely avoid overland inundation flooding during high water events in Manitoba such as the 2011 flood.

The proposed Lake Manitoba Outlet Channel (LMOC) is approximately 24.1 km long and will join Watchorn Bay on Lake Manitoba to Lake St. Martin near the outlet of Birch Creek. The LMOC is situated on privately held and leased Crown lands adjacent to numerous marshes and small lakes (Appendix A, Map 1-1). Associated components of the LMOC include a water control structure, three road bridges, and the realignment and/or new construction of PR 239 and affected municipal roads. The LMOC channel will work in parallel with the existing Fairford River Water Control Structure to regulate water levels on Lake Manitoba within the desired range (812.5 to 810.5 ftasl) as established by Manitoba Infrastructure's Operating Guidelines (Manitoba Infrastructure, 2019). The LMOC will carry water directly into Lake St. Martin during periods when the water level on Lake Manitoba is above the top of its target operating range (812.5 ftasl).

As described by KGS (2017a), the surficial geology in the LMOC region typically consists of calcareous loamy till that is moderately to excessively stony. Few areas of bedrock present near or at the surface, particularly in proximity to the LMOC alignment. Topography in the area is relatively flat, and the terrestrial environment is diverse, including agricultural areas, grasslands, forested areas, small lakes and larger regions of wetlands. Overland flow in the LMOC region generally travels toward the wetlands and small lakes that include Goodison Lake, Reed Lake, Water Lake, and Clear Lake (Appendix A, Map 1-1). These lakes and wetlands discharge into Birch Creek, which flows northward toward Lake St. Martin. Only a relatively small area near the LMOC inlet drains toward Lake Manitoba into Watchorn Creek. An overview of drainage and surface water flow direction in the LMOC region is shown in (Appendix A, Map 1-1).

The Preliminary Design of the LMOC is being undertaken by the design team lead by Hatch Ltd. (Hatch). The team is supported by Trek Geotechnical Inc. (Trek), Stantec Consulting Ltd. (Stantec), Dillon Consulting Ltd. (Dillon) and J.D. Mollard and Associates (2010) Ltd. (Mollard) and is collectively referred to as the Hatch Team. Stantec Consulting Ltd. (Stantec), as part of the Hatch Ltd. team, was retained by MI to complete a groundwater and surface water monitoring program in the spring of 2019 that will form part of annual monitoring during the open water seasons, prior to, during, and following construction of the LMOC. The following report provides an overview of previous water quality monitoring in the study area, describes Stantec's 2019 monitoring program, and outlines plans for future monitoring work.

1.2 OBJECTIVES

The objectives of the water quality and water level monitoring report are to:

- Summarize previous work on water quality in the LMOC area.
- Describe the methods and results of the 2019 surface water and groundwater field program.
- Identify planned/recommended future water quality and water level data collection efforts related to the Project in the LMOC area.

2.0 PREVIOUS WORK

Between 2015 and 2017, KGS Group was retained by MI to explore two potential route options for the LMOC (KGS 2017a, 2017b). The studies conducted for the options analysis built on previous work following the 2011 flood and included groundwater, surface water, and geotechnical investigations. In 2017 one LMOC route was selected for preliminary engineering and groundwater and surface water investigations were continued in the LMOC area between 2017 and 2018 (KGS 2018). Relevant work pertaining to surface water and groundwater in the LMOC area is summarized in subsequent sections.

2.1 SURFACE WATER QUALITY

Surface water quality monitoring was conducted in the LMOC area at nine field sites. Samples were collected seasonally during four field campaigns in: May 2017, August 2017, October 2017, and May 2018 (KGS 2017a, 2017b, 2018).

In-situ surface water chemistry measurements were completed in the field and water samples were collected and analyzed for general water quality, metals, ion balance and water hardness types. Comparisons against the Manitoba Standards, Objectives, and Guidelines (MSOG-FAL) for the protection of Freshwater Aquatic Life (MWS 2011), and the Canadian Water Quality Guidelines (CWQG-FAL) for Protection of Aquatic Life (CCME 2020) criteria were completed.

Minor seasonal fluctuations in some surface water quality parameters were noted in the field data. Dissolved oxygen field chemistry results ranged from 1.6 to 12.7 mg/L, depending on location, and were typically lowest in the August dataset. The hardness type for surface water samples was magnesium-calcium-bicarbonate at the inlet of Lake Manitoba, sodium-magnesium-chloride-bicarbonate at the outlet to Lake St. Martin, and magnesium-bicarbonate for all remaining samples. Turbidity values as well as sodium and chloride concentrations were elevated at the planned inlet (Lake Manitoba) and outlet (Lake St. Martin) locations, and lower at all remaining sites. All sites exceeded CWQG-FAL criteria for fluoride and the MSOG-FAL criteria for phosphorus. Phosphorus concentrations at most of the monitored sites classified the water bodies as meso-eutrophic or eutrophic. Generally, the highest phosphorus concentrations were measured at stream and inland lake sites, with lower concentrations measured at the planned inlet and outlet locations (<0.035 mg/L). Samples also showed exceedances of some CWQG-FAL criteria such as: chloride at Lake St. Martin, sodium in Lake Manitoba and Lake St. Martin, and fluoride in watershed samples. Total coliform and E. coli were detected in samples collected at all sites.

2.2 GROUNDWATER QUALITY

Groundwater quality monitoring was conducted at six field sites, seasonally during four field campaigns: May 2017, August 2017, October 2017, and May 2018 (KGS 2017a, 2017b, 2018).

In-situ groundwater chemistry measurements were recorded in the field and samples were collected and analyzed for general groundwater quality, metals, ion balance and water hardness types. Reference

comparisons against the MSOG-FAL, and CWQG-FAL criteria were completed. Comparisons against Canadian Drinking Water Quality Guidelines (CDWQ) (Health Canada 2019) were also completed since the aquifer is a source of drinking water in the region.

No discernable seasonal differences were observed across the monitored well sites in the LMOC area. Hardness types ranged from magnesium-calcium-bicarbonate or calcium-magnesium-bicarbonate to magnesium bicarbonate. Although results varied by site and field campaign, in general, groundwater samples collected in the LMOC area exceeded the drinking water guidelines for turbidity and hardness. Elevated groundwater hardness in the LMOC area is typical of water present within the carbonate aquifer and till units. Groundwater collected from wells in till (and not carbonate bedrock) exhibited lower sulphate, conductivity, and hardness. All samples were below the criteria for sulphate, below detection for nitrate, and had low concentrations of boron, calcium, potassium, strontium, manganese, molybdenum, nickel, tungsten, uranium, and vanadium. At pump test wells, bacteriological samples were sampled with total coliform counts decreasing over the duration of pump tests; E. *coli* was not detected in the samples.

2.3 GROUNDWATER LEVEL

2.3.1 Long-term Monitoring Data

To determine the groundwater flow along the LMOC route D, vibrating wire piezometers and transducers (Heron™ DipperLog64) were deployed in wells TH-ED-01W and TH-GD-07 (previously referred to as 15-RD-PW1). The transducers were installed at the open bedrock or screened zones and both wells were under artesian pressure. The installed DipperLogs were programmed to record groundwater level changes every 4 hours to provide long-term data at the project location. The well designations and location information are summarized in Table 2-1.

Table 2-1 Summary of Installed Long-term Monitoring Wells in the LMOC area

Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
	Easting (m)	Northing (m)			
TH-ED-01W	530503	5692376	249.49	Long-term Level Monitoring	Provides Groundwater Hydrographs from 2016 to present
TH-GD-07 (15-RD-PW1)	531900	5699454	252.05	Long-term Level Monitoring	Provides Groundwater Hydrographs from 2017 to present

Seasonal changes in groundwater levels were expected based on historical measurements in 2011 and 2015. The reported data are summarized in Figure 2-1 and Figure 2-2, showing piezometric changes from December 2016 through June 2018 for both wells. The largest recorded seasonal groundwater level fluctuation was 1.91 m (in well TH-ED-01 W) and 1.25 m (in well TH-GD-07).

Figure 2-1 Long-term Groundwater Monitoring Data at TH-ED-01W

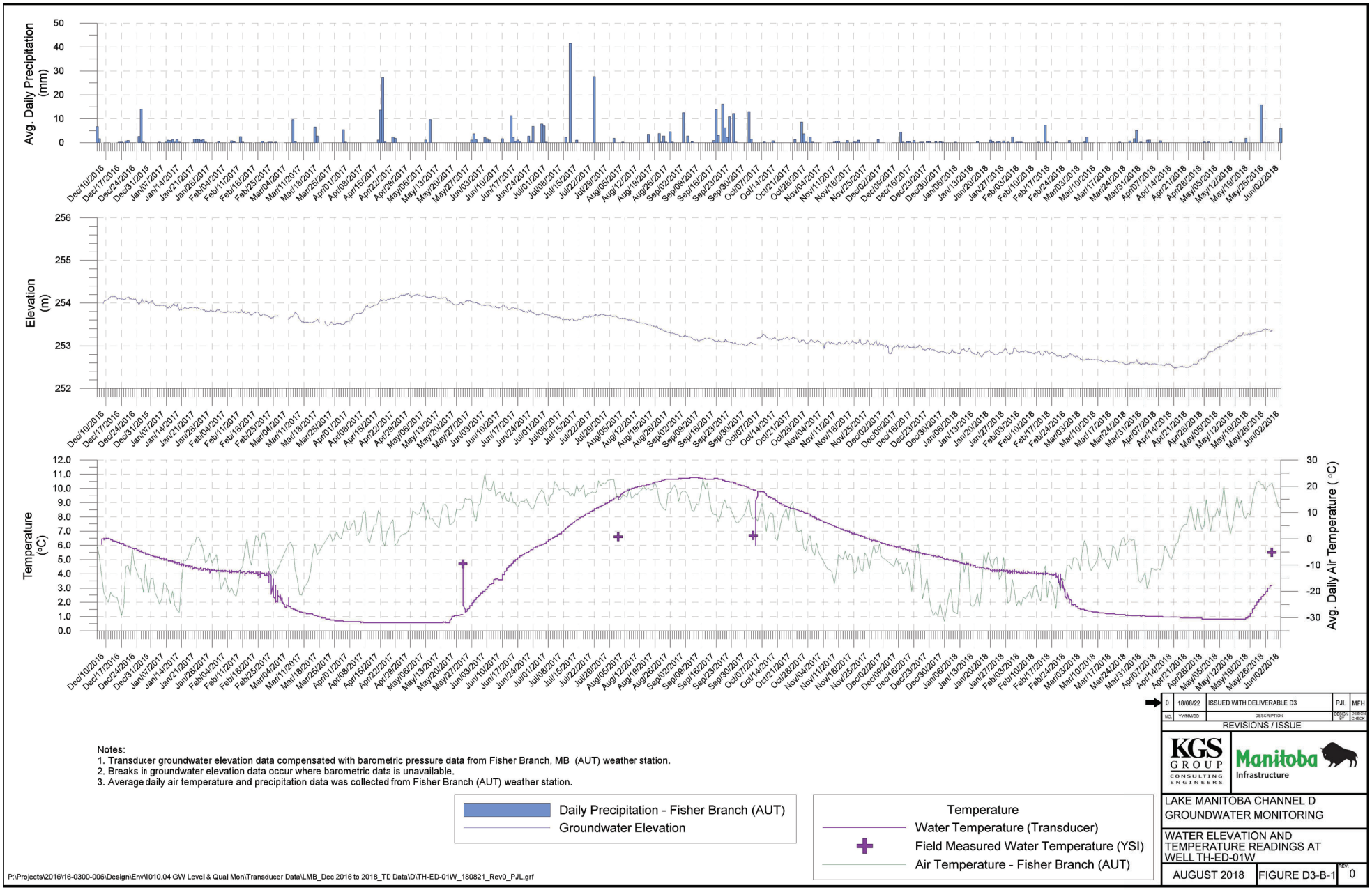
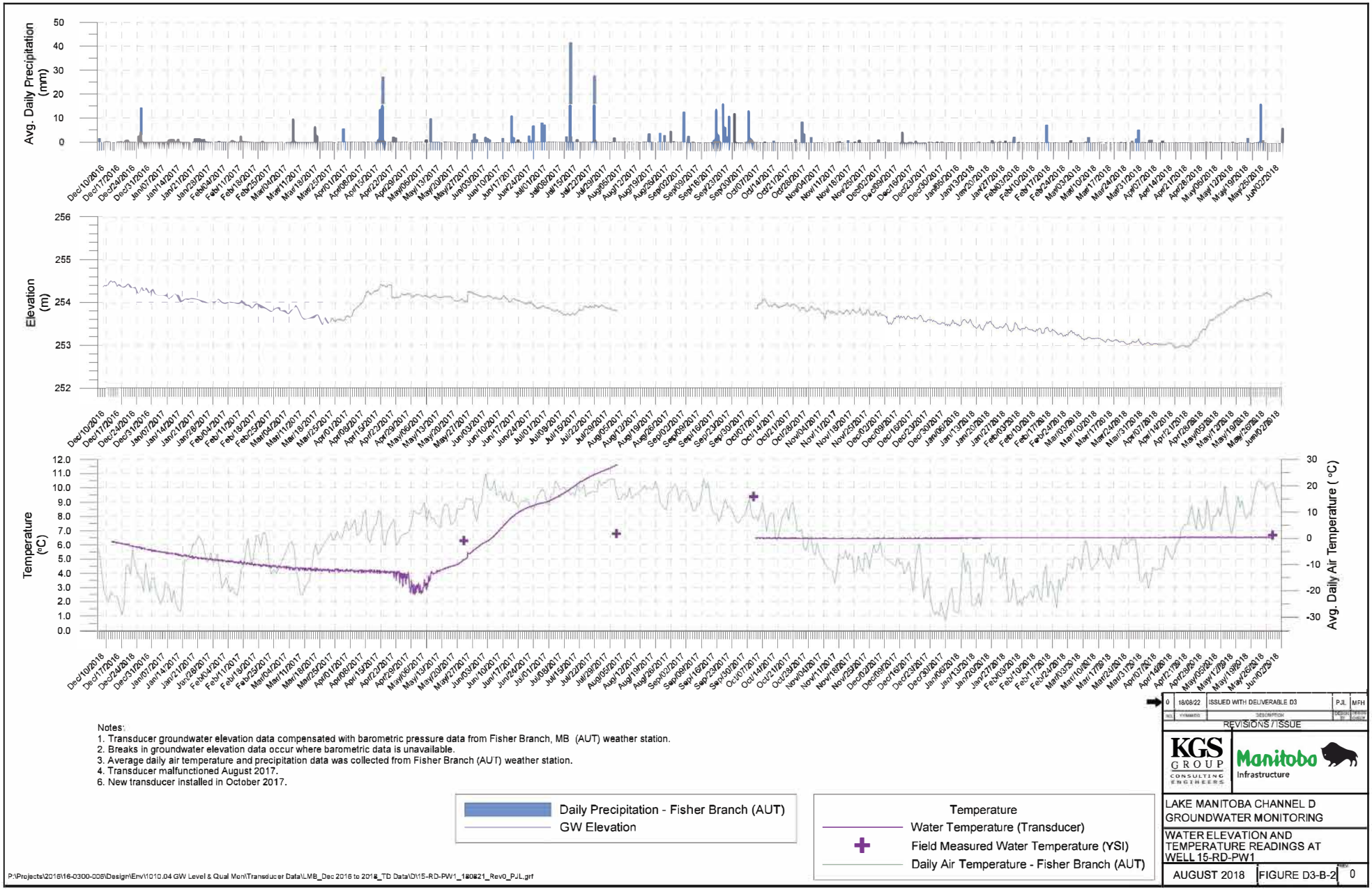


Figure 2-2 Long-term Groundwater Monitoring Data at TH-GD-07



Notes:
1. Transducer groundwater elevation data compensated with barometric pressure data from Fisher Branch, MB (AUT) weather station.
2. Breaks in groundwater elevation data occur where barometric data is unavailable.
3. Average daily air temperature and precipitation data was collected from Fisher Branch (AUT) weather station.
4. Transducer malfunctioned August 2017.
6. New transducer installed in October 2017.

REVISIONS / ISSUE				
NO.	REVISIONS	DESCRIPTION	DESIGN BY	REVIEW & CHECK
0	18/08/22	ISSUED WITH DELIVERABLE D3	PJL	MFH

KGS GROUP CONSULTING ENGINEERS

Manitoba Infrastructure

LAKE MANITOBA CHANNEL D
GROUNDWATER MONITORING

WATER ELEVATION AND TEMPERATURE READINGS AT WELL 15-RD-PW1

AUGUST 2018 | FIGURE D3-B-2 | REV. 0

P:\Projects\2016\16-0300-006\Design\Env\1010.04 GW Level & Qual Mon\Transducer Data\LMB_Dec 2016 to 2018_TD Data\D\15-RD-PW1_180821_Rev0_PJL.grf

2.3.2 Province of Manitoba Groundwater Wells

The Province of Manitoba drilled two groundwater wells in the LMOC area in 2003 that have been maintained as observation wells, providing water level records since 2005. These wells are designated WRB-116766 (provincial well G05LK001) and WRB-122050 (provincial well G05LM001) as summarized in Table 2-2.

Table 2-2 Summary of Existing Province of Manitoba Groundwater Wells in the LMOC area

Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
	Easting (m)	Northing (m)			
WRB-116766 (provincial well 05LK001)	545154	5687006	280.91	Long-term Level Monitoring	Provincial well- Groundwater hydrograph was provided by Government of Manitoba from 2005 to present
WRB-122050 (provincial well G05LM001)	528861	5696563	255.83	Long-term level Monitoring	Provincial well- Groundwater hydrograph was provided by Government of Manitoba from 2005 to present

Figure 2-3 illustrates the seasonal fluctuation in the recorded groundwater elevations at the provincial wells from January 2005 to April 2019.

Previous Work

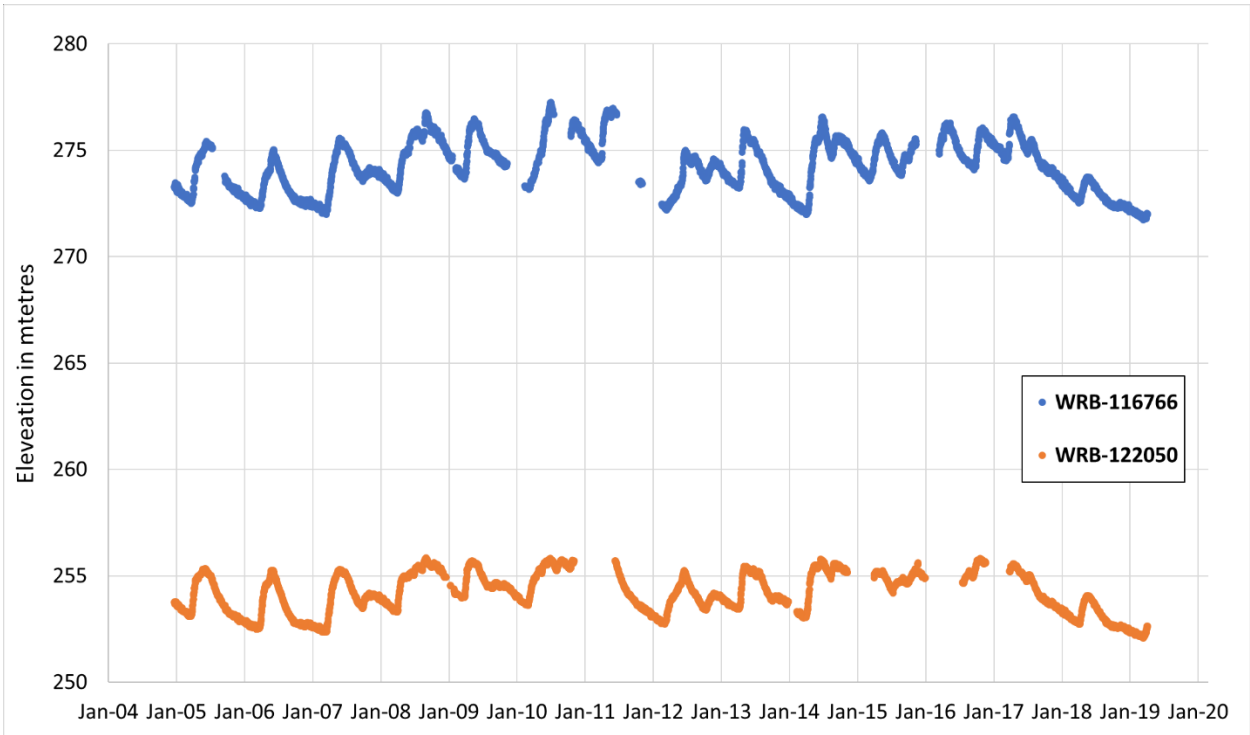


Figure 2-3 Piezometric Water Elevation in Carbonate Aquifer (2005-2019)

3.0 2019 PROGRAM METHODS

Surface water samples and lake depths, groundwater samples and ground water level measurements were collected by Stantec in June, August, and October 2019. Details of the field and analytical methods used to characterize water quality and water level conditions in both surface and groundwater are summarized below.

3.1 SURFACE WATER

3.1.1 Monitoring Sites

Monitoring campaigns were completed in June, August, and October 2019 by Stantec field technicians. Surface water quality was monitored at seven previously established sites (D1, D2, D3, D4, D6, D8, D9; KGS 2017a) and three new sites (D10, D11, D12) added for the 2019 program (Appendix A, Map 3-1).

Depths were recorded (when possible) at all surface water sampling locations in June 2019. For subsequent monitoring campaigns, water depths were recorded solely at sites D1 and D9. To gain detailed depth information on the small inland lakes in the LMOC area, water depth was measured on transects at sites D3, D4, and D10.

Table 3-1 lists, from upstream to downstream, the surface water sample sites, rationale for site selection, sampling procedure and frequency. Surface water sample collection was limited at some sites by lack of landowner permission for personnel access and site conditions.

Table 3-1 2019 Surface Water Quality Monitoring Sites, Locations, Rationale for Selection, and Sample Frequency

Watershed	Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Purpose/Selection Rationale	Sampling Procedure	2019			Total
			Easting (m)	Northing (m)			June	August	October	
Lake Manitoba	D1	Lake Manitoba	529999	5680739	Surface water quality sample; water depth	Take surface sample from middle of bay by boat. Record depth at sample location. Record in-situ water quality readings at every meter depth. Record coordinates.	1	1	1	3
Watchorn Creek	D2	Watchorn Creek	531563	5683591	Surface water quality sample; water depth	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D3	Reed Lake	532496	5686856	Surface water quality sample; water depth	Take surface sample (shore or boat). Record coordinates. Water depth transect.	1	1		2
Birch Creek	D4	Clear Lake	531214	5689935	Surface water quality sample; water depth	Take surface sample (shore or boat). Record coordinates. Water depth transect.	1	1	1	3
Birch Creek	D10	Water Lake	531272	5692230	Surface water quality sample; water depth	Take surface sample (shore or boat). Record coordinates. This site was not monitored previously, take notes and photos. Water depth transect.	1	1	1	3
Birch Creek	D11	Unnamed lake inlet	531317	5693397	Surface water quality sample; water depth	Take surface sample (shore or boat). Record coordinates. Site coordinates updated prior to August sampling program for improved site access - moved to stream inlet to D11 wetland.			1	1
Birch Creek	D12	Goodison Lake outlet	531741	5697313	Surface water quality sample; water depth	Take surface sample (shore or boat). Record coordinates.	1	1	1	3
Birch Creek	D6	Birch Creek	532477	5698322	Surface water quality sample; water depth	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D8	Birch Creek	533226	5702311	Surface water quality sample; water depth	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Lake St. Martin	D9	Lake St. Martin	533392	5706318	Surface water quality sample; water depth	Take surface sample from middle of bay by boat. Record depth at sample location. Record in-situ water quality readings at every meter depth. Record coordinates.	1	1	1	3
						Total Number of Samples	9	9	9	27

Cells shaded grey indicate that no measurement recorded.

3.1.2 Field Sampling and Laboratory Analyses

Field data collection methods for the surface water sampling program followed the Protocols Manual for Water Quality Sampling in Canada (CCME 2011). In situ water quality parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, nitrite) were collected at each site using a calibrated YSI multi-parameter meter, La Motte turbidimeter, and YSI photometer. At sites D1 and D9, water depth was measured, and in-situ water quality readings were recorded at 1-m depth increments. Samples were collected with gloved hands, in clean plastic bottles held facing upstream and oriented to collect water below the surface, thereby limiting the potential for collection of surface films. Samples collected below surface were collected using a Beta bottle that was clean and care was taken to avoid contacting the waterbody bottom during sample collection (limiting sediment resuspension during sample collection). Samples for dissolved metals were filtered within a few hours of collection, indoors on a clean lab surface, then preserved. Samples for non-filtered parameters were preserved in the field. Bottles were kept cool and in the dark for transport to the laboratory (in a cooler).

Samples were sent to ALS Environmental Laboratory, Winnipeg, Manitoba, for analysis of the physical and chemical parameters presented in Table B-1 (Appendix B). ALS is certified under the Canadian Association for Laboratory Accreditation. For most parameters, detection limits (DL) were less than 10% of the water quality guidelines and were suitable for comparison with the guidelines. DLs for fluoride and total phosphorus were greater than 10% of the guidelines for all samples analyzed but were below the guidelines (except for one sample from August 2019). In some cases, DLs for total aluminum, total copper, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc were greater than 10% of the hardness dependent guidelines (due to sample matrix interference) but were always below the referenced guidelines.

Surface water quality data were compared with the following federal and provincial guidelines:

- Canadian Water Quality Guidelines for Protection of Aquatic Life (short- and long-term) (CCME 2020).
- Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life (chronic and acute) (MWS 2011).

The most conservative guidelines were used to identify exceedances. Typically, the long-term CWQG-FAL and chronic MSOG-FAL, where available, were the most conservative.

Analytical, field duplicate, and QA/QC data are provided in Appendix B in Tables B-1, B-2, and B-3, respectively.

3.1.3 Quality Assurance/Quality Control

A quality assurance/ quality control (QA/QC) program was incorporated into the field and laboratory program. The QA/QC data are presented in Tables B-2 and B-3 in Appendix B. These include data from duplicate field samples, to test the reproducibility of the samples, and field blank samples, to assess the

potential for contaminants to be introduced during sampling. Duplicates, field blanks, and trip blanks comprised 20% of the surface water quality dataset. ALS also followed internal QA/QC procedures for laboratory duplicates, method blanks, and reference materials.

Field duplicates were collected at randomly selected sampling sites along with the parent sample and submitted to the laboratory for analysis. Duplicates were submitted blind, without the location, name, or time indicated on the label, to test heterogeneity of the water being sampled and precision of the laboratory analysis. Duplicate samples comprised 9% of the surface water quality dataset. Duplicate results were compared using relative percent difference (RPD), with a data quality objective (DQO) of 20% for values more than five times the DL (BC MOE 2013). The RPD was calculated as:

Equation 3-1 Relative Percent Difference

$$RPD = \frac{|result\ 1\ -\ result\ 2|}{(result\ 1 + result\ 2) \div 2}$$

There were three field duplicates collected and analyzed for the full suite of laboratory parameters (Table B-2 in Appendix B). Of these three field duplicates, one duplicate pair (33%) exceeded the DQO for two parameters (total coliforms and total aluminum) and one duplicate pair (33%) exceeded the DQO for six parameters (E. Coli, total coliforms, dissolved boron, dissolved lithium, dissolved manganese, and total molybdenum). These samples were collected in October and August of 2019, respectively.

There were two field blanks collected and analyzed to assess the potential for cross-contamination in the field (Table B-3 in Appendix B). The field blanks consisted of reverse osmosis de-ionized water provided by ALS, which was exposed to the same field conditions as the water samples collected (opening the bottle in the field and filtering and preserving as required). The DQO (values below or within five times the method DL) was met for all parameters in all field blanks.

There were two trip blanks collected and analyzed to assess the potential for cross-contamination in the field or during transit (Table B-3 in Appendix B). Sealed trip blanks were provided by ALS and accompanied water samples to and from the field and were opened only when they arrived at the laboratory for analysis. The DQO (values below or within five times the method DL) was met for all parameters in all trip blanks.

3.2 GROUNDWATER QUALITY

3.2.1 Monitoring Sites

Groundwater quality monitoring was conducted contiguously with the 2019 geotechnical drilling program. Thirteen sites including pump wells, observation wells, and test hole wells (within the channel right of way and at future bridge structure locations) established by the Hatch team, were monitored for groundwater quality during field campaigns in June, August, and October of 2019 (Appendix A, Map 3-2). Sampling frequency at groundwater sites was dependent on the timing of well installation following geotechnical work, therefore some sites were not sampled on every 2019 campaign. Pump wells were sampled once upon pump test completion, but subsequent sampling at these locations occurred via the immediately

adjacent observation wells in subsequent field visits. Sampling at test hole wells within the channel right of way and at future bridge structure locations depended on timing of well installation for the geotechnical investigation. Groundwater sample collection was also limited at some sites by lack of landowner permission for personnel access and site conditions.

Table 3-2 lists the sample sites in the LMOC study areas, site purpose, and sample frequency. Sites are listed in the order from south to north.

3.2.2 Field Sampling and Laboratory Analyses

Field data collection methods for the groundwater sampling program followed the Protocols Manual for Water Quality Sampling in Canada (CCME 2011) and Standard Operating Procedures for Groundwater Sample Collection developed by Stantec.

After well installation and prior to initial sampling, groundwater wells were developed by purging 10 times the volume of the well, under natural artesian flow. At subsequent sampling events, in order to ensure groundwater samples were representative of the natural formation water, the monitoring wells were purged a minimum of three well volumes, or until groundwater parameters (specific conductivity, dissolved oxygen, oxidation/reduction potential and temperature) stabilized. For flowing wells, a temporary shut off valve was installed with tubing that allowed the water to flow directly into a clean graduated pail used to measure purge water volume. In the fall, monitoring wells were prepared for winter months by pushing the water level down below typical soil frost depth using air pressure (Figure 3-1). The wells were sealed using mechanical packers to keep the groundwater below the frost depth (~2 m).

Figure 3-1 Groundwater Well Preparation for Winter Months including Packer Installation

In situ water quality parameters (temperature, pH, specific conductivity, oxidation/reduction potential and dissolved oxygen) were measured every 2 minutes from the water flowing into the graduated pail at each site using a calibrated YSI multi-parameter meter and La Motte turbidimeter. Groundwater samples were collected with gloved hands, directly from the flowing water into clean plastic bottles. Samples for dissolved metals were filtered at the time of collection. Samples for non-filtered parameters were preserved in the field. Bottles were kept cool and in the dark for transport to the laboratory (in a cooler).

Samples were sent to ALS Environmental Laboratory, Winnipeg, Manitoba, for analysis of the physical and chemical parameters listed in Table B-4 (Appendix B). ALS is certified under the Canadian Association for Laboratory Accreditation. DLs were less than 10% of the water quality guidelines and were suitable for comparison with the guidelines. DLs for fluoride and total phosphorus were greater than 10% of the guidelines for all samples analyzed but were below the guidelines. In some cases, DLs for total aluminum, total copper, dissolved copper, dissolved lead, dissolved nickel, and dissolved zinc were greater than 10% of the hardness dependent guidelines (due to sample matrix interference) but results were always below the guidelines.

Water quality data were compared with the following federal and provincial guidelines:

- Canadian Water Quality Guidelines for Protection of Aquatic Life (short- and long-term) (CCME 2020).
- Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life (chronic and acute) (MWS 2011).
- Guidelines for Canadian Drinking Water Quality (Health Canada 2019).

Although not typically considered for groundwater quality, groundwater quality results were referenced to Federal and Provincial guidelines for the protection of freshwater aquatic life. These guidelines were considered due to the artesian condition of the carbonate aquifer in the LMOC area and the potential for groundwater to be discharged to surface water during the Project.

The most conservative guidelines were used to identify exceedances. Typically, the long-term CWQG-FAL and chronic MSOG-FAL, where available, were the most conservative. Some parameters included in the CDWQ guidelines are not considered in CWQG-FAL and MSOG-FAL.

Analytical, field duplicates, and QAQC data are provided in Tables B-4, B-5 and B-6 in Appendix B, respectively.

Table 3-2 2019 Groundwater Wells (pump, observation, and groundwater quality monitoring wells), Locations, Purpose and Sample Frequency

Site ID	Test Hole Site ID*	Coordinates (UTM Zone 14 U)		Purpose	2019			Total
		Easting (m)	Northing (m)		June	August	October	
OW19-40	TH18-49	530823	5683152	Groundwater quality sampling			1	1
CH19-37	TH18-50	530879	5686139	Groundwater quality sampling			1	1
PW19-22	TH18-36	530695	5688126	Pump test, Groundwater quality sampling, Long-term Groundwater level monitoring	1			1
OW19-23	TH18-37	530694	5688133	Groundwater quality sampling.		1	1	2
BH19-29	TH18-27	530338	5693405	Groundwater quality sampling	1	1	1	3
OW19-05	TH18-22	531018	5696655	Groundwater quality sampling		1	1	2
PW19-06	TH18-21	531017	5696646	Pump test, Groundwater quality sampling, Long-term Groundwater level monitoring.	1			1
BH19-12		532052	5699190	Groundwater quality sampling		1	1	2
CH19-11	TH18-13	532340	5700333	Groundwater quality sampling	1			1
OW19-16	TH18-04	532343	5701488	Groundwater quality sampling.		1		1
OW19-18	TH18-10	532303	5701488	Groundwater quality sampling			1	1
PW19-17	TH18-09	532295	5701490	Pump test, Groundwater quality sampling, Long-term Groundwater level monitoring	1			1
CH19-08	TH18-03	533152	5703020	Groundwater quality sampling	1	1	1	3
				Total Number of Samples	6	6	7	19

OW: observation well drilled adjacent to pump wells

PW: pump well

CH: test hole well in channel right of way

BH: test hole well at future bridge structure locations

* Test Hole Site ID from previous field programs. Sites were renamed for 2019 field program.

Cells shaded grey indicate that no measurement recorded.

3.2.3 Quality Assurance/Quality Control

A quality assurance/ quality control (QA/QC) program was incorporated into the field and laboratory program. The QA/QC data are presented in Tables B-5 and B-6 in Appendix B. These include data from duplicate field samples, to test the reproducibility of the samples, and field blank samples, to assess the potential for contaminants to be introduced during sampling. Duplicates, field blanks, and trip blanks comprised 20% of the groundwater quality dataset. ALS also followed internal QA/QC procedures for laboratory duplicates, method blanks, and reference materials.

Field duplicates were collected at randomly selected sampling sites along with the parent sample and submitted to the laboratory for analysis. Duplicates were submitted blind, without the location, name, or time indicated on the label, to test heterogeneity of the water being sampled and precision of the laboratory analysis. Duplicate samples comprised 12% of the baseline validation dataset. Duplicate results were compared using relative percent difference (RPD), with a data quality objective (DQO) of 20% for values more than five times the DL (BC MOE 2013). The RPD was calculated using Equation 3-1 given in Section 3.1.3.

There were three field duplicates collected and analyzed for the full suite of laboratory parameters (Table B-5 in Appendix B). Of these three field duplicates, one duplicate pair (33%) collected in June 2019 exceeded the DQO for one parameter (total suspended solids), one duplicate pair (33%) collected in October 2019 exceeded the DQO for three parameters (total calcium, total cobalt, and total magnesium) and one duplicate pair (33%) collected in August 2019 exceeded the DQO for four parameters (dissolved barium, dissolved molybdenum, total magnesium, and total molybdenum).

There was one field blank collected and analyzed to assess the potential for cross-contamination in the field (Table B-6 in Appendix B). The field blanks consisted of reverse osmosis de-ionized water provided by ALS, which was exposed to the same field conditions as the water samples collected (opening the bottle in the field and filtering and preserving as required). The DQO (values below or within five times the method DL) was met for all parameters in all field blanks.

There were two trip blanks collected and analyzed to assess the potential for cross-contamination in the field and during transit (Table B-6 in Appendix B). Sealed trip blanks were provided by ALS and accompanied water samples to and from the field and were opened only when they arrived at the laboratory for analysis. The DQO (values below or within five times the method DL) was met for all parameters in all trip blanks.

3.3 GROUNDWATER LEVEL

3.3.1 Monitoring Sites

Stantec conducted groundwater level monitoring in conjunction with groundwater quality sampling (Section 3.2) during the 2019 field season. Based on pumping test program, groundwater monitoring was completed from the North Reach of the Channel at PW1917 to South Reach of the Channel at PW1939 in the Summer (June 24-28, 2019) and Fall (October 2019) field campaigns.

A total of eight locations, including four pumping test locations (PW19-17, PW 19-06, PW19-22, and PW19-39), the two long term project monitoring wells (TH-ED-01W and TH-GD-07), and the two provincial wells (WRB-116766 and WRB-122050) were selected for monitoring. At each pumping test location, one 5-inch pump-well and two 2-inch observation wells were drilled. The groundwater levels were recorded using a manual water level meter before and after completion of each pumping test. The pumping test at PW19-39 was scheduled for October 2019; therefore, the groundwater levels were manually measured in during the fall campaign at this location, during and after the pumping test. The pump-wells were equipped with Heron™ DipperLog64 instrumentation, programmed to record groundwater changes every 4 hours starting 1st of October 2019, to provide additional long-term data (Table 3-3). After installation of the loggers, mechanical packers were installed for each pump well to keep the artesian flow beneath the frost line. The logged groundwater level data will be retrieved for analysis in Spring 2020.

The two existing long-term wells, TH-ED-01W and TH-GD-07, were located and the groundwater level data was downloaded from each during the Summer field campaign. These data loggers in these wells were programmed to record the groundwater level changes every 4 hours since 2016. In addition, the Government of Manitoba provided data from 2005 to present for the two provincial wells, WRB-116766 and WRB-122050, located in vicinity of the LMOC. The groundwater level monitoring locations are shown in Appendix A- Map 3-3 and Table 3-3 summarizes information regarding existing and newly installed groundwater wells.

Table 3-3 Summary of Existing and Newly Drilled Groundwater Wells

Pump Test Well ID	Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
		Easting (m)	Northing (m)			
2019 Installed Wells						
PW19-17		5701488	532294	248.876	Pump Test Long-Term Level Monitoring	Artesian Data Logger # C30274
	OW19-16	5701488	532344	248.785	Observation Long-Term Quality Sampling	Artesian
	OW19-18	5701488	532304	248.924	Observation	Artesian
PW19-06		5696645	531018	250.472	Pump Test Long-Term Level Monitoring	Artesian Data Logger #C30288
	OW19-05	5696655	531019	250.472	Observation Long-Term Quality Sampling	Artesian
	OW19-07	5696695	531010	250.743	Observation	Artesian

Table 3-3 Summary of Existing and Newly Drilled Groundwater Wells

Pump Test Well ID	Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
		Easting (m)	Northing (m)			
PW19-22		5688122	530695	248.514	Pump Test Long-Term Level Monitoring	Artesian Data Logger# C30065
	OW19-23	5688132	530695	248.701	Observation Long-Term Quality Monitoring	Artesian
	OW19-24	5688174	530694	249.171	Observation	Artesian
PW19-39		530823	5683152	247.811	Pump Test Long-Term Level Monitoring	Artesian Data Logger# C30351
	OW19-40	530823	5683152	247.909	Observation Long-Term Quality Sampling	Artesian
	OW19-41	530823	5683152	247.844	Observation	Artesian
Existing Wells						
	TH-ED-01W (TH-ED-01P) KGS WELL	530503	5692376	249.49	Long-Term Level Monitoring	Groundwater Hydrographs from 2016 to present
	15-RD-PW1 (TH-GD-07) KGS WELL	531900	5699454	252.05	Long-Term Level Monitoring	Groundwater Hydrographs from 2017 to present
	WRB-116766 Province well (G05LK001)	545154	5687006	280.91	Long-Term Level Monitoring	Provincial well-Groundwater hydrograph was provided by Government of Manitoba from 2005 to present
	WRB-122050 Province well (G05LM001)	528861	5696563	255.83	Long-Term Level Monitoring	Provincial well-Groundwater hydrograph was provided by Government of Manitoba from 2005 to present

3.3.2 Field Methods

3.3.2.1 Manual -short-term monitoring

Groundwater level monitoring wells in the LMOC right of way were installed within the carbonate aquifer that is under high pressure, causing high hydraulic heads and indicating artesian conditions along the route of the proposed channel. After completion of the drilling at each location, J-plugs were installed to keep the groundwater from flowing up beyond the top of the well casing. At each pump test location the groundwater well casings were extended to maximum of 4 meters from the ground surface using Schedule 40 PVC pipe with bell ends and scaffolding. PVC pipes had the same diameter as the well casings (5" for pump wells and 2" for the observation wells). The groundwater levels were measured from the top of the pipe extension using a water level meter (well tape) before and after the pumping test at each location. Manual readings were completed (2 per well) and the average of the groundwater level readings before and after the pumping test was used to represent the groundwater level in each well.

3.3.2.2 Data logger - long-term monitoring

Long-term groundwater monitoring data will be used to provide a record of the groundwater level changes before, and during, project construction. The monitoring plan included data collection from the existing long-term project wells (TH-ED-01W and TH-GD-07) and installation of data loggers at the pump wells (PW19-17, PW19-06, PW19-22, and PW19-39) to provide additional long-term data.

Groundwater pressure changes have been continuously recorded at TH-ED-01W and TH-GD-07 since 2016. The recorded groundwater pressure data (total pressure: groundwater pressure plus atmospheric pressure) were downloaded from the dipperlogs using a Heron™ dipperlog64 reader. Data from a Heron™ barometer (programmed to record data every 4 hours - consistent with the other data loggers) that was installed at PW19-17 was downloaded and used to adjust the other readings for barometric pressure.

As mentioned earlier, after installation of the dataloggers, mechanical packers were installed in these wells to prevent water from freezing. Appendix A- Map 3-4 shows the locations of the long-term monitoring wells along the LMOC.

3.3.2.3 Predesign Program

Beginning in 2019, the Hatch Team installed vibrating wire transducers at different depths in various test hole locations to record groundwater level fluctuations along the LMOC throughout the year (Table 3-4). The installed equipment was programmed to record groundwater level changes every 24 hours to provide long-term data at the project location. Manual readings were also collected during quarterly field campaigns. Standpipes, installed in the LMOC area between 2011 and 2016, were also monitored by the Hatch Team on an opportunistic basis.

Table 3-4 Summary of Sites with Continuously Logged Vibrating Wire Transducers

Test Hole	Instrument	Stratigraphic Unit	Dates Data Logged
CH19-10	VW19-10	Bedrock	2019-Nov-04 to Present
BH19-14	VW19-14A	Till	2019-Sep-18 to 2020-Mar-12 and 2020-Jul-7 to Present
	VW19-14B	Bedrock	
	VW19-14A(2)	Till	
BH19-19A	VW19-19A	Till	2020-Mar-12 to Present
BH19-29	VW19-29A	Till	2019-Nov-23 to Present
	VW19-29B	Bedrock	
BH19-29A	VW19-29A(2)	Till	
BH19-31	VW19-31A	Till	2019-Nov-23 to 2019-Dec-8 2020-Mar-12 to Present
	VW19-31B	Bedrock	
CH19-36	VW19-36A	Till	2019-Nov-15 to Present
	VW19-36B	Sand	
	VW19-36C	Bedrock	
OW19-41	VW19-41A	Till	2019-Nov-23 to Present
	VW19-41B	Till	
	VW19-41C	Till	
	VW19-41D	Bedrock	
BH19-13	VW19-13A	Till	2019-Jun-29 to 2019-Sep-18 2020-Mar-12 to 2020-July-7
	VW19-13B	Bedrock	
BH19-14	VW19-14A	Till	2019-Nov-16 to 2020-Mar-11 2020-Jul-7 to Present
	VW19-14B	Bedrock	
BH19-14A	VW19-14A(2)	Till	
BH19-30	VW19-30A	Sand	2019-Jun-29 to 2019-Sep-30
	VW19-30B	Bedrock	

3.3.3 Data Confirmation

The short-term readings from the wells at pumping test locations were based on manual readings. To confirm these readings historical data from government of Manitoba database (1987) were compared to the recorded values (GWDrill 2018). The database includes comprehensive information about the drilled wells in the area such as drilling date, coordinates, purpose, owner, drilling company, lithology, measured groundwater level, and pump test duration and rate (if applicable). Based on GWdrill, 1508 wells have been drilled in the area between 1903 and 2017. The wells drilled between 2005 and 2017 were selected as likely currently operating and were used for data confirmation. To convert the recorded groundwater

levels to groundwater elevation, ground surface elevations were extracted (where available) for each well in the database and for the newly drilled wells.

As Stantec's short-term manual readings were competed during the wet season, they were compared to corresponding recorded wet-season data from GWDrill within 5 km of the LMOC. The manual readings from the newly drilled wells corresponded well with historical data from GWDrill by having higher values in middle reach of the proposed channel and lower values approaching the lakes.

Long-term groundwater readings were plotted and compared to the WRB-122050 (G05LM001) provincial well data. As shown in Figure 3-2, the long-term data followed a recharge trend, showing lower groundwater elevations in dry seasons and higher groundwater elevations in wet seasons. Groundwater level changes in TH-ED-01 and TH-GD-07 closely followed the groundwater level changes in the provincial well data. Additionally, as expected, the recorded groundwater levels are between the lake levels, higher than downstream Lake St. Martin and lower than upstream Lake Manitoba.

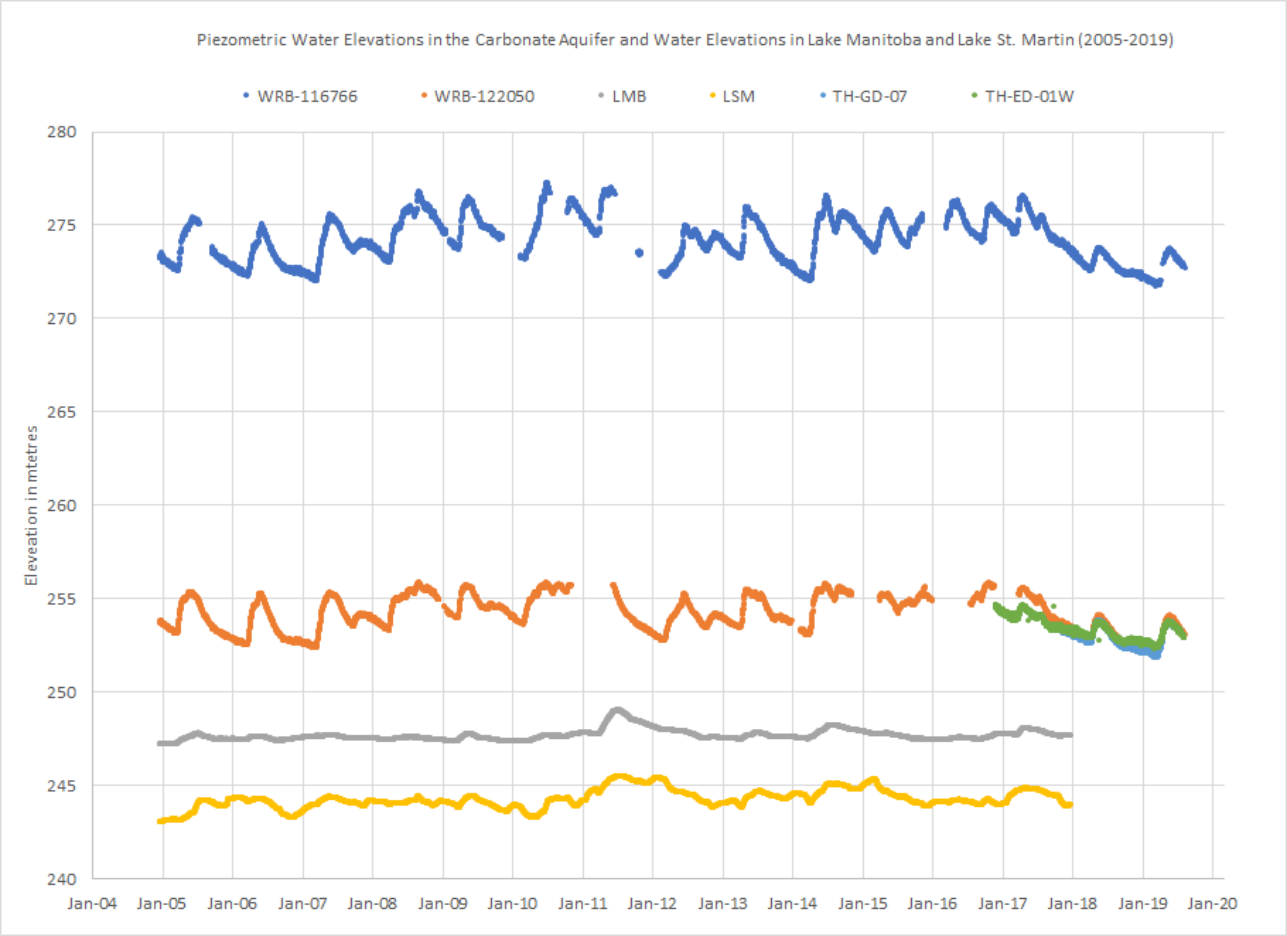


Figure 3-2 Piezometric Water Elevation at Groundwater Wells, Lake St. Martin, and Lake Manitoba

4.0 RESULTS

The following sections present the water quality and water level data for sites in the LMOC area. Watercourses and lakes in the vicinity of the LMOC that are expected to be affected by the proposed Project were listed in Table 3-1. Groundwater quality monitoring sites were listed in Table 3-2 and groundwater level monitoring sites were listed in Table 3-2 and Table 3-3. Surface water and groundwater quality data are presented in Table B-1 and B-2 in Appendix B, respectively. Water level results are presented in Section 4.2.2.

4.1 SURFACE WATER

4.1.1 Quality

Surface water samples collected from the LMOC area in 2019 yielded results that exceeded CWQG-FAL and/or MSOG-FAL guidelines for 13 parameters: dissolved oxygen, pH, chloride, fluoride, total and dissolved phosphorus, total and dissolved aluminum, dissolved zinc, total arsenic, total copper, total iron, and total uranium. Guideline exceedances are summarized Table 4-1 and a complete list of surface water quality results is provided in Table B-1, Appendix B.

Parameters with the largest number of exceedances at the most sites include fluoride (30 exceedances at 10 sites), total phosphorus (18 exceedances at 9 sites), chloride (10 exceedances at three sites), and total aluminum (nine exceedances at four sites).

Table 4-1 2019 Surface Water Quality Data Guideline Exceedances

Parameter	Guideline		Sites where Exceedances are Present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Dissolved Oxygen	CWQG-FAL	>5.5/6/6.5/9.5[VAR-D]	D2, D3, D10, D12	4	12%	0.51[†]	D3[†]	22-Aug-19[†]
pH (pH units)	CWQG-FAL MSOG-FAL	6.5-9 6.5-9.9[BD]	D4, D10	3	9%	9.75	D10	20-Jun-19
Chloride	CWQG-FAL	120[B]	D1, D9, D10	10	29%	199	D1	22-Aug-19
Fluoride	CWQG-FAL	0.12[B]	D1, D2, D3, D4, D6, D8, D9, D10, D11, D12	30	88%	0.43	D10	22-Aug-19
Total phosphorus	MSOG-FAL	0.025[C]	D2, D3, D4, D6, D8, D9, D10, D11, D12	18	53%	0.423	D04	9-Oct-19
Dissolved phosphorus	MSOG-FAL	0.025[C]	D2, D8, D10	5	15%	0.0833	D10	22-Aug-19
Dissolved aluminum	MSOG-FAL	Varies with pH	D4, D8	2	6%	0.0352	D8	21-Aug-19
Dissolved zinc	CWQG-FAL	Varies with hardness	D4, D8, D9	3	9%	0.0567	D4	9-Oct-19
Total aluminum	CWQG-FAL MSOG-FAL	Varies with pH	D4, D8, D9, D10	9	26%	3.06	D4	22-Aug-19
Total arsenic	CWQG-FAL	0.005[B]	D10	1	3%	0.0113	D10	22-Aug-19

Results

Table 4-1 2019 Surface Water Quality Data Guideline Exceedances

Parameter	Guideline		Sites where Exceedances are Present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Total copper	CWQG-FAL	Varies with hardness	D4	1	3%	0.0045	D4	22-Aug-19
Total iron	CWQG-FAL MSOG-FAL	0.3[B] 0.3[D]	D4, D10	3	9%	2.99	D4	22-Aug-19
Total uranium	CWQG-FAL MSOG-FAL	0.033[A]/0.015[B] 0.033/0.015[D]	D10	1	3%	0.0163	D10	9-Oct-19

Notes:

Results are in mg/L unless otherwise specified in the parameter column.

Percent Exceedances: percent of total collected samples with guideline exceedances.

[†] Dissolved Oxygen values listed are the minimum value since it is the value farthest from the acceptable guidelines.

[VAR] Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6 mg/L; for warm water biota: other life stages = 5.5 mg/L; for cold water biota: early life stages = 9.5 mg/L; for cold water biota: other life stages = 6.5 mg/L

[A] CWQG-FAL Freshwater Aquatics Short Term

[B] CWQG-FAL Freshwater Aquatics Long Term

[C] MSOG-FAL Tier I - Water Quality Guidelines - Freshwater Aquatic Life

[D] MSOG-FAL Tier III - Water Quality Guidelines - Freshwater Aquatic Life

4.1.2 Depth

When possible, surface water depth was recorded at the water quality sampling location at all sites in June 2019 (Table 4-2). For subsequent monitoring campaigns in August and October 2019, water depth was solely recorded at sites D1 and D9. In June 2019, water depth was measured at several locations at sites D3, D4, and D10 to gain detailed depth information on the small inland lakes in the LMOC area (Table 4-3).

Table 4-2 2019 Surface Water Depth Measurements at Sampling Locations

Site ID	Waterbody	Water Depth (m)		
		June	August	October
D1	Lake Manitoba	2.0	1.8	2.1
D2	Watchorn Creek	0.5		
D3	Reed Lake	0.65		
D4	Clear Lake	0.74		
D10	Water Lake	0.4		
D11	Unnamed lake inlet			
D12	Goodison Lake outlet	0.5		
D6	Birch Creek	0.5		
D8	Birch Creek	0.5		
D9	Lake St. Martin	3.5	0.9*	3.8

Cells shaded grey indicate that no measurement recorded
*site could not be reached due to wave activity; water depth was measured ~50m from shore

Table 4-3 2019 Surface Water Depth Measurements at D3, D4, and D10

Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Water Depth (m)
		Easting (m)	Northing (m)	
D3	Reed Lake	532449	5686903	0.75
		532616	5686843	0.73
		532667	5686863	0.64
		532695	5686863	0.57
D4	Clear Lake	531157	5689937	0.57
		531149	5689971	0.61
		531111	5690007	0.54
		531100	5690054	0.7
		531107	5690106	0.73
		531109	5690244	0.9

Table 4-3 2019 Surface Water Depth Measurements at D3, D4, and D10

Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Water Depth (m)
		Easting (m)	Northing (m)	
		531140	5690190	0.77
		531183	5690070	0.85
		531208	5689988	0.74
		531215	5689935	0.74
		531171	5689907	0.54
		531150	5689897	0.4
		531141	5689888	0.15
D10	Water Lake	531318	5692230	0.2
		531291	5692230	0.23
		531225	5692249	0.31
		531206	5692268	0.32

4.2 GROUNDWATER

4.2.1 Quality

Groundwater samples collected from the study area in 2019 yielded results that exceeded referenced CWQG-FAL, MSOG-FAL, and/or CDWQ guidelines for 14 parameters: dissolved oxygen, turbidity, fluoride, total phosphorus, total dissolved solids, e-coli, total coliforms, toluene, dissolved manganese, dissolved zinc, total aluminum, total copper, total iron, and total manganese. Guideline exceedances are summarized in Table 4-4 and complete list of groundwater quality results is provided in Table B-2, Appendix B.

Parameters with the largest number of exceedances at the most sites include fluoride (23 exceedances at 13 sites), turbidity (20 exceedances at 13 sites), dissolved oxygen (17 exceedances at 12 sites), and total coliforms (12 exceedances at 9 sites).

Results

Table 4-4 2019 Groundwater Quality Data Guideline Exceedances

Parameter	Guideline		Sites where exceedances are present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Dissolved Oxygen	CWQG-FAL	>5.5/6/6.5/9.5[VAR-B]	BH19-12, BH19-29, CH19-08, CH19-37, OW19-05, OW19-16, OW19-18, OW19-23, OW19-40, PW19-17, PW19-06, PW19-22	17	68%	0.98†	OW19-18†	7-Oct-19†
Turbidity, Field (NTU)	CDWQ	≤0.3/1.0/0.1[G]	BH19-12, BH19-29, CH19-08, CH19-37, OW19-05, OW19-16, OW19-18, OW19-23, OW19-40, PW19-17, CH19-11, PW19-06, PW19-22	20	80%	166.67	CH19-08	7-Oct-19
Fluoride	CWQG-FAL	0.12[B]	BH19-12, BH19-29, CH19-08, CH19-37, OW19-05, OW19-16, OW19-18, OW19-23, OW19-40, PW19-17, CH19-11, PW19-06, PW19-22	23	92%	0.855	BH19-29	20-Aug-19
Total phosphorus	MSOG-FAL	0.025[C]	CH19-08, OW19-05, PW19-06	5	25%	0.191	CH19-08	7-Oct-19
Total Dissolved Solids	CDWQ	≤500[E]	CH19-08	3	12%	561	CH19-08	7-Oct-19
E-Coli (mpn/100mL)	CDWQ	0[G]	OW19-23	1	5%	2	OW19-23	8-Oct-19
Total Coliforms (mpn/100mL)	CDWQ	0[G]	BH19-12, BH19-29, CH19-08, CH19-37, OW19-05, OW19-16, OW19-18, OW19-23, OW19-40	12	60%	196	OW19-16	19-Aug-19
Toluene	CWQG-FAL	0.002[B]	OW19-05	1	5%	0.0098	OW19-05	19-Aug-19
Dissolved manganese	CDWQ	≤0.05[E]	OW19-05	1	5%	0.0546	OW19-05	19-Aug-19

Results

Table 4-4 2019 Groundwater Quality Data Guideline Exceedances

Parameter	Guideline		Sites where exceedances are present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Dissolved zinc	CWQG-FAL	Varies with hardness	CH19-37, OW19-18, OW19-23, PW19-17, PW19-06, PW19-22	6	30%	0.128	OW19-18	7-Oct-19
Total aluminum	CWQG-FAL MSOG-FAL CDWQ	Varies with pH	CH19-08, OW19-05, PW19-06, PW19-22	7	35%	2.15	CH19-08	19-Aug-19
Total copper	CWQG-FAL CDWQ	Varies with hardness	BH19-29, CH19-08, CH19-37, OW19-40	5	25%	0.0310	CH19-37	8-Oct-19
Total iron	CWQG-FAL MSOG-FAL CDWQ	0.3[B/D/E]	CH19-08, OW19-05	5	25%	3.11	CH19-08	19-Aug-19
Total manganese	CWQG-FAL CDWQ	≤0.05[E]	CH19-08, OW19-05	3	15%	0.125	CH19-08	7-Oct-19

Notes:

Results are in mg/L unless otherwise specified in the parameter column.

Percent Exceedances: percent of total collected samples with guideline exceedances.

[†] Dissolved Oxygen values listed are the minimum value since it is the value farthest from the acceptable guidelines.

[VAR] Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6 mg/L; for warm water biota: other life stages = 5.5 mg/L; for cold water biota: early life stages = 9.5 mg/L; for cold water biota: other life stages = 6.5 mg/L

[A] CWQG-FAL Freshwater Aquatics Short Term

[B] CWQG-FAL Freshwater Aquatics Long Term

[C] MSOG-FAL Tier I - Water Quality Guidelines - Freshwater Aquatic Life

[D] MSOG-FAL Tier III - Water Quality Guidelines - Freshwater Aquatic Life

[E] CDWQ Aesthetic Objectives/ Operational Guidelines

[F] CDWQ Maximum Acceptable Concentration

[G] CDWQ Microbial Parameters

4.2.2 Level

The manual short-term groundwater level readings from groundwater wells are included in Table 4-5. The groundwater levels were plotted previously (Figure 3-2) for the long-term project monitoring wells and the provincial wells.

Table 4-5 Groundwater Elevations at Newly Drilled Wells

Pump Well ID	Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Groundwater (mbToC)*	Extensions (m)	GW Elevation (masl)	Date Monitored
		Easting (m)	Northing (m)					
PW19-06		5696645	531018	250.47	0.54	2.41	252.342	June-2019
	OW19-05	5696655	531019	250.47	0.35	3.5	253.622	June-2019
	OW19-07	5696695	531010	250.74	0.82	3.64	253.563	June-2019
PW19-17		5701488	532294	248.88	0.98	3.37	251.266	June-2019
	OW19-16	5701488	532344	248.79	0.29	3.6	252.095	June-2019
	OW19-18	5701488	532304	248.92	0.21	3.25	252.384	June-2019
PW19-22		5688122	530695	248.51	0.24	4.16	252.434	June-2019
	OW19-23	5688132	530695	248.70	1.56	4.16	251.301	June-2019
	OW19-24	5688174	530694	249.17	0.57	4.16	252.761	June-2019
PW19-39		530823	5683152	247.81	0.41	2.74	250.961	Oct-2019
	OW19-40	530823	5683152	247.91	0.23	2.74	250.419	Oct-2019
	OW19-41	530823	5683152	247.84	0.02	2.74	250.564	Oct-2019

Cells shaded grey indicate that no well ID was assigned.
*mbToC: metres below top of the casing

The recorded piezometric levels are generally higher around monitoring wells near the middle of the LMOC (PW19-06, WRB-122050, TH-ED-01W and TH-GD-07) compared to more northern and southern wells. Appendix A- Map 4-1 shows groundwater elevation at each of the monitored locations.

Summary tables of groundwater level measurements from manual and continuous vibrating wire transducer readings are provided in Tables D-1 to D-3 in Appendix D. A summary of groundwater level measurements from standpipe sites is provided in Table D-4 in Appendix D.

5.0 FUTURE MONITORING

5.1 2020 FIELD PROGRAM

Water quality and water level monitoring will continue in the study area in 2020. Field programs will include collection of surface water samples, groundwater samples, and water level measurements from sites three times (May, July, September/October) during the open water season. Planned surface water sampling sites are listed in Table 5-1 and planned groundwater sampling sites are listed in Table 5-2.

Table 5-1 Planned 2020 Surface Water Quality Sites

Watershed	Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Purpose
			Easting (m)	Northing (m)	
Lake Manitoba	D1	Lake Manitoba	529999	5680739	Surface water quality sample, lake depth
Watchorn Creek	D2	Watchorn Creek	531563	5683591	Surface water quality sample
Birch Creek	D3	Reed Lake	532496	5686856	Surface water quality sample
Birch Creek	D4	Clear Lake	531214	5689935	Surface water quality sample
Birch Creek	D10	Water Lake	531272	5692230	Surface water quality sample
Birch Creek	D11	Unnamed lake inlet	531317	5693397	Surface water quality sample
Birch Creek	D12	Goodison Lake outlet	531741	5697313	Surface water quality sample
Birch Creek	D6	Birch Creek	532477	5698322	Surface water quality sample
Birch Creek	D8	Birch Creek	533226	5702311	Surface water quality sample
Lake St. Martin	D9	Lake St. Martin	533392	5706318	Surface water quality sample, lake depth

Table 5-2 Planned 2020 Groundwater Quality and Level Sites

Site ID	Previous Side ID	Coordinates (UTM Zone 14 U)		Purpose
		Easting (m)	Northing (m)	
Groundwater Quality Monitoring Sites				
OW19-40	TH18-49	530823	5683152	Groundwater quality sample
CH19-37	TH18-50	530879	5686139	Groundwater quality sample
OW19-23	TH18-37	530694	5688133	Groundwater quality sample
BH19-29	TH18-27	530338	5693405	Groundwater quality sample
OW19-05	TH18-22	531018	5696656	Groundwater quality sample
BH19-12		532052	5699190	Groundwater quality sample
OW19-18	TH18-10	532305	5701490	Groundwater quality sample
CH19-08	TH18-03	533152	5703020	Groundwater quality sample
Groundwater Level Monitoring Sites				
PW19-39	TH18-48	530823	5683152	Water level data
PW19-22	TH18-36	530695	5688126	Water level data
PW19-06	TH18-21	531017	5696646	Water level data
PW19-17	TH18-09	532295	5701490	Water level data; pressure data
TH-ED-01W		529670	5693404	Water level data
15-RD-PW1		531900	5699454	Water level data

6.0 REFERENCES

British Columbia Ministry of Environment (BC MOE). 2013. B.C. Field Sampling Manual. Accessed October 2019 at https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_complete.pdf

CCME. 2011. Protocols Manual for Water Quality Sampling in Canada. PN 1461, ISBN 978-1-896997- 7-0 Pdf.

CCME. 2020. Canadian water quality guidelines for the protection of aquatic life: Summary Table. Accessed January 2020 at http://st-ts.ccme.ca/en/index.html

Health Canada (2019). Guidelines for Canadian Drinking Water Quality—Summary Table. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. Accessed December 2019 at https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

Manitoba Water Stewardship (MWS). 2011. Manitoba Water Quality Standards, Objectives, and Guidelines. Manitoba Water Stewardship Report 2011-01. Prepared by Water Science and Management Branch, Manitoba Water Stewardship, November 28, 2011.

KGS Group Consulting Engineers. 2017a. Investigations and preliminary engineer for LMB Outlet Channels Options C and D. Final – Rev 0. KGS Group 16-0300 006. May 2017.

KGS Group Consulting Engineers. 2017b. Investigations and Preliminary Engineering for LMB Channels Options C and D Deliverable D2, Annual Monitoring Report to July 1, 2017. Final Rev 0, Prepared by KGS Group.

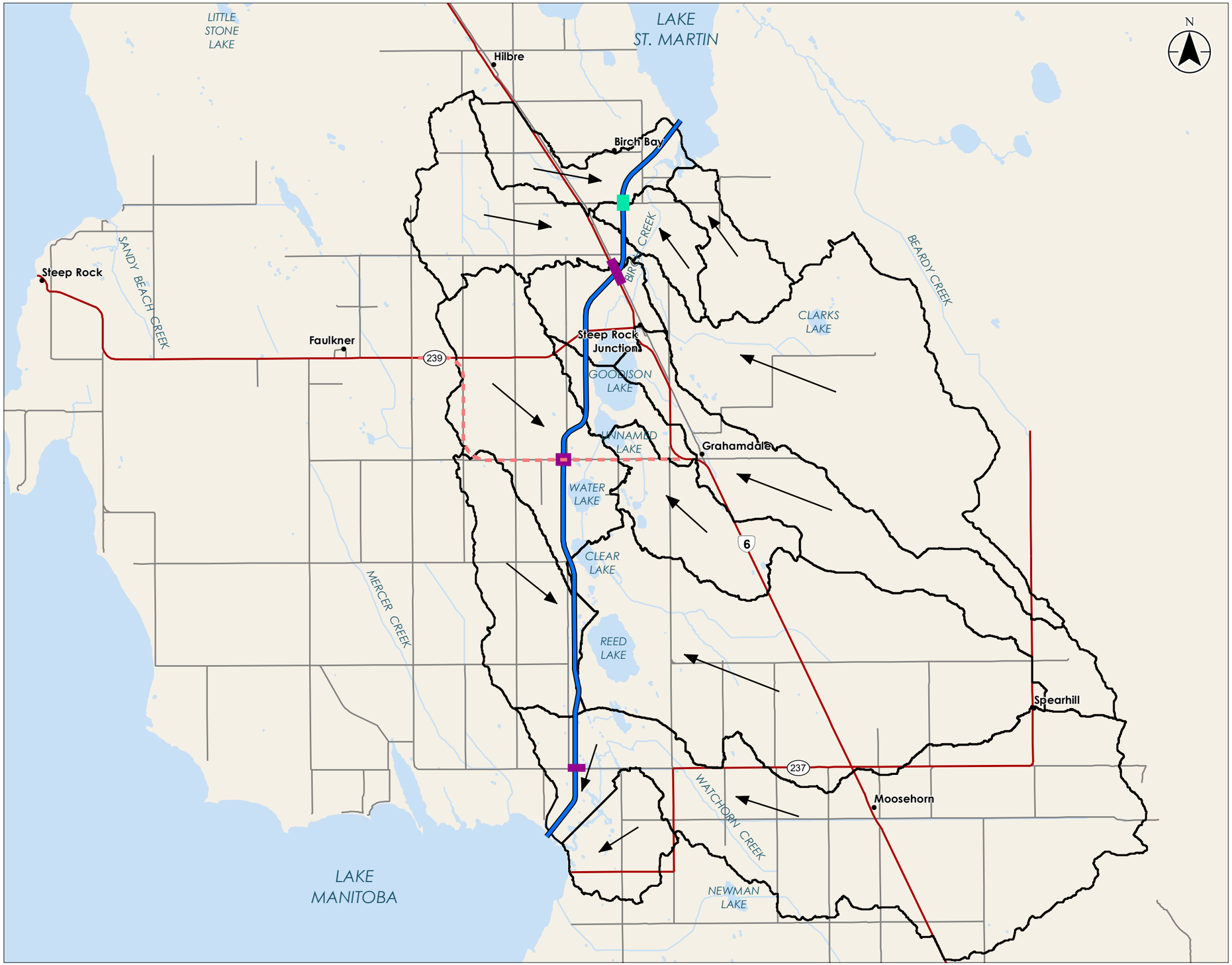
KGS Group Consulting Engineers. 2018. Investigations and Preliminary Engineering for Lake Manitoba Outlet Channels Options C and D Deliverable D3, Annual Monitoring Report to July 01, 2018. KGS Group Project 16-0300-006. Final - Rev 0. August 2018.

Manitoba Infrastructure. 2019. Lake Manitoba and Lake St. Martin Outlet Channels Impacts on Lake Manitoba and Lake St. Martin. Technical Memorandum. Prepared by Manitoba Infrastructure Hydrologic Operations Section. Dated June 14, 2019.

GWDrill (2018). Groundwater Management. Province of Manitoba.

APPENDICES

Appendix A MAPS



Stantec

Project Infrastructure

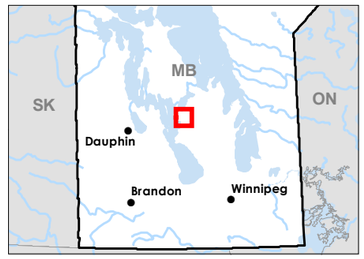
- Proposed Lake Manitoba Outlet Channel
- Proposed PR 239 Realignment
- Fairford Water Control Structure
- Proposed Bridge
- Proposed Water Control Structure

Study Area

- Surface Water Flow Direction
- Subwatershed

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody



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Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by ACampigotto on 2019-12-20
Technical Review by TStainton on 2019-12-20

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
1 - 1

Title
Project Area

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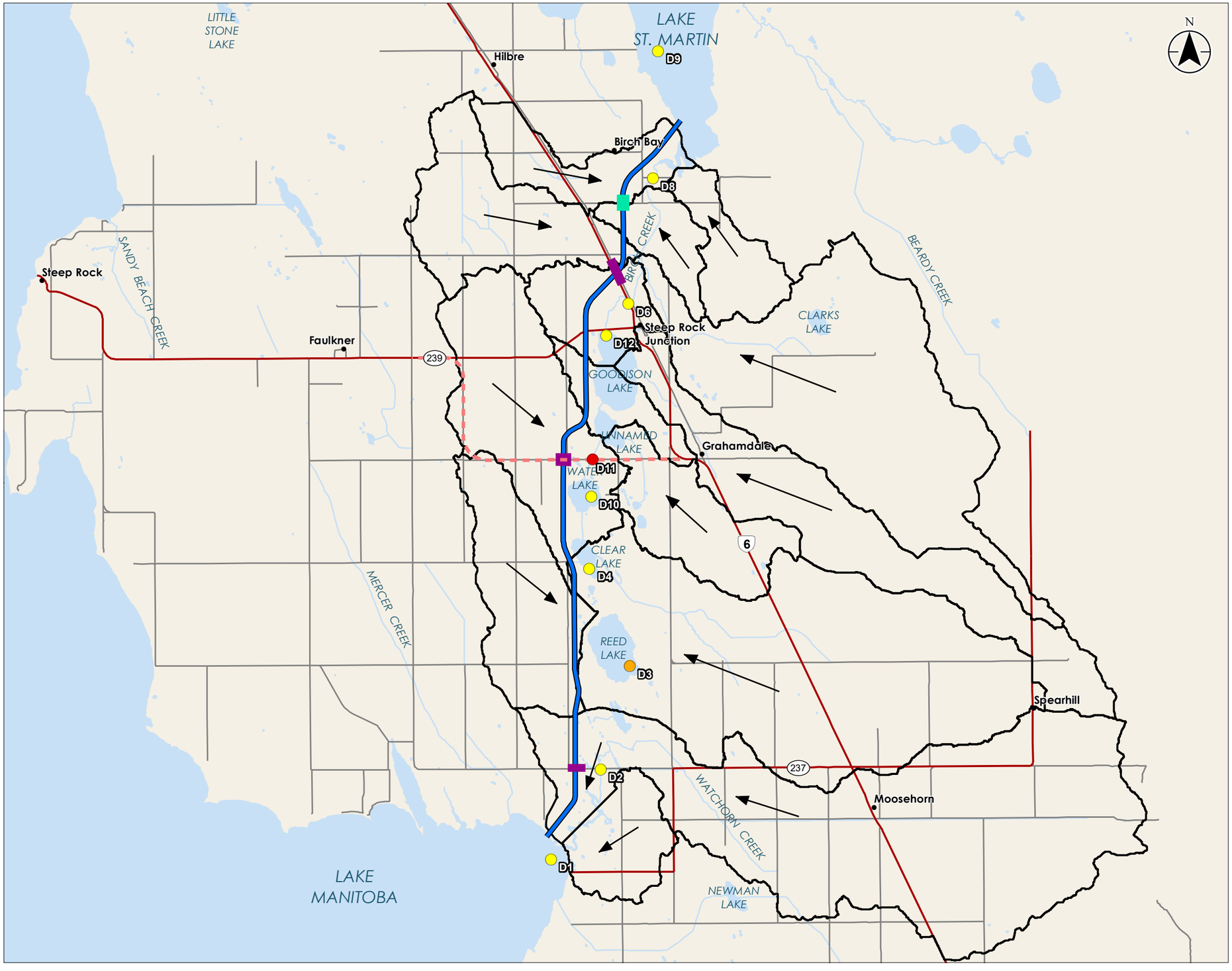

Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Proposed PR 239 Realignment
- Fairford Water Control Structure
- Proposed Bridge
- Proposed Water Control Structure

Surface Water Quality Site (Stantec)

Frequency of Sampling

- October 2019
- June and August 2019
- June, August, and October 2019

Study Area

- Surface Water Flow Direction
- Subwatershed

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody

0 2.5 5 Kilometres

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Notes

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Project Location
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111475107

Prepared by ACampigotto on 2019-12-20
Technical Review by TStainton on 2019-12-20

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-1

Title
Surface Water Quality Sample Sites

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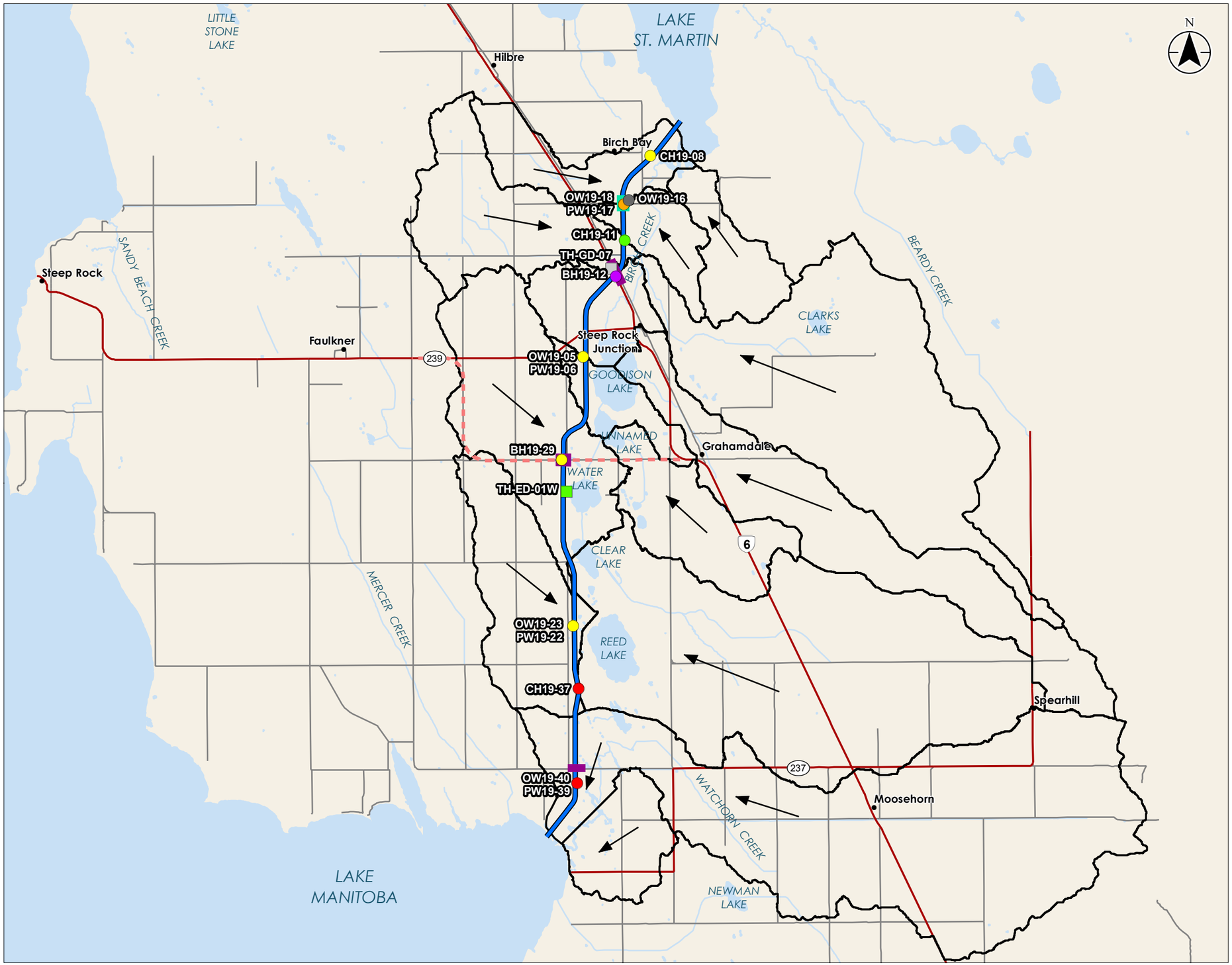

Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Proposed PR 239 Realignment
- Fairford Water Control Structure
- Proposed Bridge
- Proposed Water Control Structure

Groundwater Quality Site (Stantec)

Frequency of Sampling

- June 2019
- August 2019
- October 2019
- June and October 2019
- August and October 2019
- June, August and October 2019

Groundwater Quality Site (KGS)

Frequency of Sampling

- August 2019
- June and August 2019

Study Area

- Surface Water Flow Direction
- Subwatershed

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody

0 2.5 5 Kilometres

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Notes

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Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by ACampigotto on 2020-01-17
Technical Review by TStainton on 2020-01-17

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-2

Title
Groundwater Quality Sample Sites

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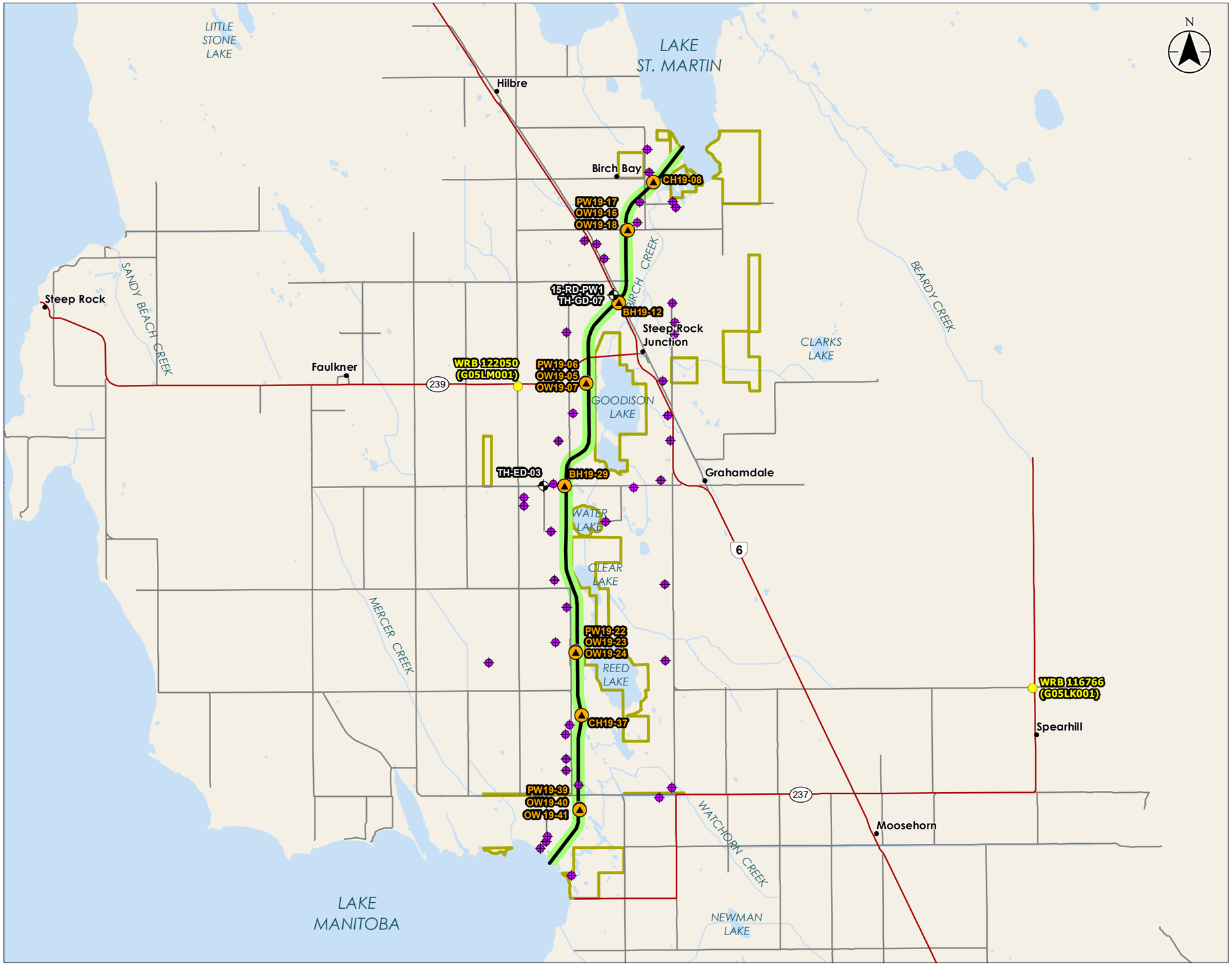

Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Channel RoW

Survey Locations

- Groundwater Monitoring Site / Observation Well (Stantec)
- Groundwater Monitoring Well (KGS)
- Known Domestic Well
- Provincial Well

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody
- Crown Land

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

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2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

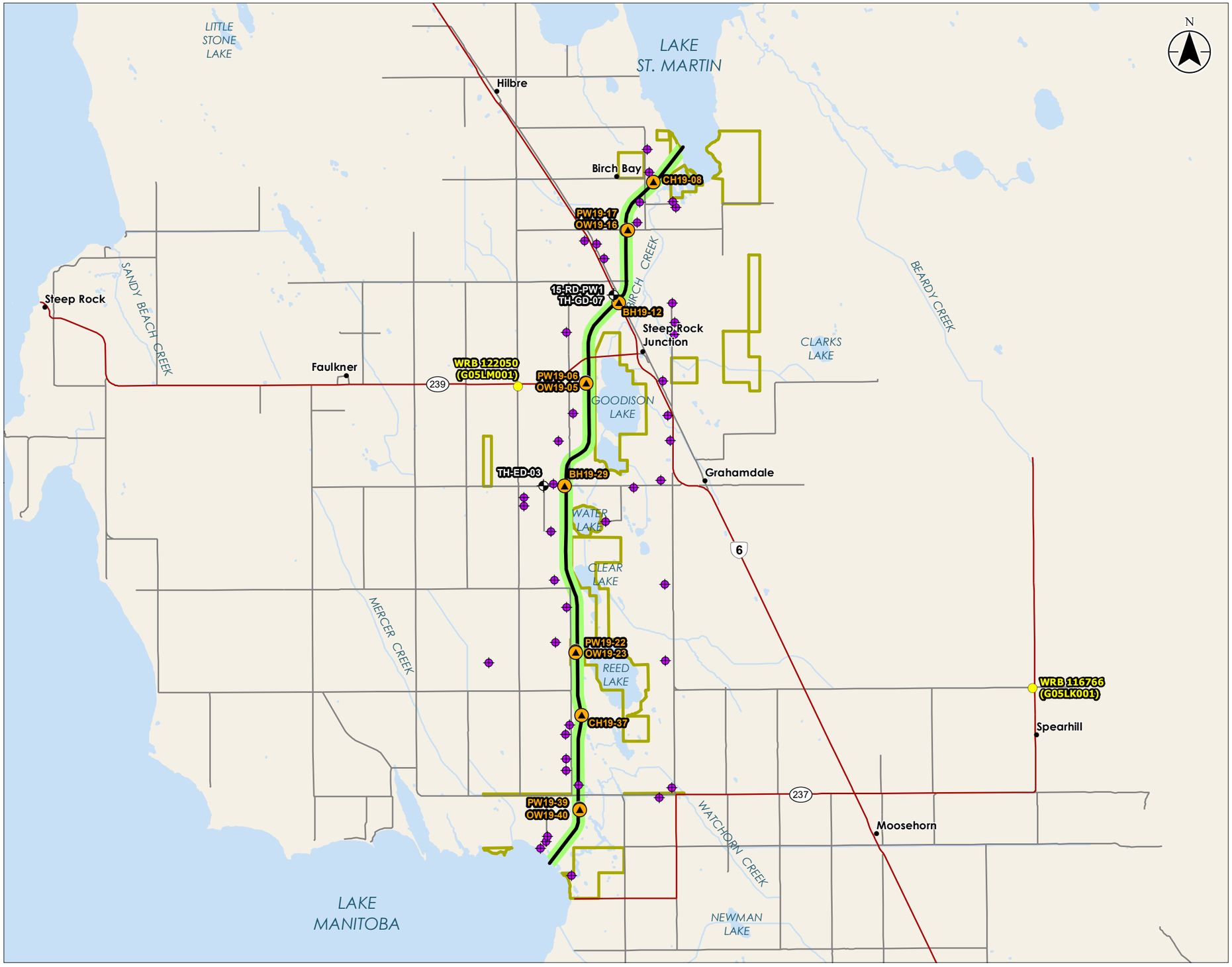
111475107

Prepared by ACampigotto on 2020-03-02
Technical Review by NFiroozy on 2020-03-02

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-3

Title
Groundwater Level Monitoring and Sampling Locations



Stantec

Project Infrastructure

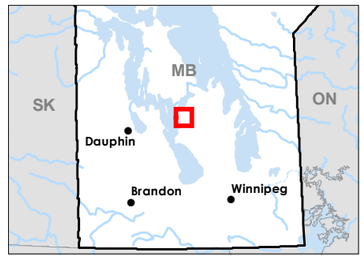
- Proposed Lake Manitoba Outlet Channel
- Channel RoW

Survey Locations

- Groundwater Monitoring Site / Observation Well (Stantec)
- Groundwater Monitoring Well (KGS)
- Known Domestic Well
- Provincial Well

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody
- Crown Land



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Notes

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2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

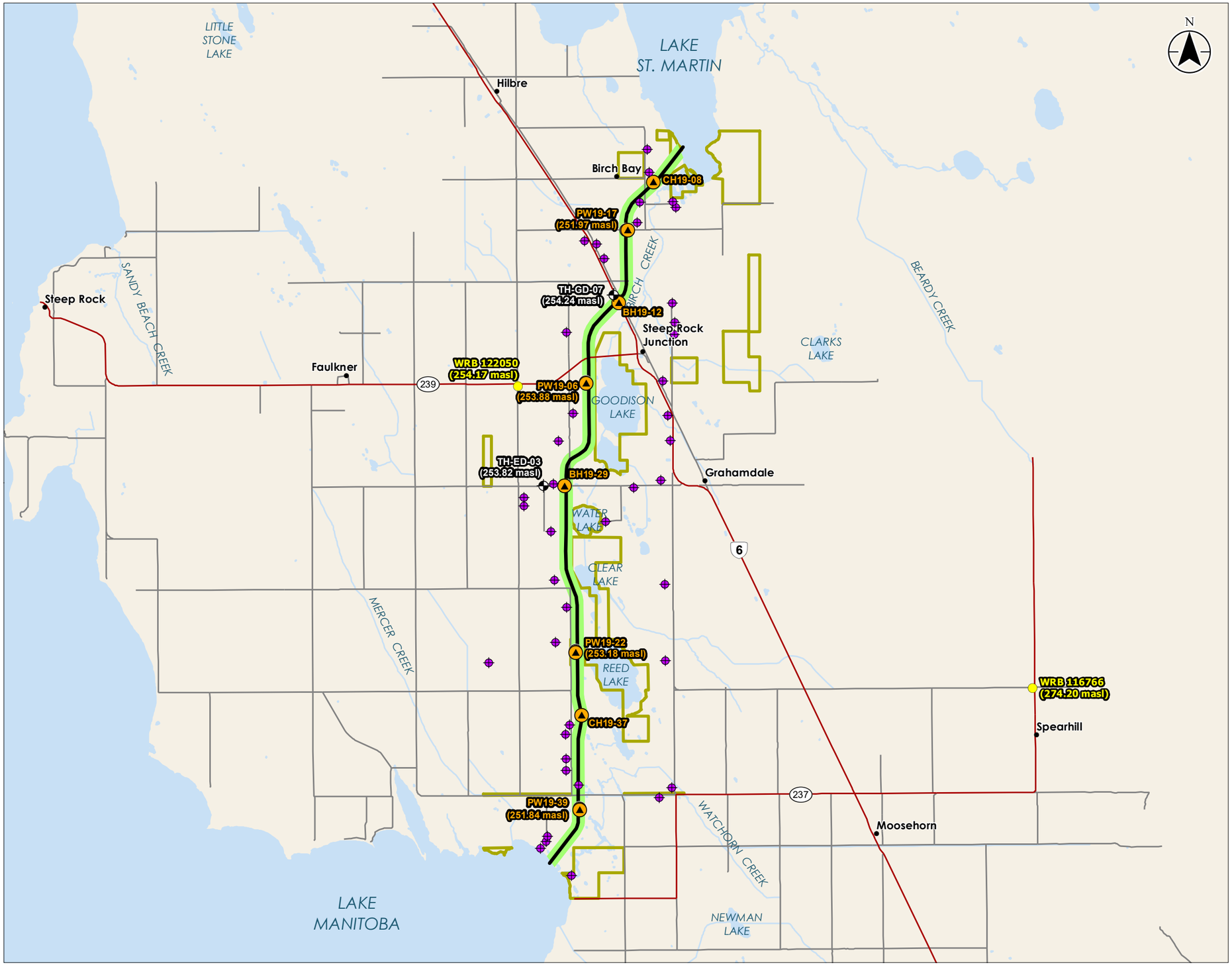
111475107

Prepared by ACampigotto on 2020-03-02
Technical Review by NFiroozy on 2020-03-02

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-4

Title
Long Term Monitoring and Sampling Locations



Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Channel RoW

Survey Locations

- Groundwater Monitoring Site / Observation Well (Stantec)
- Groundwater Monitoring Well (KGS)
- Known Domestic Well
- Provincial Well

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Waterbody
- Crown Land

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

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Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by ACampigotto on 2020-03-02
Technical Review by NFiroozy on 2020-03-02

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
4-1

Title
Groundwater Levels at Long Term Monitoring wells

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Appendix B TABLES

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1			D2			D3		D4			D6			D8		
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	20-Jun-19	22-Aug-19	20-Jun-19	22-Aug-19	9-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	21-Aug-19	7-Oct-19
Sample ID				D1	D1	D1	D2	D2	D2	D3	D3	D4	D4	D4	D6	D6	D6	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2296166-5	L2334482-6	L2362912-11	L2296166-7	L2334482-5	L2296166-8	L2334482-7	L2362912-18	L2296166-3	L2334482-10	L2362912-7	L2296166-2	L2334482-2	L2362912-3
Sample Type	Units	CWQG-FAL	MSOG-FAL																	
Field Parameters																				
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	8.27	8.57	11.72	8.31	**4.74**[B]	7.19	8.62	**0.51**[B]	9.18	7.92	8.34	8	7.64	7.04	6.89	9.32	13.36
Electrical Conductivity, Field	µS/cm	n/v	n/v	974	959	843	967	1,104	728	619	818	679	598	664	984	1,142	815	809	856	639.9
Nitrite, Field	mg/L	n/v	n/v	0.03	0.00	0.02	0.03	0.04	0.01	0.04	0.07	0.03	NM	0.03	0.03	0.01	0.00	0.01	0.04	4.35
Oxidation Reduction Potential, field	mV	n/v	n/v	79.2	36	46.2	-123.1	-165	-156.5	-48.2	-228.1	-27.2	8.9	-14.7	144.9	-101.3	42.3	188.8	-69.6	54.5
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	8.49	8.63	8.42	8.54	8.67	7.75	8.7	8.66	8.62	**9.09**[BD]	7.69	8.38	8.31	7.83	8.46	**9.02**[BD]	8.24
Pressure	kPa	n/v	n/v	100.98	102.16	100.13	100.97	102.11	100.24	100.94	102.12	100.94	102.07	101.72	101.05	101.9	99.9	101.12	103.2	100.95
Temperature, Field	deg C	n/v	n/v	20.1	17.2	8.7	20.6	14.6	9.2	22.3	15.1	23.4	22.5	6.1	21.6	19.8	7.8	18.3	16.9	11.1
Turbidity, Field	NTU	n/v	n/v	4.49	5.22	13.87	2.83	0.43	2.48	1.65	2.73	3.36	68.00	13.93	0.13	0.00	1.48	2.82	1.65	73.93
General Chemistry																				
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	207	210	199	440	414	343	326	514	341	274	379	507	524	247	391	388	288
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	4.32	6.16	2.16	20.3	27.8	1.56	19.6	33.2	21.0	6.91	<0.60	13.7	30.8	<0.60	34.7	52.1	4.32
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	177	182	167	395	386	284	300	477	314	236	310	438	481	202	379	404	243
Ammonia (as N)	mg/L	$_{TBC2}$[B]	$_{TBC1}$[D]	<0.010	0.031	0.067	0.045	0.051	0.090	0.035	0.421	0.023	0.180	0.330	0.029	0.076	0.022	0.027	0.092	0.021
Chloride	mg/L	640[A] 120[B]	n/v	**182**[B]	**199**[B]	**192**[B]	57.3	97.1	46.0	6.95	11.4	13.7	19.5	20.7	16.6	35.2	25.8	10.9	25.0	28.8
Fluoride	mg/L	0.12[B]	n/v	**0.136**[B]	**0.144**[B]	**0.137**[B]	**0.225**[B]	**0.314**[B]	**0.211**[B]	**0.154**[B]	**0.179**[B]	**0.285**[B]	**0.292**[B]	**0.230**[B]	**0.338**[B]	**0.399**[B]	**0.193**[B]	**0.325**[B]	**0.359**[B]	**0.167**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	222	234	227	519	606	386	358	570	386	365	442	607	745	545	494	613	417
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	<0.020	<0.040 DM	<0.020	<0.020	0.053	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	0.329
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.020 DM	<0.010	<0.010	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	0.84	1.04	-	2.04	2.85	-	2.37	5.43	1.61	3.34	-	2.42	3.52	-	2.05	3.99	-
Phosphorus, Total	mg/L	n/v	0.025[C]	0.0148	0.0169	0.0235	**0.0903**[C]	**0.0384**[C]	**0.0557**[C]	**0.0259**[C]	**0.0522**[C]	**0.0277**[C]	**0.108**[C]	**0.423**[C]	0.0217	**0.0257**[C]	0.0150	**0.0275**[C]	**0.0736**[C]	0.0203
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	0.0073	0.0042	0.0077	**0.0362**[C]	**0.0258**[C]	**0.0456**[C]	0.0152	0.0216	0.0207	0.0163	0.0217	0.0160	0.0168	0.0093	0.0209	**0.0513**[C]	0.0092
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0075	0.0127	0.0158	0.0541	0.0125	0.0102	0.0107	0.0306	0.0070	0.0917	0.402	0.0056	0.0089	0.0057	0.0066	0.0223	0.0111
Sulfate	mg/L	n/v	n/v	73.0	72.8	71.0	143	222	79.4	79.5	138	92.7	141	148	196	295	324	136	191	170
Total Dissolved Solids	mg/L	n/v	n/v	595	618	598	679	844	480	419	718	474	581	595	749	942	610	610	718	554
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	0.84	1.04	1.05	2.04	2.85	1.14	2.37	5.43	1.61	3.34	9.93	2.42	3.52	1.18	2.05	3.99	1.12
Total Suspended Solids	mg/L	$_{SN}$[B]	n/v	4.8	8.4	9.6	25.7	2.8	<2.0	3.7	9.5	21.9	83.7	1,280	4.7	6.9	2.5	5.9	2.9	7.6
Microbiological Parameters																				
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	<1	52 ZH	4	-	461	42	34	12	5	727	2,420	-	54	186 ZH	-	3 ZH	313 ZH
Total Coliforms	mpn/100mL	n/v	n/v	40	326 ZH	59	-	1,300	>2420	387	326	27	727	>2420	-	>2420	>2420 ZH	-	488 ZH	>2420 ZH
BTEX and Petroleum Hydrocarbons																				
Benzene	mg/L	0.37[B]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050 OWP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050 OWP	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.00050
Ethylbenzene	mg/L	0.09[B]	0.09[D]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050 OWP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040 OWP	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030 OWP	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00030
Xylenes, Total	mg/L	n/v	n/v	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00050
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025 OWP	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.38	<0.38	<0.37	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.37	<0.38	<0.38	<0.37
Chromatogram to baseline at C50	none	n/v	n/v	-	-	YES	-	-	YES	-	-	-	-	YES	-	-	YES	-	-	YES

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1			D2			D3		D4			D6			D8		
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	20-Jun-19	22-Aug-19	20-Jun-19	22-Aug-19	9-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	21-Aug-19	7-Oct-19
Sample ID				D1	D1	D1	D2	D2	D2	D3	D3	D4	D4	D4	D6	D6	D6	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2296166-5	L2334482-6	L2362912-11	L2296166-7	L2334482-5	L2296166-8	L2334482-7	L2362912-18	L2296166-3	L2334482-10	L2362912-7	L2296166-2	L2334482-2	L2362912-3
Sample Type	Units	CWQG-FAL	MSOG-FAL																	
Metals, Dissolved																				
Aluminum	mg/L	n/v	0.005/0.1$_{VAR1}$[D]	0.0119	0.0016	0.0026	0.0027	0.0023	0.0030	0.0029	0.0026	0.0041	**0.0062**[D]	0.0092	0.0025	0.0030	0.0021	0.0049	**0.0352**[D]	0.0186
Antimony	mg/L	n/v	n/v	0.00014	0.00015	0.00014	0.00013	0.00014	0.00011	<0.00010	0.00016	0.00013	0.00021	0.00015	0.00014	0.00015	0.00022	0.00014	0.00016	<0.00010
Arsenic	mg/L	n/v	0.15/0.34$_{s2}$[D]	0.00185	0.00177	0.00176	0.00176	0.00214	0.00115	0.00137	0.00241	0.00139	0.00321	0.00143	0.00191	0.00237	0.00112	0.00221	0.00346	0.00094
Barium	mg/L	n/v	n/v	0.0390	0.0424	0.0379	0.0357	0.0339	0.0407	0.0146	0.0244	0.0360	0.0580	0.0394	0.0556	0.0416	0.0380	0.0346	0.0189	0.0383
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	29/1.5$_{s3}$[D]	0.094	0.072	0.117	0.160	0.110	0.118	0.091	0.044	0.123	0.044	0.076	0.130	0.163	0.104	0.116	0.077	0.097
Cadmium	mg/L	n/v	0.00084/0.011$_{s8}$[D]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000063	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000062
Calcium	mg/L	n/v	n/v	39.4	37.2	39.6	57.8	35.9	64.2	20.2	27.7	47.0	34.9	65.2	77.5	54.2	78.3	55.3	35.3	67.3
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	0.317/2.43$_{s7}$[D]	0.00019	<0.00010	<0.00010	0.00019	0.00011	0.00017	0.00011	<0.00010	0.00015	0.00011	0.00026	0.00020	0.00013	<0.00010	0.00029	0.00022	0.00011
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	0.00019	0.00014	0.00012	<0.00010	0.00015	0.00012	0.00016	0.00014	0.00017	0.00016	0.00011	0.00022	0.00027	0.00010
Copper	mg/L	n/v	0.040/0.07$_{s10}$[D]	0.00090	0.00145	0.00024	0.00181	0.00022	0.00190	0.00036	0.00037	0.00072	0.00194	0.00055	0.00062	0.00084	0.00092	0.00116	0.00052	0.00121
Iron	mg/L	n/v	0.3[D]	<0.010	<0.010	<0.010	0.029	0.032	0.036	0.014	0.013	0.015	0.013	0.220	0.063	0.035	0.020	0.039	0.027	0.039
Lead	mg/L	n/v	0.016/0.416$_{s9}$[D]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000070	<0.000050	0.000088	0.000069	<0.000050	<0.000050	0.000057	0.000050	<0.000050	0.000055
Lithium	mg/L	n/v	n/v	0.0293	0.0199	0.0293	0.0464	0.0416	0.0416	0.0227	0.0242	0.0228	0.0201	0.0354	0.0312	0.0346	0.0268	0.0260	0.0268	0.0184
Magnesium	mg/L	n/v	n/v	29.9	34.3	31.1	91.0	125	54.8	74.7	122	65.2	67.5	67.8	100	148	84.9	86.4	128	60.4
Manganese	mg/L	3.6$_{EO3}$[A] 0.43$_{EO4}$[B]	n/v	0.00135	0.00024	0.00026	0.00461	0.00653	0.00203	0.0276	0.133	0.00255	0.0314	0.0165	0.00977	0.00987	0.00448	0.00555	0.00989	0.00353
Molybdenum	mg/L	n/v	0.073[D]	0.00176	0.00315	0.00210	0.000442	0.00382	0.00148	0.000255	0.000866	0.00105	0.00139	0.00204	0.000654	0.00378	0.00210	0.000695	0.00115 RV	0.00169
Nickel	mg/L	n/v	0.23/2.1$_{s11}$[D]	0.00066	0.00051	0.00051	0.00151	0.00095	0.00133	<0.00050	<0.00050	0.00076	0.00097	0.00068	0.00086	0.00099	0.00059	0.00115	0.00143	0.00090
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	0.030	<0.030	0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.049	<0.030
Potassium	mg/L	n/v	n/v	8.90	8.67	9.08	8.60	9.34	9.91	14.7	18.2	13.6	12.0	13.2	10.0	12.4	12.2	6.39	7.74	6.91
Rubidium	mg/L	n/v	n/v	0.00352	0.00367	0.00393	0.00309	0.00375	0.00350	0.00578	0.00722	0.00529	0.00397	0.00536	0.00394	0.00465	0.00382	0.00279	0.00319	0.00239
Selenium	mg/L	n/v	0.001[D]	0.000094	0.000061	0.000060	0.000184	0.000143	0.000170	0.000081	0.000148	0.000200	0.000203	0.000123	0.000220	0.000258	0.000141	0.000179	0.000265	0.000182
Silicon	mg/L	n/v	n/v	3.79	4.76	4.37	0.094	0.218	7.70	1.27	10.3	0.484	5.58	7.73	2.20	1.77	6.15	2.70	3.71	6.53
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	125	127	135	42.0	61.0	25.1	16.2	24.8	15.6	25.0	21.5	19.0	33.9	19.4	14.5	28.1	20.0
Strontium	mg/L	n/v	n/v	0.234	0.257	0.261	0.212	0.188	0.179	0.0423	0.0637	0.158	0.120	0.196	0.265	0.307	0.241	0.185	0.167	0.174
Sulfur	mg/L	n/v	n/v	28.5	27.2	25.5	57.3	78.1	27.4	32.2	52.0	37.2	50.9	52.7	79.5	94.3	115	55.1	73.2	57.8
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	0.00016	<0.00010	0.00014
Titanium	mg/L	n/v	n/v	<0.00030	<0.00030	<0.00030	0.00039	<0.00030	0.00032	<0.00030	0.00038	<0.00030	0.00081	0.00055	<0.00030	0.00033	<0.00030	0.00058	0.00054	0.00091
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	0.033/0.015$_{s4}$[D]	0.00150	0.00152	0.00164	0.00319	0.00258	0.00639	0.000548	0.00177	0.00262	0.00211	0.00413	0.00319	0.00200	0.00532	0.00272	0.00186	0.00588
Vanadium	mg/L	n/v	n/v	0.00107	0.00126	0.00123	0.00122	0.00053	0.00124	<0.00050	0.00113	0.00081	0.00184	0.00071	0.00056	0.00055	<0.00050	0.00166	0.00162	0.00095
Zinc	mg/L	0.037$_{EQ1}$[A] 0.007$_{EQ2}$[B]	0.530$_{s12}$[D]	0.0032	0.0035	0.0011	0.0062	0.0035	0.0055	0.0024	<0.0010	0.0041	0.0043	**0.0567**[AB]	0.0067	0.0066	0.0027	**0.0085**[B]	0.0037	0.0030
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	0.00036	<0.00020	0.00025	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	0.00024	<0.00020	0.00037	0.00043	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1			D2			D3		D4			D6			D8		
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	20-Jun-19	22-Aug-19	20-Jun-19	22-Aug-19	9-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	21-Aug-19	7-Oct-19
Sample ID				D1	D1	D1	D2	D2	D2	D3	D3	D4	D4	D4	D6	D6	D6	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2362912
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2296166-5	L2334482-6	L2362912-11	L2296166-7	L2334482-5	L2296166-8	L2334482-7	L2362912-18	L2296166-3	L2334482-10	L2362912-7	L2296166-2	L2334482-2	L2362912-3
Sample Type	Units	CWQG-FAL	MSOG-FAL																	
Metals, Total																				
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.0422	0.0243	0.037	0.0322	0.0062	0.0284	0.0097	0.0249	0.0943	**3.06[BD]**	**1.24 DM[BD]**	0.0227	0.0175	0.0505	0.0916	**0.0818[BD]**	**0.109[BD]**
Antimony	mg/L	n/v	n/v	0.00016	0.00014	0.00018	0.00012	0.00014	0.00012	<0.00010	0.00019	0.00012	0.00022	<0.0010 DM	0.00012	0.00012	<0.00010	0.00011	0.00029	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.00202	0.00197	0.00192	0.00180	0.00229	0.00125	0.00139	0.00254	0.00147	0.00343	0.0020 DM	0.00186	0.00245	0.00118	0.00211	0.00376	0.00100
Barium	mg/L	n/v	n/v	0.0382	0.0395	0.0387	0.0357	0.0297	0.0397	0.0140	0.0244	0.0314	0.0754	0.0536 DM	0.0506	0.0363	0.0370	0.0316	0.0145	0.0381
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010 DM	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00050 DM	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{a3}$[D]	0.095	0.085	0.108	0.160	0.137	0.110	0.089	0.050	0.121	0.055	0.19 DM	0.125	0.190	0.108	0.106	0.078	0.090
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.0000062	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000055	0.0000073	0.0000423	<0.000050 DM	0.0000054	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000054
Calcium	mg/L	n/v	n/v	40.4	37.6	37.2	60.4	36.8	57.8	20.9	29.4	49.8	45.4	70.1 DM	79.4	52.7	77.5	55.9	33.7	67.0
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	0.000355	0.00010 DM	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	n/v	0.00051	0.00015	0.00019	0.00055	0.00020	0.00031	0.00046	0.00027	0.00051	0.00655	0.0026 DM	0.00036	0.00027	0.00024	0.00039	0.00068	0.00032
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	0.00023	0.00015	0.00014	<0.00010	0.00021	0.00017	0.00189	<0.0010 DM	0.00018	0.00020	0.00012	0.00026	0.00033	0.00012
Copper	mg/L	0.004*[B]	n/v	0.00066	<0.00050	<0.00050	0.00100	<0.00050	0.00185	0.00083	<0.00050	0.00096	**0.00450[B]**	***<0.0050 DM***	0.00074	0.00096	0.00083	0.00130	0.00081	0.00144
Iron	mg/L	0.3[B]	0.3[D]	0.041	0.026	0.038	0.067	0.025	0.062	0.018	0.033	0.100	**2.99[BD]**	**1.36 DM[BD]**	0.069	0.047	0.072	0.096	0.083	0.112
Lead	mg/L	0.007#[B]	n/v	0.000121	0.000114	0.000152	<0.000050	<0.000050	<0.000050	0.000074	0.000105	0.000088	0.00165	0.00085 DM	<0.000050	<0.000050	<0.000050	0.000055	0.000074	0.000073
Lithium	mg/L	n/v	n/v	0.0315	0.0300	0.0305	0.0490	0.0648	0.0422	0.0242	0.0386	0.0243	0.0355	0.033 DM	0.0328	0.0508	0.0257	0.0269	0.0365	0.0201
Magnesium	mg/L	n/v	n/v	32.3	34.4	33.7	97.3	129	60.8	78.4	120	70.3	64.4	81.5 DM	110	152	81.9	92.5	121	60.3
Manganese	mg/L	n/v	n/v	0.00643	0.00498	0.00557	0.0182	0.00775	0.00260	0.0542	0.150	0.00877	0.102	0.0619 DM	0.0154	0.0124	0.00705	0.00830	0.0199	0.00570
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00191	0.00379	0.00199	0.000485	0.00458	0.00130	0.000291	0.00101	0.00111	0.00149	0.00105 DM	0.000759	0.00389	0.00213	0.000678	0.000777	0.00186
Nickel	mg/L	0.150**[B]	n/v	0.00107	0.00070	0.00063	0.00165	0.00115	0.00138	0.00050	0.00078	0.00106	0.00680	<0.0050 DM	0.00146	0.00126	0.00066	0.00137	0.00186	0.00093
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	0.069	0.063	0.067	<0.030	0.052	0.041	0.128	<0.30 DM	0.034	<0.030	0.036	<0.030	0.104	<0.030
Potassium	mg/L	n/v	n/v	8.00	8.77	8.48	7.64	9.48	9.67	13.2	18.2	11.9	12.0	13.0 DM	9.02	12.9	11.4	5.96	7.62	6.59
Rubidium	mg/L	n/v	n/v	0.00361	0.00388	0.00388	0.00311	0.00376	0.00369	0.00551	0.00728	0.00531	0.0103	0.0071 DM	0.00382	0.00465	0.00388	0.00301	0.00330	0.00264
Selenium	mg/L	0.001[B]	0.001[D]	0.000081	0.000067	0.000122	0.000124	0.000116	0.000197	0.000087	0.000206	0.000173	0.000150	<0.00050 DM	0.000211	0.000207	0.000112	0.000195	0.000259	0.000164
Silicon	mg/L	n/v	n/v	3.66	4.38	4.43	0.20	0.23	7.79	1.21	9.27	0.67	11.0	9.8 DM	2.15	1.87	6.84	2.73	3.24	7.36
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000020	<0.00010 DM	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	127	132	133	43.9	65.2	24.7	16.2	27.0	15.9	25.0	21.8 DM	19.7	38.1	18.9	15.1	28.8	20.1
Strontium	mg/L	n/v	n/v	0.251	0.267	0.263	0.231	0.195	0.181	0.0448	0.0686	0.182	0.143	0.191 DM	0.276	0.288	0.245	0.206	0.174	0.181
Sulfur	mg/L	n/v	n/v	26.9	27.0	25.8	52.1	81.8	28.2	30.7	51.0	34.6	50.5	56.1 DM	73.5	109	123	50.4	66.8	64.3
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020 DM	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000051	<0.00010 DM	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00070	<0.0010 DM	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	0.00019	<0.00010	<0.00010	0.00079	<0.00010	0.00012	0.00060	<0.00010	<0.00010	<0.00010	<0.0010 DM	<0.00010	<0.00010	0.00041	0.00022	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00162	0.00110	0.00148	0.00137	<0.00030	0.00150	0.00034	0.00109	0.00385	0.127	0.0393 DM	0.00120	0.00093	0.00242	0.00411	0.00260	0.00405
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010 DM	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{84}$[D]	0.00155	0.00160	0.00159	0.00324	0.00273	0.00589	0.000563	0.00193	0.00272	0.00243	0.00390 DM	0.00339	0.00198	0.00440	0.00274	0.00195	0.00498
Vanadium	mg/L	n/v	n/v	0.00158	0.00157	0.00158	0.00168	0.00081	0.00157	0.00086	0.00150	0.00142	0.00764	<0.0050 DM	0.00100	0.00073	0.00076	0.00213	0.00197	0.00131
Zinc	mg/L	n/v	n/v	0.0067	<0.0030	<0.0030	0.0102	<0.0030	0.0053	0.0084	<0.0030	0.0050	0.0145	<0.030 DM	0.0040	<0.0030	0.0056	0.0043	<0.0030	<0.0030
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	0.00033	<0.00020	0.00025	<0.00020	<0.00020	<0.00020	0.00243	<0.0020 DM	0.00020	0.00022	<0.00020	0.00037	0.00043	0.00027

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9						D10			D11	D12			FIELD BLANK		TRIP BLANK	
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	20-Jun-19	22-Aug-19	9-Oct-19	9-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	19-Jun-19	22-Aug-19
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D10	D10	D10	D11	D12	D12	D12	FB	FB	BLANK	BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2296166	L2334482	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482
Laboratory Sample ID				L2296166-1	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2296166-9	L2334482-8	L2362912-21	L2362912-20	L2296166-4	L2334482-9	L2362912-8	L2296166-10	L2334482-11	L2296166-11	L2334482-12
Sample Type	Units	CWQG-FAL	MSOG-FAL		Field Duplicate		Field Duplicate		Field Duplicate								Field Blank	Field Blank	Trip Blank	Trip Blank
Field Parameters																				
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	9.32	-	9.25	-	12.02	-	9.73	**2.57**[B]	11.29	NM	**4.81**[B]	8.34	6.24	-	-	-	-
Electrical Conductivity, Field	µS/cm	n/v	n/v	973	-	960	-	851	-	907	5,061	1,793	NM	1,005	1,028	749.3	-	-	-	-
Nitrite, Field	mg/L	n/v	n/v	0.01	-	0.01	-	0.00	-	0.04	0.06	0.02	NM	0.03	0.03	0.03	-	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	202.8	-	161.7	-	212.9	-	-124.2	0.3	69	NM	148.1	-115	6.4	-	-	-	-
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	8.4	-	8.64	-	8.26	-	**9.75**[BD]	8.2	7.95	NM	7.81	8.57	7.73	-	-	-	-
Pressure	kPa	n/v	n/v	101.18	-	103.23	-	101.18	-	100.91	101.99	101.68	NM	101.03	101.9	99.93	-	-	-	-
Temperature, Field	deg C	n/v	n/v	19.6	-	18.1	-	7.9	-	26.1	25.6	3.7	NM	19.2	16.8	7.5	-	-	-	-
Turbidity, Field	NTU	n/v	n/v	4.30	-	11.42	-	4.40	-	4.40	9.02	32.97	NM	0.59	1.69	2.66	-	-	-	-
General Chemistry																				
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	206	206	214	214	203	202	86.9	750	308	249	550	529	279	2.2	1.9	<1.2	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	4.08	3.84	6.59	6.48	6.00	2.40	67.2	27.0	<0.60	<0.60	<0.60	39.5	<0.60	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	175	176	186	186	176	170	183	660	252	204	451	499	229	1.8	1.5	<1.0	<1.0
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	0.011	0.010	0.024	0.010	0.011	0.013	0.044	0.257	0.64	0.058	0.036	0.071	0.094	<0.010	<0.010	<0.010	0.020
Chloride	mg/L	640[A] 120[B]	n/v	**182**[B]	**177**[B]	**194**[B]	**195**[B]	**190**[B]	**193**[B]	10.9	**144**[B]	18.0	8.2	15.7	20.1	19.7	<0.50	<0.50	<0.50	<0.50
Fluoride	mg/L	0.12[B]	n/v	**0.144**[B]	**0.144**[B]	**0.164**[B]	**0.151**[B]	**0.176**[B]	**0.140**[B]	**0.318**[B]	**0.43**[B]	**0.31**[B]	**0.24**[B]	**0.353**[B]	**0.348**[B]	**0.208**[B]	<0.020	<0.020	<0.020	<0.020
Hardness (as CaCO3)	mg/L	n/v	n/v	223	224	253	243	241	228	533	4,050	1,280	897	598	698	519	<0.20	<0.20	<0.20	<0.20
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.40 DM	<0.10 DM	<0.10 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	0.030	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	***<0.20 DM***	<0.050 DM	<0.050 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	1.03	1.05	1.13	1.14	-	-	2.78	20.5	-	-	2.28	3.26	-	<0.20	<0.20	<0.20	<0.20
Phosphorus, Total	mg/L	n/v	0.025[C]	0.0135	0.0174	**0.0278**[C]	**0.0263**[C]	0.0228	0.0217	**0.0279**[C]	**0.109**[C]	**0.121**[C]	**0.0577**[C]	0.0243	**0.0284**[C]	0.0115	<0.0030	<0.0030	<0.0030	<0.0030
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	0.0059	0.0054	0.0055	0.0064	0.0057	0.0036	0.0216	**0.0833**[C]	0.0216	0.0140	0.0141	0.0172	0.0077	<0.0030	<0.0030	<0.0030	<0.0030
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0076	0.0120	0.0223	0.0199	0.0171	0.0181	0.0062	0.0258	0.0989	0.0438	0.0101	0.0113	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042
Sulfate	mg/L	n/v	n/v	72.7	71.0	75.9	76.2	75.1	74.8	365	3,970	1,020	660	176	234	293	<0.30	0.72	<0.30	<0.30
Total Dissolved Solids	mg/L	n/v	n/v	606	586	616	603	606	598	770	5,950 XB	1,870	1,270	747	850	694	<4.0	200	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	1.03	1.05	1.13	1.14	1.12	1.00	2.78	20.5	4.30	1.48	2.28	3.26	1.26	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	SN[B]	n/v	7.1	5.1	25.3	25.1	9.3	9.3	5.6	13.3	83.9	2.8	<2.0	4.7	<2.0	<2.0	<2.0	<2.0	<2.0
Microbiological Parameters																				
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	-	-	11 ZH	24 ZH	1 ZH	<1 ZH	<1	19	1,200	9	-	9	276 ZH	-	-	-	<1
Total Coliforms	mpn/100mL	n/v	n/v	-	-	1,200 ZH	1,730 ZH	20 ZH	12 ZH	1	365	>2420	>2420	-	179	>2420 ZH	-	-	-	<1
BTEX and Petroleum Hydrocarbons																				
Benzene	mg/L	0.37[B]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.38	<0.38	<0.38	<0.38	<0.37	<0.37	<0.38	<0.38	<0.37	<0.37	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	-	-	-	-	YES	YES	-	-	YES	YES	-	-	YES	-	-	-	-

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9						D10				D11	D12			FIELD BLANK		TRIP BLANK	
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	20-Jun-19	22-Aug-19	9-Oct-19		19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	19-Jun-19	22-Aug-19
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D10	D10	D10	D11	D12	D12	D12	FB	FB	BLANK	BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2296166	L2334482	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482
Laboratory Sample ID				L2296166-1	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2296166-9	L2334482-8	L2362912-21	L2362912-20	L2296166-4	L2334482-9	L2362912-8	L2296166-10	L2334482-11	L2296166-11	L2334482-12
Sample Type	Units	CWQG-FAL	MSOG-FAL		Field Duplicate		Field Duplicate		Field Duplicate								Field Blank	Field Blank	Trip Blank	Trip Blank
Metals, Dissolved																				
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	0.0023	0.0032	0.0052	0.0058	0.0016	0.0019	0.0044	0.0030	0.0018	0.0128	0.0012	0.0025	0.0023	<0.0010	0.0016	<0.0010	<0.0010
Antimony	mg/L	n/v	n/v	0.00016	0.00015	0.00017	0.00017	0.00019	0.00021	0.00015	0.00063	0.00039	0.00018	0.00012	0.00015	0.00014	<0.00010	0.00020	<0.00010	<0.00010
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.00182	0.00183	0.00192	0.00188	0.00190	0.00190	0.00195	0.0118	0.00179	0.00081	0.00164	0.00354	0.00120	<0.00010	0.00027	<0.00010	<0.00010
Barium	mg/L	n/v	n/v	0.0387	0.0402	0.0441	0.0399	0.0401	0.0438	0.0175	0.330	0.0927	0.0720	0.0537	0.0353	0.0354	<0.00010	0.00034	<0.00010	<0.00010
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	0.094	0.090	0.114	0.085	0.102	0.114	0.189	0.405	0.269	0.144	0.126	0.117	0.106	0.019	<0.010	0.015	<0.010
Cadmium	mg/L	n/v	$0.00084/0.011_{s8}$[D]	<0.0000050	0.0000055	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000151	<0.0000050	0.0000071	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000097	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	39.4	39.1	41.3	38.2	47.0	39.7	37.5	373	192	159	75.8	57.1	69.8	0.056	<0.050	<0.050	<0.050
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000016	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.317/2.43_{s7}$[D]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	0.00099	0.00013	0.00019	0.00013	0.00024	<0.00010	<0.00010	0.00046	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	0.00099	0.00025	0.00016	0.00014	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	n/v	$0.040/0.07_{s10}$[D]	0.00054	0.00062	0.00023	0.00070	0.00043	0.00140	0.00104	0.00174	0.00089	0.00225	0.00050	0.00091	0.00099	<0.00020	0.00204	<0.00020	<0.00020
Iron	mg/L	n/v	0.3[D]	<0.010	<0.010	0.038	<0.010	<0.010	0.026	<0.010	0.048	0.017	0.049	0.042	0.025	0.018	0.023	0.013	<0.010	<0.010
Lead	mg/L	n/v	$0.016/0.416_{s9}$[D]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000053	0.000179	0.000070	<0.000050	<0.000050	<0.000050	0.000054	<0.000050	0.000069	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	0.0294	0.0295	0.0351	0.0229	0.0314	0.0305	0.0355	0.154	0.0624	0.0381	0.0300	0.0262	0.0260	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	n/v	n/v	30.2	30.7	36.3	35.9	29.9	31.2	107	758	194	121	99.2	135	83.8	0.0111	0.0098	<0.0050	<0.0050
Manganese	mg/L	3.6_{EO3}[A] 0.43_{EO4}[B]	n/v	0.00033	0.00048	0.00115	0.00057	0.00026	0.00043	0.00826	0.154	0.121	0.0242	0.0407	0.00930	0.00516	0.00025	0.00023	<0.00010	<0.00010
Molybdenum	mg/L	n/v	0.073[D]	0.00178	0.00187	0.00214	0.00215	0.00267	0.00230	0.000555	0.00128	0.00715	0.00558	0.000517	0.000427	0.00161	0.000098	<0.000050	<0.000050	<0.000050
Nickel	mg/L	n/v	$0.23/2.1_{s11}$[D]	0.00061	0.00064	0.00059	0.00050	0.00051	0.00056	0.00134	0.00537	0.00122	0.00130	0.00061	0.00094	0.00059	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.116	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	8.73	9.01	9.18	9.11	9.08	8.95	18.8	78.1	19.7	15.6	9.49	9.85	11.5	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	n/v	n/v	0.00350	0.00361	0.00386	0.00398	0.00389	0.00392	0.00634	0.0189	0.00654	0.00375	0.00396	0.00397	0.00364	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	n/v	0.001[D]	0.000070	0.000100	0.000077	0.000067	0.000076	0.000070	0.000263	0.000920	0.000248	0.000080	0.000243	0.000312	0.000077	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	2.97	3.02	4.12	3.96	3.68	3.91	7.20	33.8	3.18	5.64	6.72	1.60	6.38	<0.050	0.137	<0.050	<0.050
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000030	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	123	126	128	123	127	127	25.7	192	34.5	18.9	19.1	24.7	16.2	<0.050	0.220	<0.050	<0.050
Strontium	mg/L	n/v	n/v	0.234	0.232	0.262	0.268	0.302	0.263	0.177	1.63	0.667	0.406	0.247	0.276	0.230	<0.00010	0.00010	<0.00010	<0.00010
Sulfur	mg/L	n/v	n/v	28.0	29.0	30.2	28.9	26.4	26.4	148	1,270	377	238	67.2	81.3	105	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	0.00066	<0.00010	<0.00010	0.00011	<0.00010	0.00015	<0.00010	0.00012	<0.00010	0.00013	<0.00010	0.00014	0.00021	0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00047	0.00207	0.00042	0.00112	<0.00030	0.00040	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.00157	0.00158	0.00161	0.00172	0.00175	0.00180	0.00162	0.00836	0.0186	0.0114	0.00284	0.00153	0.00384	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	n/v	n/v	0.00116	0.00116	0.00137	0.00135	0.00132	0.00130	0.00172	0.00432	0.00164	0.00061	<0.00050	0.00051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.530_{s12}[D]	0.0037	**0.0074**[B]	0.0048	<0.0010	<0.0010	0.0036	0.0042	0.0049	0.0026	0.0046	0.0017	0.0013	0.0035	0.0048	0.0037	<0.0010	<0.0010
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	0.00127	0.00022	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9						D10			D11	D12			FIELD BLANK		TRIP BLANK	
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	20-Jun-19	22-Aug-19	9-Oct-19	9-Oct-19	19-Jun-19	22-Aug-19	8-Oct-19	19-Jun-19	22-Aug-19	19-Jun-19	22-Aug-19
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D10	D10	D10	D11	D12	D12	D12	FB	FB	BLANK	BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	L2296166	L2334482	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2362912	L2296166	L2334482	L2362912	L2296166	L2334482	L2296166	L2334482
Laboratory Work Order				L2296166	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2296166-9	L2334482-8	L2362912-21	L2362912-20	L2296166-4	L2334482-9	L2362912-8	L2296166-10	L2334482-11	L2296166-11	L2334482-12
Laboratory Sample ID				L2296166-1	Field Duplicate		Field Duplicate		Field Duplicate								Field Blank	Field Blank	Trip Blank	Trip Blank
Sample Type	Units	CWQG-FAL	MSOG-FAL																	
Metals, Total																				
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.0441	0.0481	**0.108[BD]**	**0.102[BD]**	0.0618	0.0773	**0.0352[BD]**	0.0827	**1.36[BD]**	**0.155[BD]**	0.0043	0.0111	0.0078	<0.0030	<0.0030	<0.0030	<0.0030
Antimony	mg/L	n/v	n/v	0.00015	0.00018	0.00021	0.00023	0.00014	0.00013	0.00015	0.00062	0.00042	0.00025	0.00011	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.00195	0.00202	0.00228	0.00237	0.00209	0.00207	0.00205	**0.0113[B]**	0.00220	0.00101	0.00161	0.00358	0.00122	0.00012	0.00040	0.00012	<0.00010
Barium	mg/L	n/v	n/v	0.0401	0.0418	0.0420	0.0423	0.0408	0.0401	0.0180	0.285	0.111	0.0741	0.0529	0.0353	0.0328	<0.00010	0.00063	<0.00010	0.00011
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{a3}$[D]	0.094	0.096	0.092	0.093	0.100	0.106	0.206	-	0.236	0.125	0.120	0.142	0.143	0.014	<0.010	0.012	<0.010
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	<0.0000050	0.0000118	0.0000053	0.0000054	<0.0000050	<0.0000050	0.0000065	0.0000181	0.0000325	0.0000069	0.0000059	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	41.2	41.5	38.8	37.8	40.5	38.5	38.8	374	176	155	76.8	57.3	69.0	0.128	0.092	<0.050	<0.050
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	0.000017	0.000017	<0.000010	<0.000010	<0.000010	0.000015	0.000165	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	0.000021	<0.000010	<0.000010
Chromium	mg/L	n/v	n/v	0.00035	0.00050	0.00034	0.00038	0.00015	0.00022	0.00035	0.00131	0.00301	0.00050	0.00022	0.00034	0.00016	0.00020	0.00077	0.00038	0.00010
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	0.00013	0.00013	<0.00010	0.00010	0.00028	0.00106	0.00103	0.00021	0.00014	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.004*[B]	n/v	0.00060	0.00093	0.00051	0.00051	<0.00050	<0.00050	0.00106	0.00183	0.00283	0.00258	<0.00050	0.00102	0.00057	<0.00050	0.00123	<0.00050	<0.00050
Iron	mg/L	0.3[B]	0.3[D]	0.038	0.042	0.119	0.114	0.058	0.063	0.046	0.117	**1.75[BD]**	0.175	0.048	0.045	0.024	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.007#[B]	n/v	0.000113	0.000156	0.000232	0.000226	0.000174	0.000184	0.000076	0.000212	0.00101	0.000079	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	0.0310	0.0303	0.0312	0.0306	0.0312	0.0296	0.0375	0.231	0.0665	0.0415	0.0319	0.0404	0.0250	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	n/v	n/v	32.3	33.4	35.7	35.9	30.3	31.1	112	-	227	139	103	138	79.7	0.0125	-	0.0079	<0.0050
Manganese	mg/L	n/v	n/v	0.00617	0.00663	0.0124	0.0123	0.00876	0.00859	0.0116	0.158	0.198	0.0345	0.0445	0.0137	0.00655	0.00010	0.00017	<0.00010	<0.00010
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00203	0.00213	0.00220	0.0111	0.00227	0.00225	0.000592	0.00141	0.00677	0.00599	0.000542	0.000443	0.00170	<0.000050	<0.000050	<0.000050	<0.000050
Nickel	mg/L	0.150**[B]	n/v	0.00095	0.00126	0.00087	0.00093	0.00070	0.00069	0.00145	0.00576	0.00335	0.00152	0.00070	0.00115	0.00057	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	0.035	<0.030	<0.030	<0.030	0.140	0.108	0.039	<0.030	0.038	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	8.12	8.38	9.04	9.37	8.37	8.66	16.6	73.9	19.7	15.6	8.35	9.90	10.7	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	n/v	n/v	0.00353	0.00372	0.00408	0.00417	0.00433	0.00400	0.00589	0.0180	0.0101	0.00407	0.00382	0.00406	0.00342	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	0.001[B]	0.001[D]	0.000103	0.000115	0.000073	0.000073	0.000058	0.000101	0.000288	0.000879	0.000393	0.000184	0.000199	0.000248	0.000088	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	2.90	2.96	3.72	3.65	4.34	4.43	6.85	33.6	5.83	6.22	6.30	1.59	6.75	<0.10	0.17	<0.10	0.14
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000030	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	125	127	131	131	127	127	25.6	192	36.9	20.4	19.4	27.1	16.4	<0.050	0.261	<0.050	<0.050
Strontium	mg/L	n/v	n/v	0.262	0.265	0.267	0.266	0.255	0.265	0.195	-	0.669	0.426	0.267	0.289	0.236	<0.00020	0.00038	<0.00020	<0.00020
Sulfur	mg/L	n/v	n/v	26.7	27.4	28.2	27.6	31.0	29.2	140	-	404	249	63.9	83.0	108	0.53	<0.50	0.54	0.81
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00030	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000023	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00030	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	0.00021	0.00121	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00154	0.00172	0.00489	0.00483	0.00259	0.00283	0.00180	0.00643	0.0615	0.00553	<0.00030	0.00058	0.00032	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{84}$[D]	0.00167	0.00169	0.00176	0.00179	0.00153	0.00155	0.00168	0.00869	**0.0163[B]**	0.0117	0.00291	0.00164	0.00339	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	n/v	n/v	0.00152	0.00160	0.00186	0.00185	0.00168	0.00177	0.00221	0.00452	0.00452	0.00111	0.00077	0.00075	0.00063	0.00061	<0.00050	0.00057	<0.00050
Zinc	mg/L	n/v	n/v	0.0042	0.0131	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0081	0.0050	0.0039	<0.0030	<0.0030	0.0033	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	0.00137	0.00071	0.00027	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Notes:

CWQG-FAL	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
MSOG-FAL	Manitoba Provincial Water Quality Guidelines
C	Tier I - Water Quality Guidelines - Freshwater Aquatic Life
D	Tier III - Water Quality Guidelines - Freshwater Aquatic Life
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1.
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1.
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness. At hardness≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10{0.83(log[hardness]) – 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
STB	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation: (Short-term benchmark (µg/L) = 10{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness≥82 to ≤180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness)]-1.465}. At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L
#	The CWQG for lead is related to water hardness. When the hardness is 0 to≤ 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e{1.273[ln(hardness)]-4.705}. At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L
**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to≤ 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L
s2	15 mg/L for a 4 day averaging duration, 3.40 mg/L for a 1 hour averaging duration (from Tier II - Water Quality Objectives)
s3	29 mg/L short term exposure; 1.5 mg/L long term exposure.
s4	0.033 mg/L short term exposure; 0.15 mg/L long term exposure.
s7	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Chromium, 0.00084 mg/L is for 4 day averaging duration and 2.43 mg/L is for 1 hour averaging duration.
s8	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Cadmium, 0.00084 mg/L is for 4 day averaging duration and 0.011 mg/L is for 1 hour averaging duration.
s9	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Lead, 0.016 mg/L is for 4 day averaging duration and 0.416 mg/L is for 1 hour averaging duration.
s10	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Copper, 0.040 mg/L is for 4 day averaging duration and 0.07 mg/L is for 1 hour averaging duration.
S11	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Nickel, 0.23 mg/L is for 4 day averaging duration and 2.1 mg/L is for 1 hour averaging duration.
s12	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Zinc, 0.530 mg/L is for both the 4 day averaging duration and the 1 hour averaging duration.
SN	see Narrative
TBC1	Value is minimum value available. Sample-specific value to be calculated (equation).
TBC2	To be calculated (equation), then the present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
DM	Detection limit adjusted due to sample matrix effects.
NM	Result is non calculable due to matrix interference.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
RV	Reported result verified by repeat analysis.
XB	Re-analysis was completed past recommended hold time.
ZH	Sample analysed past recommended hold time.most probable number.

Table B-2
Summary of Surface Water RPDs - Field Duplicates
Lake Manitoba Outlet

Sample Location		D9								
Sample Date		19-Jun-19	19-Jun-19		21-Aug-19	21-Aug-19		7-Oct-19	7-Oct-19	
Sample ID		D9	QC-01		D9	QC-02		D9	QC-01	
Sampling Company		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory		ALS	ALS		ALS	ALS		ALS	ALS	
Laboratory Work Order		L2296166	L2296166		L2334482	L2334482		L2362912	L2362912	
Laboratory Sample ID		L2296166-1	L2296166-12	RPD	L2334482-1	L2334482-3	RPD	L2362912-1	L2362912-6	RPD
Sample Type	Units		Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)
General Chemistry										
Alkalinity, Bicarbonate (as CaCO3)	mg/L	206	206	0%	214	214	0%	203	202	0%
Alkalinity, Carbonate (as CaCO3)	mg/L	4.08	3.84	6%	6.59	6.48	2%	6.00	2.40	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc
Alkalinity, Total	mg/L	175	176	1%	186	186	0%	176	170	3%
Ammonia (as N)	mg/L	0.011	0.010	nc	0.024	0.010	nc	0.011	0.013	nc
Chloride	mg/L	182	177	3%	194	195	1%	190	193	2%
Fluoride	mg/L	0.144	0.144	nc	0.164	0.151	nc	0.176	0.140	nc
Hardness (as CaCO3)	mg/L	223	224	0%	253	243	4%	241	228	6%
Nitrate (as N)	mg/L	<0.040 DM	<0.040 DM	nc	<0.040 DM	<0.040 DM	nc	<0.040 DM	<0.040 DM	nc
Nitrite (as N)	mg/L	<0.020 DM	<0.020 DM	nc	<0.020 DM	<0.020 DM	nc	<0.020 DM	<0.020 DM	nc
Nitrogen (Total)	mg/L	1.03	1.05	2%	1.13	1.14	1%	-	-	-
Phosphorus, Total	mg/L	0.0135	0.0174	nc	0.0278	0.0263	6%	0.0228	0.0217	5%
Phosphorus, Total (Dissolved)	mg/L	0.0059	0.0054	nc	0.0055	0.0064	nc	0.0057	0.0036	nc
Phosphorus, Total Particulate	mg/L	0.0076	0.0120	nc	0.0223	0.0199	nc	0.0171	0.0181	nc
Sulfate	mg/L	72.7	71.0	2%	75.9	76.2	0%	75.1	74.8	0%
Total Dissolved Solids	mg/L	606	586	3%	616	603	2%	606	598	1%
Total Kjeldahl Nitrogen	mg/L	1.03	1.05	2%	1.13	1.14	1%	1.12	1.00	11%
Total Suspended Solids	mg/L	7.1	5.1	nc	25.3	25.1	1%	9.3	9.3	nc
Microbiological Parameters										
Escherichia coli (E.Coli)	mpn/100mL	-	-	-	11 ZH	24 ZH	**74%**	1 ZH	<1 ZH	nc
Total Coliforms	mpn/100mL	-	-	-	1,200 ZH	1,730 ZH	**36%**	20 ZH	12 ZH	**50%**
BTEX and Petroleum Hydrocarbons										
Benzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Toluene	mg/L	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc	<0.00050	<0.00050	nc
Ethylbenzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylene, m & p-	mg/L	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc
Xylene, o-	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00030	<0.00030	nc
Xylenes, Total	mg/L	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00050	<0.00050	nc
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.025	<0.025	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.025	<0.025	nc
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.37	<0.37	nc
Chromatogram to baseline at C50	none	-	-	-	-	-	-	YES	YES	nc
Metals, Dissolved										
Aluminum	mg/L	0.0023	0.0032	nc	0.0052	0.0058	11%	0.0016	0.0019	nc
Antimony	mg/L	0.00016	0.00015	nc	0.00017	0.00017	nc	0.00019	0.00021	nc
Arsenic	mg/L	0.00182	0.00183	1%	0.00192	0.00188	2%	0.00190	0.00190	0%
Barium	mg/L	0.0387	0.0402	4%	0.0441	0.0399	10%	0.0401	0.0438	9%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.094	0.090	4%	0.114	0.085	**29%**	0.102	0.114	11%
Cadmium	mg/L	<0.0000050	0.0000055	nc	0.0000055	<0.0000050	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	39.4	39.1	1%	41.3	38.2	8%	47.0	39.7	17%
Cesium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Chromium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Copper	mg/L	0.00054	0.00062	nc	0.00023	0.00070	nc	0.00043	0.00140	nc
Iron	mg/L	<0.010	<0.010	nc	0.038	<0.010	nc	<0.010	0.026	nc
Lead	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Lithium	mg/L	0.0294	0.0295	0%	0.0351	0.0229	**42%**	0.0314	0.0305	3%
Magnesium	mg/L	30.2	30.7	2%	36.3	35.9	1%	29.9	31.2	4%
Manganese	mg/L	0.00033	0.00048	nc	0.00115	0.00057	**67%**	0.00026	0.00043	nc
Molybdenum	mg/L	0.00178	0.00187	5%	0.00214	0.00215	0%	0.00267	0.00230	15%
Nickel	mg/L	0.00061	0.00064	nc	0.00059	0.00050	nc	0.00051	0.00056	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	<0.030	nc	<0.030	<0.030	nc
Potassium	mg/L	8.73	9.01	3%	9.18	9.11	1%	9.08	8.95	1%
Rubidium	mg/L	0.00350	0.00361	3%	0.00386	0.00398	3%	0.00389	0.00392	1%
Selenium	mg/L	0.000070	0.000100	nc	0.000077	0.000067	nc	0.000076	0.000070	nc
Silicon	mg/L	2.97	3.02	2%	4.12	3.96	4%	3.68	3.91	6%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	123	126	2%	128	123	4%	127	127	0%
Strontium	mg/L	0.234	0.232	1%	0.262	0.268	2%	0.302	0.263	14%
Sulfur	mg/L	28.0	29.0	4%	30.2	28.9	4%	26.4	26.4	0%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	0.00066	nc	<0.00010	<0.00010	nc	0.00011	<0.00010	nc
Titanium	mg/L	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc
Tungsten	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00157	0.00158	1%	0.00161	0.00172	7%	0.00175	0.00180	3%
Vanadium	mg/L	0.00116	0.00116	nc	0.00137	0.00135	nc	0.00132	0.00130	nc
Zinc	mg/L	0.0037	0.0074	nc	0.0048	<0.0010	nc	<0.0010	0.0036	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Metals, Total										
Aluminum	mg/L	0.0441	0.0481	9%	0.108	0.102	6%	0.0618	0.0773	**22%**
Antimony	mg/L	0.00015	0.00018	nc	0.00021	0.00023	nc	0.00014	0.00013	nc
Arsenic	mg/L	0.00195	0.00202	4%	0.00228	0.00237	4%	0.00209	0.00207	1%
Barium	mg/L	0.0401	0.0418	4%	0.0420	0.0423	1%	0.0408	0.0401	2%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.094	0.096	2%	0.092	0.093	1%	0.100	0.106	6%
Cadmium	mg/L	<0.0000050	0.0000118	nc	0.0000053	0.0000054	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	41.2	41.5	1%	38.8	37.8	3%	40.5	38.5	5%
Cesium	mg/L	<0.000010	<0.000010	nc	0.000017	0.000017	nc	<0.000010	<0.000010	nc
Chromium	mg/L	0.00035	0.00050	nc	0.00034	0.00038	nc	0.00015	0.00022	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	0.00013	0.00013	nc	<0.00010	0.00010	nc
Copper	mg/L	0.00060	0.00093	nc	0.00051	0.00051	nc	<0.00050	<0.00050	nc
Iron	mg/L	0.038	0.042	nc	0.119	0.114	4%	0.058	0.063	8%
Lead	mg/L	0.000113	0.000156	nc	0.000232	0.000226	nc	0.000174	0.000184	nc
Lithium	mg/L	0.0310	0.0303	2%	0.0312	0.0306	2%	0.0312	0.0296	5%
Magnesium	mg/L	32.3	33.4	3%	35.7	35.9	1%	30.3	31.1	3%
Manganese	mg/L	0.00617	0.00663	7%	0.0124	0.0123	1%	0.00876	0.00859	2%
Molybdenum	mg/L	0.00203	0.00213	5%	0.00220	0.0111	**134%**	0.00227	0.00225	1%
Nickel	mg/L	0.00095	0.00126	nc	0.00087	0.00093	nc	0.00070	0.00069	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	0.035	nc	<0.030	<0.030	nc
Potassium	mg/L	8.12	8.38	3%	9.04	9.37	4%	8.37	8.66	3%
Rubidium	mg/L	0.00353	0.00372	5%	0.00408	0.00417	2%	0.00433	0.00400	8%
Selenium	mg/L	0.000103	0.000115	nc	0.000073	0.000073	nc	0.000058	0.000101	nc
Silicon	mg/L	2.90	2.96	2%	3.72	3.65	2%	4.34	4.43	2%
Silver	mg/L	<0.000010	0.000011	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	125	127	2%	131	131	0%	127	127	0%
Strontium	mg/L	0.262	0.265	1%	0.267	0.266	0%	0.255	0.265	4%
Sulfur	mg/L	26.7	27.4	3%	28.2	27.6	2%	31.0	29.2	6%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	0.00021	0.00121	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Titanium	mg/L	0.00154	0.00172	11%	0.00489	0.00483	1%	0.00259	0.00283	9%
Tungsten	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00167	0.00169	1%	0.00176	0.00179	2%	0.00153	0.00155	1%
Vanadium	mg/L	0.00152	0.00160	nc	0.00186	0.00185	nc	0.00168	0.00177	nc
Zinc	mg/L	0.0042	0.0131	nc	<0.0030	<0.0030	nc	<0.0030	<0.0030	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
-	Parameter not analyzed / not available.
DM	Detection limit adjusted due to sample matrix effects.
ZH	Sample analysed past recommended hold time.most probable number.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 20%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table B-3
Summary of Surface Water QAQC Blanks
Lake Manitoba Outlet

Sample Location		FIELD BLANK		TRIP BLANK	
Sample Date		19-Jun-19	22-Aug-19	19-Jun-19	22-Aug-19
Sample ID		FB	FB	BLANK	BLANK
Sampling Company		STANTEC	STANTEC	STANTEC	STANTEC
Laboratory		ALS	ALS	ALS	ALS
Laboratory Work Order		L2296166	L2334482	L2296166	L2334482
Laboratory Sample ID		L2296166-10	L2334482-11	L2296166-11	L2334482-12
Sample Type	Units	Field Blank	Field Blank	Trip Blank	Trip Blank
General Chemistry					
Alkalinity, Bicarbonate (as CaCO3)	mg/L	2.2	1.9	<1.2	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	1.8	1.5	<1.0	<1.0
Ammonia (as N)	mg/L	<0.010	<0.010	<0.010	0.020
Chloride	mg/L	<0.50	<0.50	<0.50	<0.50
Fluoride	mg/L	<0.020	<0.020	<0.020	<0.020
Hardness (as CaCO3)	mg/L	<0.20	<0.20	<0.20	<0.20
Nitrate (as N)	mg/L	<0.020	0.030	<0.020	<0.020
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	<0.20	<0.20	<0.20	<0.20
Phosphorus, Total	mg/L	<0.0030	<0.0030	<0.0030	<0.0030
Phosphorus, Total (Dissolved)	mg/L	<0.0030	<0.0030	<0.0030	<0.0030
Phosphorus, Total Particulate	mg/L	<0.0042	<0.0042	<0.0042	<0.0042
Sulfate	mg/L	<0.30	0.72	<0.30	<0.30
Total Dissolved Solids	mg/L	<4.0	200	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	<2.0	<2.0	<2.0	<2.0
Microbiological Parameters					
Escherichia coli (E.Coli)	mpn/100mL	-	-	-	<1
Total Coliforms	mpn/100mL	-	-	-	<1
BTEX and Petroleum Hydrocarbons					
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	<0.00064	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	<0.38	<0.38
Metals, Dissolved					
Aluminum	mg/L	<0.0010	0.0016	<0.0010	<0.0010
Antimony	mg/L	<0.00010	0.00020	<0.00010	<0.00010
Arsenic	mg/L	<0.00010	0.00027	<0.00010	<0.00010
Barium	mg/L	<0.00010	0.00034	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.019	<0.010	0.015	<0.010
Cadmium	mg/L	<0.0000050	0.0000097	<0.0000050	<0.0000050
Calcium	mg/L	0.056	<0.050	<0.050	<0.050
Cesium	mg/L	<0.000010	0.000016	<0.000010	<0.000010
Chromium	mg/L	<0.00010	0.00046	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00020	0.00204	<0.00020	<0.00020
Iron	mg/L	0.023	0.013	<0.010	<0.010
Lead	mg/L	<0.000050	0.000069	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.0111	0.0098	<0.0050	<0.0050
Manganese	mg/L	0.00025	0.00023	<0.00010	<0.00010
Molybdenum	mg/L	0.000098	<0.000050	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	<0.050	0.137	<0.050	<0.050
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	0.220	<0.050	<0.050
Strontium	mg/L	<0.00010	0.00010	<0.00010	<0.00010
Sulfur	mg/L	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.00021	0.00010	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0048	0.0037	<0.0010	<0.0010
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020
Metals, Total					
Aluminum	mg/L	<0.0030	<0.0030	<0.0030	<0.0030
Antimony	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.00012	0.00040	0.00012	<0.00010
Barium	mg/L	<0.00010	0.00063	<0.00010	0.00011
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.014	<0.010	0.012	<0.010
Cadmium	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.128	0.092	<0.050	<0.050
Cesium	mg/L	<0.000010	0.000021	<0.000010	<0.000010
Chromium	mg/L	0.00020	0.00077	0.00038	0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00050	0.00123	<0.00050	<0.00050
Iron	mg/L	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.0125	-	0.0079	<0.0050
Manganese	mg/L	0.00010	0.00017	<0.00010	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	<0.10	0.17	<0.10	0.14
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	0.261	<0.050	<0.050
Strontium	mg/L	<0.00020	0.00038	<0.00020	<0.00020
Sulfur	mg/L	0.53	<0.50	0.54	0.81
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.00024	<0.00010	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	0.00061	<0.00050	0.00057	<0.00050
Zinc	mg/L	0.0033	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12		BH19-29			CH19-08			CH19-11	CH19-37	OW19-05			OW19-16		OW19-18
Sample Date					19-Aug-19	7-Oct-19	26-Jun-19	20-Aug-19	9-Oct-19	24-Jun-19	19-Aug-19	7-Oct-19	28-Jun-19	8-Oct-19	19-Aug-19	8-Oct-19	8-Oct-19	19-Aug-19	19-Aug-19	7-Oct-19
Sample ID					BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	TH18-13	CH19-37	OW19-05	OW19-05	QC-02	OW19-16	QC-01	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2301696	L2332554	L2362912	L2297783	L2332554	L2362912	L2301696	L2362912	L2332554	L2362912	L2362912	L2332554	L2332554	L2362912
Laboratory Sample ID					L2332554-3	L2362912-5	L2301696-2	L2332554-5	L2362912-19	L2297783-1	L2332554-1	L2362912-2	L2301696-4	L2362912-13	L2332554-4	L2362912-9	L2362912-15	L2332554-2	L2332554-7	L2362912-4
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ													Field Duplicate		Field Duplicate	
Field Parameters																				
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	n/v	**4.67**[B]	**1.13**[B]	**2.98**[B]	**1.96**[B]	**1.59**[B]	**3.96**[B]	**3.8**[B]	7.9	NM	**1.28**[B]	**4.1**[B]	**1.25**[B]	-	**4.82**[B]	-	**0.98**[B]
Electrical Conductivity, Field	µS/cm	n/v	n/v	n/v	656	636.2	686.7	590	619	722.3	784	623	781	646.2	527.7	518.7	-	677.5	-	664.5
Nitrite, Field	mg/L	n/v	n/v	n/v	0.00	NM	0.01	0.01	NM	0.01	NM	NM	0.02	NM	0.01	NM	-	0.00	-	NM
Oxidation Reduction Potential, field	mV	n/v	n/v	n/v	-27	-120.8	127.1	-24.5	-74.2	53.4	69.7	-157.2	4.6	18.4	81.4	-88.5	-	88.9	-	-3.3
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	6.5-8.5[E]	7.77	7.4	7.2	7.75	7.7	7.42	7.67	7.88	7.48	7.82	8.04	7.79	-	7.8	-	7.36
Pressure	kPa	n/v	n/v	n/v	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	NM	-	NM
Temperature, Field	deg C	n/v	n/v	≤15[E]	7.2	8.7	6.4	7.5	6.3	6.8	8.2	7.9	6.2	8	8.5	8.7	-	7.7	-	8.2
Turbidity, Field	NTU	n/v	n/v	≤0.3/1.0/0.1[G]	**0.61**[G]	**3.51**[G]	**1.31**[G]	**1.57**[G]	**0.59**[G]	**28.30**[G]	**51.73**[G]	**166.67**[G]	**2.57**[G]	**2.50**[G]	**24.23**[G]	**54.00**[G]	-	**1.22**[G]	-	**10.46**[G]
General Chemistry																				
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	n/v	404	397	282	288	287	398	394	375	415	311	279	268	260	432	422	423
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	n/v	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	n/v	331	325	231	236	235	326	323	307	340	255	229	220	214	354	346	347
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	n/v	0.110	0.119	0.188	0.198	0.196	0.121	0.141	0.132	0.121	0.215	0.103	0.096	0.133	0.193	0.180	0.136
Chloride	mg/L	640[A] 120[B]	n/v	≤250[E]	6.08	5.84	11.9	11.6	11.2	10.5	10.4	9.95	5.62	14.8	11.0	10.8	10.9	6.06	6.08	6.12
Fluoride	mg/L	0.12[B]	n/v	1.5[F]	**0.596**[B]	**0.535**[B]	**0.756**[B]	**0.855**[B]	**0.818**[B]	**0.199**[B]	**0.236**[B]	**0.237**[B]	**0.554**[B]	**0.399**[B]	**0.532**[B]	**0.477**[B]	**0.498**[B]	**0.740**[B]	**0.728**[B]	**0.744**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	n/v	369	359	300	284	311	362	354	381	391	326	257	259	262	389	387	383
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	10[F]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	1[F]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	n/v	<0.20	-	<0.20	0.21	-	<0.20	0.21	-	<0.20	-	<0.20	-	-	0.25	0.23	-
Phosphorus, Total	mg/L	n/v	0.025[C]	n/v	<0.0030	0.0036	0.0043	0.0033	0.0033	**0.0321**[C]	**0.108**[C]	**0.191**[C]	0.0034	<0.0030	0.0168	**0.0260**[C]	0.0218	0.0034	0.0033	<0.0030
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	n/v	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0033	0.0074	<0.0030	<0.0030	0.0031	0.0061	0.0072	<0.0030	<0.0030	<0.0030
Phosphorus, Total Particulate	mg/L	n/v	n/v	n/v	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	0.0311	0.104	0.184	<0.0042	<0.0042	0.0138	0.0199	0.0146	<0.0042	<0.0042	<0.0042
Sulfate	mg/L	n/v	n/v	≤500$_{I}$[E]	123	121	132	145	142	149	147	147	117	160	108	114	114	114	115	112
Total Dissolved Solids	mg/L	n/v	n/v	≤500[E]	492	487	428	456	458	**532**[E]	**534**[E]	**561**[E]	471	485	405	390	401	492	485	499
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	n/v	<0.20	<0.20	<0.20	0.21	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.25	0.23	<0.20
Total Suspended Solids	mg/L	SN[B]	n/v	n/v	3.9	<2.0	8.0	5.7	<2.0	238 XB	465	843	5.3	<2.0	32.0	245	251	9.7	<2.0	3.1
Microbiological Parameters																				
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	0[G]	***<1 ZH***	***<1 ZH***	-	***<1***	***<1***	***<1***	***<1 ZH***	***<1 ZH***	-	***<1***	***<1 ZH***	***<1 ZH***	***<1***	***<1 ZH***	***<1 ZH***	***<1 ZH***
Total Coliforms	mpn/100mL	n/v	n/v	0[G]	**1 ZH**[G]	***<1 ZH***	-	**9**[G]	***<1***	**46**[G]	**75 ZH**[G]	**1 ZH**[G]	-	**14**[G]	**24 ZH**[G]	***<1 ZH***	***<1***	**2 ZH**[G]	**196 ZH**[G]	**9 ZH**[G]
BTEX and Petroleum Hydrocarbons																				
Benzene	mg/L	0.37[B]	n/v	0.005[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	0.024[E] 0.06[F]	<0.0010	<0.00050	<0.0010	0.0017	0.00111	<0.0010	0.0013	0.00197	<0.0010	<0.00050	**0.0098**[B]	<0.00050	<0.00050	<0.0010	<0.0010	<0.00050
Ethylbenzene	mg/L	0.09[B]	0.09[D]	0.0016[E] 0.14[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	n/v	<0.00050	<0.00030	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00030	<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00030
Xylenes, Total	mg/L	n/v	n/v	0.02[E] 0.09[F]	<0.00064	<0.00050	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00050	<0.00064	<0.00050	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00050
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.025	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.10	<0.025	<0.10	<0.025	<0.10	<0.025	<0.025	<0.10	<0.10	<0.025
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	n/v	<0.38	<0.37	<0.38	<0.38	<0.37	<0.38	<0.38	<0.37	<0.38	<0.37	<0.38	<0.37	<0.37	<0.38	<0.38	<0.37
Chromatogram to baseline at C50	none	n/v	n/v	n/v	-	YES	-	-	YES	-	-	YES	-	YES	-	YES	YES	-	-	YES

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12		BH19-29			CH19-08			CH19-11	CH19-37	OW19-05			OW19-16		OW19-18
Sample Date					19-Aug-19	7-Oct-19	26-Jun-19	20-Aug-19	9-Oct-19	24-Jun-19	19-Aug-19	7-Oct-19	28-Jun-19	8-Oct-19	19-Aug-19	8-Oct-19	8-Oct-19	19-Aug-19	19-Aug-19	7-Oct-19
Sample ID					BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	TH18-13	CH19-37	OW19-05	OW19-05	QC-02	OW19-16	QC-01	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2301696	L2332554	L2362912	L2297783	L2332554	L2362912	L2301696	L2362912	L2332554	L2362912	L2362912	L2332554	L2332554	L2362912
Laboratory Sample ID					L2332554-3	L2362912-5	L2301696-2	L2332554-5	L2362912-19	L2297783-1	L2332554-1	L2362912-2	L2301696-4	L2362912-13	L2332554-4	L2362912-9	L2362912-15	L2332554-2	L2332554-7	L2362912-4
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ													Field Duplicate		Field Duplicate	
Metals, Dissolved																				
Aluminum	mg/L	n/v	0.005/0.1$_{VAR1}$[D]	0.1/0.2$_{g}$[E]	0.0062	0.0020	0.0019	0.0038	<0.0010	0.0032	0.0036	0.0737	0.0033	0.0020	0.0023	0.0025	0.0021	0.0020	<0.0010	0.0010
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00052	0.00024	0.00025	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	n/v	0.15/0.34$_{s2}$[D]	0.010[F]	0.00011	0.00010	0.00204	0.00216	0.00194	0.00035	0.00050	0.00043	0.00048	0.00012	0.00250	0.00203	0.00207	<0.00010	<0.00010	<0.00010
Barium	mg/L	n/v	n/v	1.0[F]	0.0245	0.0205	0.0266	0.0260	0.0232	0.0197	0.0295	0.0270	0.0237	0.0236	0.0400	0.0406	0.0408	0.0231	0.0183	0.0207
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	29/1.5$_{s3}$[D]	5[F]	0.472	0.502	0.560	0.528	0.61	0.412	0.366	0.423	0.543	0.602	0.420	0.480	0.467	0.504	0.486	0.528
Cadmium	mg/L	n/v	0.00056/0.006$_{s8}$[D]	0.005[F]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	69.4	70.3	54.4	50.4	63.4	63.3	59.6	75.1	68.1	58.2	43.9	50.5	50.2	69.8	67.3	75.2
Cesium	mg/L	n/v	n/v	n/v	0.000022	0.000021	<0.000010	0.000013	<0.000010	0.000029	0.000018	0.000037	0.000018	<0.000010	0.000025	0.000029	0.000033	0.000013	0.000013	0.000025
Chromium	mg/L	n/v	0.195/1.5$_{s7}$[D]	0.05[F]	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	0.00018	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	0.00024	0.00021	0.00024	0.00033	0.00029	0.00025	0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014
Copper	mg/L	n/v	0.024/0.04$_{s10}$[D]	≤1.0[E]	0.00044	0.00028	0.00135	0.00108	<0.00020	0.00047	0.00109	0.00028	<0.00020	<0.00020	0.00032	0.00069	0.00025	<0.00020	<0.00020	0.00050
Iron	mg/L	n/v	0.3[D]	≤0.3[E]	0.087	0.049	0.111	0.135	0.125	0.066	0.143	0.247	0.090	0.048	<0.010	0.216	0.230	0.015	<0.010	0.013
Lead	mg/L	n/v	0.008/0.227$_{s9}$[D]	0.010[F]	<0.000050	<0.000050	<0.000050	<0.000050	0.000326	<0.000050	<0.000050	0.000055	<0.000050	0.000499	<0.000050	0.000050	0.000055	<0.000050	<0.000050	0.000161
Lithium	mg/L	n/v	n/v	n/v	0.0320	0.0282	0.0270	0.0258	0.0278	0.0327	0.0309	0.0309	0.0338	0.0303	0.0192	0.0187	0.0192	0.0332	0.0349	0.0310
Magnesium	mg/L	n/v	n/v	n/v	47.7	44.5	39.8	38.5	37.0	49.6	49.9	46.9	53.5	43.8	35.8	32.1	33.2	52.0	53.1	47.4
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.05[E]	0.0218	0.00799	0.00985	0.0106	0.0134	0.0185	0.0340	0.0306	0.0190	0.00683	**0.0546[E]**	0.0309	0.0319	0.0138	0.0128	0.0266
Molybdenum	mg/L	n/v	0.073[D]	n/v	0.000677	0.00139	0.00104	0.00110	0.00103	0.000709	0.00204	0.00180	0.000248	0.000500	0.00651	0.00573	0.00572	0.000836	0.000280	0.000480 RV
Nickel	mg/L	n/v	0.14/1.27$_{s11}$[D]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00280	0.00327	0.00293	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	9.69	9.98	7.89	7.61	8.51	6.19	6.01	6.62	10.3	8.20	6.82	6.62	7.03	10.3	10.0	11.2
Rubidium	mg/L	n/v	n/v	n/v	0.00588	0.00628	0.00373	0.00323	0.00373	0.00397	0.00340	0.00332	0.00515	0.00343	0.00399	0.00419	0.00436	0.00602	0.00617	0.00677
Selenium	mg/L	n/v	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000124	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	5.16	4.75	5.04	5.15	5.06	5.64	5.51	5.35	5.58	4.68	3.90	3.77	3.78	5.67	5.77	5.47
Silver	mg/L	n/v	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	31.6	34.2	42.9	42.0	44.0	42.4	45.2	49.2	33.9	41.3	36.6	40.5	41.5	32.0	32.5	34.3
Strontium	mg/L	n/v	n/v	n/v	0.482	0.521	0.450	0.438	0.465	0.421	0.453	0.591	0.539	0.419	0.368	0.342	0.348	0.509	0.506	0.569
Sulfur	mg/L	n/v	n/v	n/v	45.0	42.0	50.0	51.8	50.4	49.2	52.3	48.4	41.9	55.8	38.7	39.1	38.5	40.1	40.0	38.1
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	n/v	<0.000010	<0.000010	0.000013	0.000010	0.000013	0.000034	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00012	<0.00010	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	0.00019
Titanium	mg/L	n/v	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00283	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00036	0.00088	0.00013	<0.00010	<0.00010	0.00322	0.00201	0.00200	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	0.033/0.015$_{s4}$[D]	0.02[F]	0.000458	0.000560	0.00104	0.000880	0.00120	0.00167	0.00138	0.00188	0.000946	0.00205	0.000202	0.000143	0.000140	0.000574	0.000522	0.000765
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037$_{EQ1}$[A] 0.007$_{EQ2}$[B]	0.32$_{s12}$[D]	≤5.0[E]	0.0043	0.0023	0.0064	0.0036	0.0056	<0.0010	0.0051	0.0015	0.0068	**0.0083[B]**	0.0012	0.0015	0.0024	0.0043	<0.0010	**0.128[AB]**
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12		BH19-29			CH19-08			CH19-11	CH19-37	OW19-05			OW19-16		OW19-18
Sample Date					19-Aug-19	7-Oct-19	26-Jun-19	20-Aug-19	9-Oct-19	24-Jun-19	19-Aug-19	7-Oct-19	28-Jun-19	8-Oct-19	19-Aug-19	8-Oct-19	8-Oct-19	19-Aug-19	19-Aug-19	7-Oct-19
Sample ID					BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	TH18-13	CH19-37	OW19-05	OW19-05	QC-02	OW19-16	QC-01	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2301696	L2332554	L2362912	L2297783	L2332554	L2362912	L2301696	L2362912	L2332554	L2362912	L2362912	L2332554	L2332554	L2362912
Laboratory Sample ID					L2332554-3	L2362912-5	L2301696-2	L2332554-5	L2362912-19	L2297783-1	L2332554-1	L2362912-2	L2301696-4	L2362912-13	L2332554-4	L2362912-9	L2362912-15	L2332554-2	L2332554-7	L2362912-4
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ													Field Duplicate		Field Duplicate	
Metals, Total																				
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.1/0.2$_{a}$[E]	0.0062	0.0259	0.0119	0.0307	0.0052	**0.532**[BDE]	**2.15**[BDE]	**2.13**[BDE]	0.0244	0.0097	**0.483**[BDE]	**0.383**[BDE]	**0.382**[BDE]	0.0056	0.0068	0.0072
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00067	0.00027	0.00026	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.010[F]	0.00015	0.00011	0.00212	0.00247	0.00209	0.00041	0.00134	0.00119	0.00050	0.00022	0.00346	0.00266	0.00257	0.00011	0.00012	0.00011
Barium	mg/L	n/v	n/v	1.0[F]	0.0200	0.0199	0.0219	0.0248	0.0231	0.0215	0.0527	0.0406	0.0184	0.0228	0.0441	0.0419	0.0420	0.0196	0.0198	0.0191
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00018	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000057	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	5[F]	0.536	0.545	0.60	0.59	0.63	0.452	0.412	0.443	0.59	0.68	0.469	0.450	0.502	0.544	0.533	0.551
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.005[F]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052	0.0000065	0.0000251	0.0000266	<0.0000050	0.0000183	0.0000143	0.0000105	0.0000074	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	76.4	73.8	57.7	56.1	59.1	78.7	176	184	73.0	63.7	53.3	95.7	73.9	74.9	74.5	72.9
Cesium	mg/L	n/v	n/v	n/v	0.000022	0.000023	<0.000010	0.000013	<0.000010	0.000128	0.000504	0.000807	0.000020	<0.000010	0.000130	0.000101	0.000085	0.000018	0.000016	0.000022
Chromium	mg/L	n/v	n/v	0.05[F]	<0.00010	0.00018	0.00048	<0.00010	<0.00010	0.00141	0.00485	0.00545	0.00025	0.00013	0.00087	0.00093	0.00077	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	0.00024	0.00028	0.00023	0.00052	0.00146	0.00164	0.00021	0.00011	0.00109	0.00109	0.00080	<0.00010	<0.00010	0.00013
Copper	mg/L	0.004*[B]	n/v	≤1.0[E]	<0.00050	0.00078	<0.00050	<0.00050	**0.00646**[B]	0.00190	**0.00973**[B]	**0.00829**[B]	<0.00050	**0.0310**[B]	0.00396	0.00132	0.00145	<0.00050	<0.00050	0.00081
Iron	mg/L	0.3[B]	0.3[D]	≤0.3[E]	0.075	0.069	0.118	0.150	0.130	**0.412**[BDE]	**3.11**[BDE]	**2.94**[BDE]	0.097	0.050	**1.07**[BDE]	**1.15**[BDE]	**0.952**[BDE]	0.024	0.023	0.020
Lead	mg/L	0.007#[B]	n/v	0.010[F]	<0.000050	0.000275	<0.000050	<0.000050	0.000991	0.000407	0.00224	0.0021	<0.000050	0.00226	0.000935	0.000666	0.000598	<0.000050	<0.000050	0.000261
Lithium	mg/L	n/v	n/v	n/v	0.0338	0.0303	0.0254	0.0260	0.0296	0.0343	0.0351	0.0326	0.0319	0.0386	0.0205	0.0209	0.0218	0.0358	0.0339	0.0344
Magnesium	mg/L	n/v	n/v	n/v	52.6	43.6	41.9	45.8	40.6	61.7	120	102	56.1	51.4	43.0	68.0	51.7	59.8	45.6	44.3
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.05[E]	0.0214	0.00829	0.0105	0.0134	0.0136	0.0288	**0.121**[E]	**0.125**[E]	0.0187	0.00721	**0.0656**[E]	0.0455	0.0394	0.0153	0.0148	0.0290
Molybdenum	mg/L	0.073[B]	0.073[D]	n/v	0.000724	0.00131	0.00108	0.00109	0.00108	0.000557	0.00167	0.00165	0.000219	0.000579	0.00664	0.00614	0.00621	0.000958	0.000703	0.000238
Nickel	mg/L	0.150**[B]	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00352	0.00764	0.00830	<0.00050	0.00051	0.00225	0.00161	0.00128	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	0.040	0.166	0.184	<0.030	<0.030	0.049	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	9.65	9.66	7.92	8.23	7.84	6.72	7.12	6.69	10.3	7.99	7.22	6.93	6.98	10.7	9.88	10.2
Rubidium	mg/L	n/v	n/v	n/v	0.00580	0.00621	0.00369	0.00381	0.00359	0.00483	0.00768	0.0108	0.00512	0.00339	0.00495	0.00509	0.00510	0.00649	0.00638	0.00728
Selenium	mg/L	0.001[B]	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000228	0.000111	0.000090	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.93	5.22	5.06	5.09	5.27	6.92	9.56	9.93	5.68	4.79	4.60	4.59	4.58	6.01	5.56	5.83
Silver	mg/L	0.00025[B]	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000035	0.000023	<0.000010	0.000017	0.000014	<0.000010	<0.000010	<0.000010	0.000046	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	33.4	33.1	42.6	47.3	43.9	44.2	49.2	45.1	33.5	42.7	38.9	41.8	42.3	35.4	31.0	32.3
Strontium	mg/L	n/v	n/v	n/v	0.540	0.550	0.462	0.425	0.486	0.415	0.521	0.640	0.554	0.485	0.378	0.378	0.383	0.533	0.482	0.597
Sulfur	mg/L	n/v	n/v	n/v	40.7	46.6	51.6	48.6	50.7	53.1	51.7	53.5	44.1	56.4	37.0	44.3	42.8	41.0	40.2	42.4
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	n/v	<0.000010	<0.000010	0.000013	0.000011	0.000011	0.000041	0.000063	0.000079	<0.000010	<0.000010	0.000016	0.000011	<0.000010	0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00031	0.00174	0.00195	<0.00010	<0.00010	0.00060	0.00045	0.00034	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00015	<0.00010	0.00071	<0.00010	<0.00010	0.00030	0.00014	0.00012	0.00012	0.00036	0.00039	0.00011	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	<0.00030	0.00098	0.00062	0.00174	0.00034	0.0222	0.0845	0.0758	0.00090	0.00038	0.0126	0.0113	0.0106	<0.00030	0.00035	0.00036
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00086	0.00041	<0.00010	<0.00010	0.00337	0.00184	0.00185	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.02[F]	0.000553	0.000501	0.000984	0.000961	0.00111	0.00162	0.00201	0.00177	0.000896	0.00222	0.000630	0.000449	0.000421	0.000613	0.000546	0.000637
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00167	0.00634	0.00728	<0.00050	<0.00050	0.00247	0.00225	0.00174	<0.00050	<0.00050	<0.00050
Zinc	mg/L	n/v	n/v	≤5.0[E]	<0.0030	0.0031	0.0050	<0.0030	0.0082	0.0072	0.0158	0.018	<0.0030	0.0271	0.0045	0.0043	0.0040	<0.0030	<0.0030	0.159
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00075	0.00139	0.00089	<0.00020	<0.00020	0.00082	0.00065	0.00069	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23		OW19-40	PW19-06	PW19-17	PW19-22		FIELD BLANK	TRIP BLANK
Sample Date					19-Aug-19	8-Oct-19	8-Oct-19	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19	9-Oct-19	8-Oct-19
Sample ID					OW19-23	OW19-23	OW19-40	TH18-21	TH18-09	TH18-36	QC-02	FIELD BLANK	TRIP
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2362912	L2301696	L2301696	L2301696	L2301696	L2362912	L2362912
Laboratory Sample ID					L2332554-6	L2362912-14	L2362912-12	L2301696-3	L2301696-1	L2301696-5	L2301696-6	L2362912-16	L2362912-17
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ							Field Duplicate	Field Blank	Trip Blank
Field Parameters													
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	n/v	**3.08**[B]	10.8	**1.21**[B]	**4.7**[B]	**3.3**[B]	**5.45**[B]	-	-	-
Electrical Conductivity, Field	µS/cm	n/v	n/v	n/v	607	579.6	608.9	654.6	727	676.7	-	-	-
Nitrite, Field	mg/L	n/v	n/v	n/v	0.01	NM	NM	0.01	0.01	0.00	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	n/v	56.2	30.8	29	-26.5	61.4	-23	-	-	-
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	6.5-8.5[E]	8.02	7.74	8.12	7.87	7.63	7.55	-	-	-
Pressure	kPa	n/v	n/v	n/v	NM	NM	NM	101.6	100.44	101.86	-	-	-
Temperature, Field	deg C	n/v	n/v	≤15[E]	7.9	8.3	7.4	6.9	7.2	7.8	-	-	-
Turbidity, Field	NTU	n/v	n/v	≤0.3/1.0/0.1[G]	**6.47**[G]	**1.85**[G]	**7.65**[G]	**7.15**[G]	**1.19**[G]	**11.24**[G]	-	-	-
General Chemistry													
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	n/v	287	278	309	315	369	278	273	1.5	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	n/v	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	n/v	235	228	253	258	302	228	224	1.2	<1.0
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	n/v	0.180	0.173	0.086	0.118	0.137	0.161	0.146	<0.010	0.051
Chloride	mg/L	640[A] 120[B]	n/v	≤250[E]	20.9	20.1	16.5	8.47	6.53	20.6	20.4	<0.50	<0.50
Fluoride	mg/L	0.12[B]	n/v	1.5[F]	**0.840**[B]	**0.776**[B]	**0.372**[B]	**0.419**[B]	**0.637**[B]	**0.757**[B]	**0.750**[B]	<0.020	<0.020
Hardness (as CaCO3)	mg/L	n/v	n/v	n/v	276	285	333	304	396	270	270	<0.20	<0.20
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	10[F]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	1[F]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	n/v	0.22	-	-	<0.20	<0.20	<0.20	<0.20	-	-
Phosphorus, Total	mg/L	n/v	0.025[C]	n/v	0.0096	0.0048	0.0059	**0.0346**[C]	<0.0030	0.0131	0.0112	<0.0030	<0.0030
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	n/v	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0034	<0.0030	<0.0030	<0.0030
Phosphorus, Total Particulate	mg/L	n/v	n/v	n/v	0.0071	<0.0042	<0.0042	0.0325	<0.0042	0.0097	0.0096	<0.0042	<0.0042
Sulfate	mg/L	n/v	n/v	≤500$_{I}$[E]	135	131	157	106	108	124	123	<0.30	<0.30
Total Dissolved Solids	mg/L	n/v	n/v	≤500[E]	447	442	494	392	486	411	408	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	n/v	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	$_{SN}$[B]	n/v	n/v	7.7	4.3	6.3	51.2	2.8	56.5	45.7	<2.0	<2.0
Microbiological Parameters													
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	0[G]	***<1 ZH***	**2**[G]	***<1***	-	-	-	-	***<1***	***<1***
Total Coliforms	mpn/100mL	n/v	n/v	0[G]	**99 ZH**[G]	**3**[G]	**4**[G]	-	-	-	-	***<1***	***<1***
BTEX and Petroleum Hydrocarbons													
Benzene	mg/L	0.37[B]	n/v	0.005[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	0.024[E] 0.06[F]	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050
Ethylbenzene	mg/L	0.09[B]	0.09[D]	0.0016[E] 0.14[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	n/v	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00030
Xylenes, Total	mg/L	n/v	n/v	0.02[E] 0.09[F]	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00050
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	n/v	<0.38	<0.37	<0.37	<0.38	<0.38	<0.38	<0.38	<0.37	<0.37
Chromatogram to baseline at C50	none	n/v	n/v	n/v	-	YES	YES	-	-	-	-	YES	YES

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23		OW19-40	PW19-06	PW19-17	PW19-22		FIELD BLANK	TRIP BLANK
Sample Date					19-Aug-19	8-Oct-19	8-Oct-19	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19	9-Oct-19	8-Oct-19
Sample ID					OW19-23	OW19-23	OW19-40	TH18-21	TH18-09	TH18-36	QC-02	FIELD BLANK	TRIP
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2362912	L2301696	L2301696	L2301696	L2301696	L2362912	L2362912
Laboratory Sample ID					L2332554-6	L2362912-14	L2362912-12	L2301696-3	L2301696-1	L2301696-5	L2301696-6	L2362912-16	L2362912-17
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ							Field Duplicate	Field Blank	Trip Blank
Metals, Dissolved													
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	$0.1/0.2_{g}$[E]	0.0038	0.0016	0.0023	0.0039	0.0033	0.0017	0.0039	<0.0010	<0.0010
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.010[F]	0.00042	0.00041	0.00016	0.00211	<0.00010	0.00084	0.00084	<0.00010	<0.00010
Barium	mg/L	n/v	n/v	1.0[F]	0.0293	0.0258	0.0253	0.0421	0.0222	0.0263	0.0216	<0.00010	<0.00010
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	5[F]	0.61	0.73	0.599	0.475	0.528	0.63	0.64	<0.010	<0.010
Cadmium	mg/L	n/v	$0.00056/0.006_{s8}$[D]	0.005[F]	0.0000056	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000065	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	52.3	58.8	62.9	50.5	69.8	48.3	49.1	<0.050	<0.050
Cesium	mg/L	n/v	n/v	n/v	0.000011	0.000011	<0.000010	0.000013	0.000030	0.000014	0.000017	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.195/1.5_{s7}$[D]	0.05[F]	<0.00010	<0.00010	<0.00010	0.00040	0.00024	0.00030	0.00012	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	n/v	$0.024/0.04_{s10}$[D]	≤1.0[E]	<0.00020	<0.00020	0.00034	0.00130	<0.00020	0.00135	<0.00020	<0.00020	<0.00020
Iron	mg/L	n/v	0.3[D]	≤0.3[E]	0.036	0.025	0.036	0.094	0.051	0.041	0.026	<0.010	<0.010
Lead	mg/L	n/v	$0.008/0.227_{s9}$[D]	0.010[F]	<0.000050	0.000390	0.000098	0.000065	0.000119	0.000111	0.000077	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	n/v	0.0320	0.0330	0.0362	0.0224	0.0343	0.0320	0.0314	<0.0010	<0.0010
Magnesium	mg/L	n/v	n/v	n/v	35.4	33.5	42.8	43.3	53.8	36.4	35.8	<0.0050	<0.0050
Manganese	mg/L	3.6_{EQ3}[A] 0.43_{EQ4}[B]	n/v	≤0.05[E]	0.0112	0.0144	0.0142	0.0106	0.00561	0.00855	0.00851	<0.00010	<0.00010
Molybdenum	mg/L	n/v	0.073[D]	n/v	0.00105	0.000966	0.000408	0.000707	0.000219	0.000994	0.000898	<0.000050	<0.000050
Nickel	mg/L	n/v	$0.14/1.27_{s11}$[D]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	8.91	9.01	9.78	6.58	10.4	8.72	8.61	<0.050	<0.050
Rubidium	mg/L	n/v	n/v	n/v	0.00413	0.00456	0.00668	0.00320	0.00575	0.00386	0.00399	<0.00020	<0.00020
Selenium	mg/L	n/v	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.72	4.70	3.85	4.81	5.79	4.82	4.84	<0.050	<0.050
Silver	mg/L	n/v	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	48.8	51.4	45.7	36.5	33.4	50.2	49.1	<0.050	<0.050
Strontium	mg/L	n/v	n/v	n/v	0.418	0.455	0.432	0.363	0.542	0.407	0.410	<0.00010	<0.00010
Sulfur	mg/L	n/v	n/v	n/v	45.7	46.4	56.3	37.9	39.9	44.6	43.8	<0.50	<0.50
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	0.000018	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00024	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.02[F]	0.000882	0.00111	0.00128	0.000928	0.000771	0.00120	0.00116	<0.000010	<0.000010
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.32_{s12}[D]	≤5.0[E]	<0.0010	**0.0116**[B]	0.0034	**0.0074**[B]	**0.0085**[B]	**0.0106**[B]	0.0037	<0.0010	<0.0010
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23		OW19-40	PW19-06	PW19-17	PW19-22		FIELD BLANK	TRIP BLANK
Sample Date					19-Aug-19	8-Oct-19	8-Oct-19	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19	9-Oct-19	8-Oct-19
Sample ID					OW19-23	OW19-23	OW19-40	TH18-21	TH18-09	TH18-36	QC-02	FIELD BLANK	TRIP
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2362912	L2301696	L2301696	L2301696	L2301696	L2362912	L2362912
Laboratory Sample ID					L2332554-6	L2362912-14	L2362912-12	L2301696-3	L2301696-1	L2301696-5	L2301696-6	L2362912-16	L2362912-17
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ							Field Duplicate	Field Blank	Trip Blank
Metals, Total													
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.1/0.2$_{a}$[E]	0.0833	0.0542	0.0634	**0.130**[BDE]	<0.0030	**0.137**[BDE]	**0.147**[BDE]	<0.0030	<0.0030
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.010[F]	0.00050	0.00052	0.00029	0.00207	0.00013	0.00088	0.00090	<0.00010	<0.00010
Barium	mg/L	n/v	n/v	1.0[F]	0.0251	0.0250	0.0256	0.0385	0.0173	0.0227	0.0224	<0.00010	<0.00010
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	5[F]	0.68	0.67	0.72	0.516	0.55	0.66	0.66	<0.010	<0.010
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.005[F]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000066	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	55.0	55.5	65.1	63.2	74.6	56.9	59.6	<0.050	<0.050
Cesium	mg/L	n/v	n/v	n/v	0.000030	0.000023	0.000027	0.000031	0.000025	0.000041	0.000047	<0.000010	<0.000010
Chromium	mg/L	n/v	n/v	0.05[F]	0.00019	0.00023	0.00027	0.00035	0.00145	0.00066	0.00036	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	0.00013	0.00014	0.00014	0.00023	<0.00010	0.00016	0.00017	<0.00010	<0.00010
Copper	mg/L	0.004*[B]	n/v	≤1.0[E]	<0.00050	0.00321	**0.00927**[B]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	mg/L	0.3[B]	0.3[D]	≤0.3[E]	0.083	0.070	0.107	0.279	0.037	0.166	0.184	<0.010	<0.010
Lead	mg/L	0.007#[B]	n/v	0.010[F]	0.000063	0.000512	0.000931	0.000220	0.000115	0.000314	0.000295	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	n/v	0.0337	0.0352	0.0420	0.0213	0.0324	0.0304	0.0304	<0.0010	<0.0010
Magnesium	mg/L	n/v	n/v	n/v	40.7	38.8	50.7	48.6	55.9	40.7	41.1	<0.0050	<0.0050
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.05[E]	0.0139	0.0167	0.0166	0.0174	0.00536	0.0140	0.0150	<0.00010	<0.00010
Molybdenum	mg/L	0.073[B]	0.073[D]	n/v	0.00104	0.000888	0.000446	0.000633	0.000196	0.000894	0.000865	<0.000050	<0.000050
Nickel	mg/L	0.150**[B]	n/v	n/v	0.00052	<0.00050	<0.00050	0.00060	<0.00050	0.00062	0.00061	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	0.040	<0.030	0.032	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	9.11	9.20	9.61	6.48	10.5	8.62	8.69	<0.050	<0.050
Rubidium	mg/L	n/v	n/v	n/v	0.00456	0.00464	0.00691	0.00325	0.00591	0.00407	0.00417	<0.00020	<0.00020
Selenium	mg/L	0.001[B]	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.86	4.78	4.11	5.05	5.82	5.14	5.18	<0.10	<0.10
Silver	mg/L	0.00025[B]	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	53.1	52.3	46.7	35.5	34.1	49.4	49.8	<0.050	<0.050
Strontium	mg/L	n/v	n/v	n/v	0.407	0.448	0.488	0.377	0.561	0.412	0.419	<0.00020	<0.00020
Sulfur	mg/L	n/v	n/v	n/v	46.3	46.9	56.2	39.0	42.5	45.3	46.1	<0.50	<0.50
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	n/v	<0.000010	0.000010	<0.000010	0.000019	<0.000010	0.000011	0.000011	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00134	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	0.00353	0.00208	0.00294	0.00705	<0.00030	0.00739	0.00810	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.02[F]	0.000938	0.00104	0.00132	0.000880	0.000736	0.00111	0.00114	<0.000010	<0.000010
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	0.00075	<0.00050	0.00063	0.00070	<0.00050	<0.00050
Zinc	mg/L	n/v	n/v	≤5.0[E]	<0.0030	0.0158	0.0139	0.0155	0.0039	0.0107	0.0078	<0.0030	<0.0030
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	0.00021	<0.00020	<0.00020

See notes on last page

Table B-4
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Notes:

CWQG-FAL	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
MSOG-FAL	Manitoba Provincial Water Quality Guidelines
C	Tier I - Water Quality Guidelines - Freshwater Aquatic Life
D	Tier III - Water Quality Guidelines - Freshwater Aquatic Life
CDWQ	Health Canada (2014). Guidelines for Canadian Drinking Water Quality - Summary Table. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.
E	Guidelines for Canadian Drinking Water Quality - Aesthetic Objectives/ Operational Guidelines
F	Guidelines for Canadian Drinking Water Quality - Maximum Acceptable Concentration
G	Guidelines for Canadian Drinking Water Quality - Microbial Parameters
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This is an operational guidance value, designed to apply only to drinking water treatment plants using aluminum-based coagulants; it does not apply to naturally occuring aluminum found in groundwater. The operational guidance values of 0.1 mg/L applies to conventional treatment plants, and 0.2 mg/L applies to other types of treatment systems.
j	High levels (above 500 mg/L) can cause physiological effects such as diarrhoea or dehyrdration.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1.
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1.
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness. At hardness≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10{0.83(log[hardness]) – 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
STB	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation: (Short-term benchmark (µg/L) = 10{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness≥82 to ≤180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness)]-1.465}. At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L
#	The CWQG for lead is related to water hardness. When the hardness is 0 to≤ 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e{1.273[ln(hardness)]-4.705}. At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L
**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to≤ 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L
s2	15 mg/L for a 4 day averaging duration, 3.40 mg/L for a 1 hour averaging duration (from Tier II - Water Quality Objectives)
s3	29 mg/L short term exposure; 1.5 mg/L long term exposure.
s4	0.033 mg/L short term exposure; 0.15 mg/L long term exposure.
s7	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Chromium, 0.195 mg/L is for 4 day averaging duration and 1.5 mg/L is for 1 hour averaging duration.
s8	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Cadmium, 0.00056 mg/L is for 4 day averaging duration and 0.006 mg/L is for 1 hour averaging duration.
s9	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Lead, 0.008 mg/L is for 4 day averaging duration and 0.227 mg/L is for 1 hour averaging duration.
s10	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Copper, 0.024 mg/L is for 4 day averaging duration and 0.04 mg/L is for 1 hour averaging duration.
S11	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Nickel, 0.14 mg/L is for 4 day averaging duration and 1.27 mg/L is for 1 hour averaging duration.
s12	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Zinc, 0.32 mg/L is for both the 4 day averaging duration and the 1 hour averaging duration.
SN	see Narrative
TBC1	Value is minimum value available. Sample-specific value to be calculated (equation).
TBC2	To be calculated (equation), then the present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
NM	Result is non calculable due to matrix interference.
RV	Reported result verified by repeat analysis.
XB	Re-analysis was completed past recommended hold time.
ZH	Sample analysed past recommended hold time.most probable number.

Table B-5
Summary of Groundwater RPDs - Field Duplicates
Lake Manitoba Outlet

Sample Location		OW19-05			OW19-16			PW19-22		
Sample Date		8-Oct-19	8-Oct-19		19-Aug-19	19-Aug-19		28-Jun-19	28-Jun-19	
Sample ID		OW19-05	QC-02		OW19-16	QC-01		TH18-36	QC-02	
Sampling Company		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory		ALS	ALS		ALS	ALS		ALS	ALS	
Laboratory Work Order		L2362912	L2362912		L2332554	L2332554		L2301696	L2301696	
Laboratory Sample ID		L2362912-9	L2362912-15	RPD	L2332554-2	L2332554-7	RPD	L2301696-5	L2301696-6	RPD
Sample Type	Units		Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)
General Chemistry										
Alkalinity, Bicarbonate (as CaCO3)	mg/L	268	260	3%	432	422	2%	278	273	2%
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	nc	<0.60	<0.60	nc	<0.60	<0.60	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc
Alkalinity, Total	mg/L	220	214	3%	354	346	2%	228	224	2%
Ammonia (as N)	mg/L	0.096	0.133	32%	0.193	0.180	7%	0.161	0.146	10%
Chloride	mg/L	10.8	10.9	1%	6.06	6.08	0%	20.6	20.4	1%
Fluoride	mg/L	0.477	0.498	4%	0.740	0.728	2%	0.757	0.750	1%
Hardness (as CaCO3)	mg/L	259	262	1%	389	387	1%	270	270	0%
Nitrate (as N)	mg/L	<0.020	<0.020	nc	<0.020	<0.020	nc	<0.020	<0.020	nc
Nitrite (as N)	mg/L	<0.010	<0.010	nc	<0.010	<0.010	nc	<0.010	<0.010	nc
Nitrogen (Total)	mg/L	-	-	-	0.25	0.23	nc	<0.20	<0.20	nc
Phosphorus, Total	mg/L	0.0260	0.0218	18%	0.0034	0.0033	nc	0.0131	0.0112	nc
Phosphorus, Total (Dissolved)	mg/L	0.0061	0.0072	nc	<0.0030	<0.0030	nc	0.0034	<0.0030	nc
Phosphorus, Total Particulate	mg/L	0.0199	0.0146	nc	<0.0042	<0.0042	nc	0.0097	0.0096	nc
Sulfate	mg/L	114	114	0%	114	115	1%	124	123	1%
Total Dissolved Solids	mg/L	390	401	3%	492	485	1%	411	408	1%
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	nc	0.25	0.23	nc	<0.20	<0.20	nc
Total Suspended Solids	mg/L	245	251	2%	9.7	<2.0	nc	56.5	45.7	**21%**
Microbiological Parameters										
Escherichia coli (E.Coli)	mpn/100mL	<1 ZH	<1	nc	<1 ZH	<1 ZH	nc	-	-	-
Total Coliforms	mpn/100mL	<1 ZH	<1	nc	2 ZH	196 ZH	nc	-	-	-
BTEX and Petroleum Hydrocarbons										
Benzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Toluene	mg/L	<0.00050	<0.00050	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Ethylbenzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylene, m & p-	mg/L	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc
Xylene, o-	mg/L	<0.00030	<0.00030	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylenes, Total	mg/L	<0.00050	<0.00050	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc
PHC F1 (C6-C10 range)	mg/L	<0.025	<0.025	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.025	<0.025	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
Total Hydrocarbons (C6-C50)	mg/L	<0.37	<0.37	nc	<0.38	<0.38	nc	<0.38	<0.38	nc
Chromatogram to baseline at C50	none	YES	YES	nc	-	-	-	-	-	-
Metals, Dissolved										
Aluminum	mg/L	0.0025	0.0021	nc	0.0020	<0.0010	nc	0.0017	0.0039	nc
Antimony	mg/L	0.00024	0.00025	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00203	0.00207	2%	<0.00010	<0.00010	nc	0.00084	0.00084	0%
Barium	mg/L	0.0406	0.0408	0%	0.0231	0.0183	**23%**	0.0263	0.0216	20%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.480	0.467	3%	0.504	0.486	4%	0.63	0.64	2%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc	0.0000065	<0.0000050	nc
Calcium	mg/L	50.5	50.2	1%	69.8	67.3	4%	48.3	49.1	2%
Cesium	mg/L	0.000029	0.000033	nc	0.000013	0.000013	nc	0.000014	0.000017	nc
Chromium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	0.00030	0.00012	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Copper	mg/L	0.00069	0.00025	nc	<0.00020	<0.00020	nc	0.00135	<0.00020	nc
Iron	mg/L	0.216	0.230	6%	0.015	<0.010	nc	0.041	0.026	nc
Lead	mg/L	0.000050	0.000055	nc	<0.000050	<0.000050	nc	0.000111	0.000077	nc
Lithium	mg/L	0.0187	0.0192	3%	0.0332	0.0349	5%	0.0320	0.0314	2%
Magnesium	mg/L	32.1	33.2	3%	52.0	53.1	2%	36.4	35.8	2%
Manganese	mg/L	0.0309	0.0319	3%	0.0138	0.0128	8%	0.00855	0.00851	0%
Molybdenum	mg/L	0.00573	0.00572	0%	0.000836	0.000280	**100%**	0.000994	0.000898	10%
Nickel	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	<0.030	nc	<0.030	<0.030	nc
Potassium	mg/L	6.62	7.03	6%	10.3	10.0	3%	8.72	8.61	1%
Rubidium	mg/L	0.00419	0.00436	4%	0.00602	0.00617	2%	0.00386	0.00399	3%
Selenium	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	3.77	3.78	0%	5.67	5.77	2%	4.82	4.84	0%
Silver	mg/L	<0.000010	0.000017	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	40.5	41.5	2%	32.0	32.5	2%	50.2	49.1	2%
Strontium	mg/L	0.342	0.348	2%	0.509	0.506	1%	0.407	0.410	1%
Sulfur	mg/L	39.1	38.5	2%	40.1	40.0	0%	44.6	43.8	2%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	0.00012	<0.00010	nc	0.00011	<0.00010	nc
Titanium	mg/L	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc
Tungsten	mg/L	0.00201	0.00200	0%	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.000143	0.000140	2%	0.000574	0.000522	9%	0.00120	0.00116	3%
Vanadium	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Zinc	mg/L	0.0015	0.0024	nc	0.0043	<0.0010	nc	0.0106	0.0037	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Metals, Total										
Aluminum	mg/L	0.383	0.382	0%	0.0056	0.0068	nc	0.137	0.147	7%
Antimony	mg/L	0.00027	0.00026	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00266	0.00257	3%	0.00011	0.00012	nc	0.00088	0.00090	2%
Barium	mg/L	0.0419	0.0420	0%	0.0196	0.0198	1%	0.0227	0.0224	1%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.450	0.502	11%	0.544	0.533	2%	0.66	0.66	0%
Cadmium	mg/L	0.0000105	0.0000074	nc	<0.0000050	<0.0000050	nc	0.0000066	<0.0000050	nc
Calcium	mg/L	95.7	73.9	**26%**	74.9	74.5	1%	56.9	59.6	5%
Cesium	mg/L	0.000101	0.000085	17%	0.000018	0.000016	nc	0.000041	0.000047	nc
Chromium	mg/L	0.00093	0.00077	19%	<0.00010	<0.00010	nc	0.00066	0.00036	nc
Cobalt	mg/L	0.00109	0.00080	**31%**	<0.00010	<0.00010	nc	0.00016	0.00017	nc
Copper	mg/L	0.00132	0.00145	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Iron	mg/L	1.15	0.952	19%	0.024	0.023	nc	0.166	0.184	10%
Lead	mg/L	0.000666	0.000598	11%	<0.000050	<0.000050	nc	0.000314	0.000295	6%
Lithium	mg/L	0.0209	0.0218	4%	0.0358	0.0339	5%	0.0304	0.0304	0%
Magnesium	mg/L	68.0	51.7	**27%**	59.8	45.6	**27%**	40.7	41.1	1%
Manganese	mg/L	0.0455	0.0394	14%	0.0153	0.0148	3%	0.0140	0.0150	7%
Molybdenum	mg/L	0.00614	0.00621	1%	0.000958	0.000703	**31%**	0.000894	0.000865	3%
Nickel	mg/L	0.00161	0.00128	nc	<0.00050	<0.00050	nc	0.00062	0.00061	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	<0.030	nc	0.032	<0.030	nc
Potassium	mg/L	6.93	6.98	1%	10.7	9.88	8%	8.62	8.69	1%
Rubidium	mg/L	0.00509	0.00510	0%	0.00649	0.00638	2%	0.00407	0.00417	2%
Selenium	mg/L	0.000111	0.000090	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	4.59	4.58	0%	6.01	5.56	8%	5.14	5.18	1%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	0.000046	nc	<0.000010	<0.000010	nc
Sodium	mg/L	41.8	42.3	1%	35.4	31.0	13%	49.4	49.8	1%
Strontium	mg/L	0.378	0.383	1%	0.533	0.482	10%	0.412	0.419	2%
Sulfur	mg/L	44.3	42.8	3%	41.0	40.2	2%	45.3	46.1	2%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	0.000011	<0.000010	nc	0.000010	<0.000010	nc	0.000011	0.000011	nc
Thorium	mg/L	0.00045	0.00034	nc	<0.00010	<0.00010	nc	<0.00010	0.00010	nc
Tin	mg/L	0.00011	<0.00010	nc	<0.00010	<0.00010	nc	0.00134	<0.00010	nc
Titanium	mg/L	0.0113	0.0106	6%	<0.00030	0.00035	nc	0.00739	0.00810	9%
Tungsten	mg/L	0.00184	0.00185	1%	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.000449	0.000421	6%	0.000613	0.000546	12%	0.00111	0.00114	3%
Vanadium	mg/L	0.00225	0.00174	nc	<0.00050	<0.00050	nc	0.00063	0.00070	nc
Zinc	mg/L	0.0043	0.0040	nc	<0.0030	<0.0030	nc	0.0107	0.0078	nc
Zirconium	mg/L	0.00065	0.00069	nc	<0.00020	<0.00020	nc	0.00020	0.00021	nc

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
-	Parameter not analyzed / not available.
ZH	Sample analysed past recommended hold time.most probable number.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 20%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table B-6
Summary of Groundwater QAQC Blanks
Lake Manitoba Outlet

Sample Location		FIELD BLANK	TRIP BLANK
Sample Date		9-Oct-19	8-Oct-19
Sample ID		FIELD BLANK	TRIP
Sampling Company		STANTEC	STANTEC
Laboratory		ALS	ALS
Laboratory Work Order		L2362912	L2362912
Laboratory Sample ID		L2362912-16	L2362912-17
Sample Type	Units	Field Blank	Trip Blank
General Chemistry			
Alkalinity, Bicarbonate (as CaCO3)	mg/L	1.5	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34
Alkalinity, Total	mg/L	1.2	<1.0
Ammonia (as N)	mg/L	<0.010	0.051
Chloride	mg/L	<0.50	<0.50
Fluoride	mg/L	<0.020	<0.020
Hardness (as CaCO3)	mg/L	<0.20	<0.20
Nitrate (as N)	mg/L	<0.020	<0.020
Nitrite (as N)	mg/L	<0.010	<0.010
Phosphorus, Total	mg/L	<0.0030	<0.0030
Phosphorus, Total (Dissolved)	mg/L	<0.0030	<0.0030
Phosphorus, Total Particulate	mg/L	<0.0042	<0.0042
Sulfate	mg/L	<0.30	<0.30
Total Dissolved Solids	mg/L	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20
Total Suspended Solids	mg/L	<2.0	<2.0
Microbiological Parameters			
Escherichia coli (E.Coli)	mpn/100mL	<1	<1
Total Coliforms	mpn/100mL	<1	<1
BTEX and Petroleum Hydrocarbons			
Benzene	mg/L	<0.00050	<0.00050
Toluene	mg/L	<0.00050	<0.00050
Ethylbenzene	mg/L	<0.00050	<0.00050
Xylene, m & p-	mg/L	<0.00040	<0.00040
Xylene, o-	mg/L	<0.00030	<0.00030
Xylenes, Total	mg/L	<0.00050	<0.00050
PHC F1 (C6-C10 range)	mg/L	<0.025	<0.025
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.025	<0.025
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	<0.37	<0.37
Chromatogram to baseline at C50	none	YES	YES
Metals, Dissolved			
Aluminum	mg/L	<0.0010	<0.0010
Antimony	mg/L	<0.00010	<0.00010
Arsenic	mg/L	<0.00010	<0.00010
Barium	mg/L	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050
Boron	mg/L	<0.010	<0.010
Cadmium	mg/L	<0.0000050	<0.0000050
Calcium	mg/L	<0.050	<0.050
Cesium	mg/L	<0.000010	<0.000010
Chromium	mg/L	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010
Copper	mg/L	<0.00020	<0.00020
Iron	mg/L	<0.010	<0.010
Lead	mg/L	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010
Magnesium	mg/L	<0.0050	<0.0050
Manganese	mg/L	<0.00010	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050
Silicon	mg/L	<0.050	<0.050
Silver	mg/L	<0.000010	<0.000010
Sodium	mg/L	<0.050	<0.050
Strontium	mg/L	<0.00010	<0.00010
Sulfur	mg/L	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010
Tin	mg/L	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010
Vanadium	mg/L	<0.00050	<0.00050
Zinc	mg/L	<0.0010	<0.0010
Zirconium	mg/L	<0.00020	<0.00020
Metals, Total			
Aluminum	mg/L	<0.0030	<0.0030
Antimony	mg/L	<0.00010	<0.00010
Arsenic	mg/L	<0.00010	<0.00010
Barium	mg/L	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050
Boron	mg/L	<0.010	<0.010
Cadmium	mg/L	<0.0000050	<0.0000050
Calcium	mg/L	<0.050	<0.050
Cesium	mg/L	<0.000010	<0.000010
Chromium	mg/L	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010
Copper	mg/L	<0.00050	<0.00050
Iron	mg/L	<0.010	<0.010
Lead	mg/L	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010
Magnesium	mg/L	<0.0050	<0.0050
Manganese	mg/L	<0.00010	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050
Silicon	mg/L	<0.10	<0.10
Silver	mg/L	<0.000010	<0.000010
Sodium	mg/L	<0.050	<0.050
Strontium	mg/L	<0.00020	<0.00020
Sulfur	mg/L	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010
Tin	mg/L	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010
Vanadium	mg/L	<0.00050	<0.00050
Zinc	mg/L	<0.0030	<0.0030
Zirconium	mg/L	<0.00020	<0.00020

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.

Appendix C LABORATORY RESULTS

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 21-JUN-19
Report Date: 09-JUL-19 12:17 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2296166

Project P.O. #: NOT SUBMITTED
Job Reference: 111475107
C of C Numbers:
Legal Site Desc:

David Inocando
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2296166-1 D9							
Sampled By: BE/AR on 19-JUN-19 @ 13:15							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	206		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	4.08		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	175		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	182		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.144		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	72.7		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	101.0		60-140	%	24-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.011		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	223		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	0.0135		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0059		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0076		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	606		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	1.03		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	1.03		0.20	mg/L		28-JUN-19	
Total Suspended Solids	7.1		2.0	mg/L		25-JUN-19	R4687654
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0441		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00015		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-1 D9							
Sampled By: BE/AR on 19-JUN-19 @ 13:15							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00195		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0401		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.094		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	41.2		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00035		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00060		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.038		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000113		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0310		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	32.3		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00617		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.00203		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00095		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	8.12		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00353		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000103		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	2.90		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	125		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.262		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	26.7		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00021		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00154		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00167		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00152		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0042		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0023		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00016		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00182		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0387		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.094		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	39.4		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2296166-1 D9							
Sampled By: BE/AR on 19-JUN-19 @ 13:15							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00054		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0294		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	30.2		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00033		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.00178		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00061		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	8.73		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00350		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000070		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	2.97		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	123		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.234		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	28.0		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	02-JUL-19	R4692322
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00157		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00116		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0037		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-2 D8							
Sampled By: BE/AR on 19-JUN-19 @ 13:08							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	391		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	34.7		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	379		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.9		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.325		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	136		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							

* 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
L2296166-2 D8							
Sampled By: BE/AR on 19-JUN-19 @ 13:08							
Matrix: W							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	93.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	108.0		60-140	%	24-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.027		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	494		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	0.0275		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0209		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0066		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	610		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	2.05		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.05		0.20	mg/L		28-JUN-19	
Total Suspended Solids	5.9		2.0	mg/L		25-JUN-19	R4687654
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0916		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00011		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00211		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0316		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.106		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	55.9		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00039		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00026		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00130		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.096		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000055		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0269		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	92.5		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00830		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000678		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00137		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	5.96		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00301		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-2 D8							
Sampled By: BE/AR on 19-JUN-19 @ 13:08							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Selenium (Se)-Total	0.000195		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	2.73		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	15.1		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.206		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	50.4		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00022		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00411		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00274		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00213		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0043		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	0.00037		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0049		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00221		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0346		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.116		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	55.3		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00029		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00022		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00116		0.00020	mg/L	24-JUN-19	02-JUL-19	R4692322
Iron (Fe)-Dissolved	0.039		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0260		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	86.4		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00555		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000695		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00115		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	6.39		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00279		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000179		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	2.70		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	14.5		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.185		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	55.1		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00016		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-2 D8							
Sampled By: BE/AR on 19-JUN-19 @ 13:08							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Titanium (Ti)-Dissolved	0.00058		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00272		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00166		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0085		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	0.00037		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-3 D6							
Sampled By: BE/AR on 19-JUN-19 @ 15:45							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	507		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	13.7		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	438		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	16.6		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.338		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	196		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	89.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	03-JUL-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	03-JUL-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	03-JUL-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	134.7		60-140	%	24-JUN-19	03-JUL-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.029		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	607		0.20	mg/L		03-JUL-19	

* 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
L2296166-3 D6							
Sampled By: BE/AR on 19-JUN-19 @ 15:45							
Matrix: W							
Phosphorus (P)-Total	0.0217		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0160		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0056		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	749		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	2.42		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.42		0.20	mg/L		28-JUN-19	
Total Suspended Solids	4.7		2.0	mg/L		25-JUN-19	R4687654
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0227		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00012		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00186		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0506		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.125		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000054		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	79.4		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00036		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00018		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00074		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.069		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0328		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	110		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.0154		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000759		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00146		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	9.02		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	0.034		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00382		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000211		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	2.15		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	19.7		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.276		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	73.5		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00120		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00339		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00100		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0040		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0025		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00191		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-3 D6							
Sampled By: BE/AR on 19-JUN-19 @ 15:45							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Barium (Ba)-Dissolved	0.0556		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.130		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	0.0000063		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	77.5		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00020		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00017		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00062		0.00020	mg/L	24-JUN-19	02-JUL-19	R4692322
Iron (Fe)-Dissolved	0.063		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0312		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	100		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00977		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000654		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00086		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	10.0		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00394		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000220		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	2.20		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	19.0		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.265		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	79.5		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00319		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00056		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0067		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-4 D12							
Sampled By: BE/AR on 19-JUN-19 @ 16:30							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	550		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	451		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	15.7		1.0	mg/L		21-JUN-19	R4687367

* 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
L2296166-4 D12							
Sampled By: BE/AR on 19-JUN-19 @ 16:30							
Matrix: W							
Fluoride in Water by IC							
Fluoride (F)	0.353		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	176		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	93.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	111.9		60-140	%	24-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.036		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	598		0.20	mg/L		02-JUL-19	
Phosphorus (P)-Total	0.0243		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0141		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0101		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	747		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	2.28		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.28		0.20	mg/L		28-JUN-19	
Total Suspended Solids	<2.0		2.0	mg/L		25-JUN-19	R4687654
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0043		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00011		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00161		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0529		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.120		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000059		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	76.8		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00022		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00014		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.048		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-4 D12							
Sampled By: BE/AR on 19-JUN-19 @ 16:30							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0319		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	103		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.0445		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000542		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00070		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	8.35		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00382		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000199		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	6.30		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	19.4		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.267		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	63.9		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00011		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00291		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00077		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0039		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0012		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00012		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00164		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0537		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.126		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	75.8		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00013		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00050		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	0.042		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0300		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	99.2		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.0407		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000517		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00061		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	9.49		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00396		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000243		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-4 D12							
Sampled By: BE/AR on 19-JUN-19 @ 16:30							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Silicon (Si)-Dissolved	6.72		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	19.1		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.247		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	67.2		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00013		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00284		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0017		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-5 D2							
Sampled By: BE/AR on 19-JUN-19 @ 18:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	440		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	20.3		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	395		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	57.3		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.225		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	143		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	92.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	122.8		60-140	%	24-JUN-19	29-JUN-19	R4687788

* 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
L2296166-5 D2							
Sampled By: BE/AR on 19-JUN-19 @ 18:00							
Matrix: W							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.045		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	519		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	0.0903		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0362		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0541		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	679		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	2.04		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.04		0.20	mg/L		28-JUN-19	
Total Suspended Solids	25.7		2.0	mg/L		25-JUN-19	R4687654
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0322		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00012		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00180		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0357		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.160		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	60.4		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00055		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00023		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00100		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.067		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0490		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	97.3		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.0182		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000485		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00165		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	7.64		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	0.069		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00311		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000124		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	0.20		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	43.9		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.231		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	52.1		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00079		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00137		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00324		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-5 D2							
Sampled By: BE/AR on 19-JUN-19 @ 18:00							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	0.00168		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0102		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	0.00033		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0027		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00013		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00176		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0357		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.160		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	57.8		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00019		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00019		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00181		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	0.029		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	02-JUL-19	R4692322
Lithium (Li)-Dissolved	0.0464		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	91.0		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00461		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000442		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00151		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	8.60		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00309		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000184		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	0.094		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	42.0		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.212		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	57.3		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00023		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	0.00039		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00319		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00122		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0062		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	0.00036		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-6 D1							
Sampled By: BE/AR on 20-JUN-19 @ 08:35							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	207		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							

* 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
L2296166-6 D1							
Sampled By: BE/AR on 20-JUN-19 @ 08:35							
Matrix: W							
Alkalinity, Carbonate							
Carbonate (CO3)	4.32		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	177		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	182		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.136		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	73.0		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	91.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	24-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	24-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	108.1		60-140	%	24-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	222		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	0.0148		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0073		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0075		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	595		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	0.84		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	0.84		0.20	mg/L		28-JUN-19	
Total Suspended Solids	4.8		2.0	mg/L		25-JUN-19	R4687654
Total Coliform and E.coli by MPN QT97							
Total Coliforms	40		1	MPN/100mL		21-JUN-19	R4682735
Escherichia Coli	<1		1	MPN/100mL		21-JUN-19	R4682735
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0422		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00016		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-6 D1							
Sampled By: BE/AR on 20-JUN-19 @ 08:35							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00202		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0382		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.095		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000062		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	40.4		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00051		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00066		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.041		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000121		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0315		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	32.3		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00643		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.00191		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00107		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	8.00		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00361		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000081		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	3.66		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	127		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.251		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	26.9		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00019		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00162		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00155		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00158		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0067		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0119		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00185		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0390		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.094		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	39.4		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00019		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-6 D1							
Sampled By: BE/AR on 20-JUN-19 @ 08:35							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00090		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	02-JUL-19	R4692322
Lithium (Li)-Dissolved	0.0293		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	29.9		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00135		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.00176		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00066		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	8.90		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00352		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000094		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	3.79		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	125		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.234		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	28.5		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	02-JUL-19	R4692322
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00150		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00107		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0032		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-7 D3							
Sampled By: BE/AR on 20-JUN-19 @ 10:58							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	326		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	19.6		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	300		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.95		0.50	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.154		0.020	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	79.5		0.30	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							

* 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
L2296166-7 D3							
Sampled By: BE/AR on 20-JUN-19 @ 10:58							
Matrix: W							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	96.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	119.7		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.035		0.010	mg/L		25-JUN-19	R4685446
Hardness (as CaCO3)	358		0.20	mg/L		02-JUL-19	
Phosphorus (P)-Total	0.0259		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0152		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0107		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	419		20	mg/L		26-JUN-19	R4690109
Total Kjeldahl Nitrogen	2.37		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.37		0.20	mg/L		28-JUN-19	
Total Suspended Solids	3.7		2.0	mg/L		26-JUN-19	R4689267
Total Coliform and E.coli by MPN QT97							
Total Coliforms	387		1	MPN/100mL		21-JUN-19	R4682735
Escherichia Coli	34		1	MPN/100mL		21-JUN-19	R4682735
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0097		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00139		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0140		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.089		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	20.9		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00046		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00083		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.018		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000074		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0242		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	78.4		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.0542		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000291		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-7 D3							
Sampled By: BE/AR on 20-JUN-19 @ 10:58							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	13.2		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00551		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000087		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	1.21		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	16.2		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.0448		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	30.7		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00060		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00034		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.000563		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00086		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0084		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0029		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00137		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0146		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.091		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	20.2		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00011		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00036		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	0.014		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0227		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	74.7		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.0276		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000255		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	14.7		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00578		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000081		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	1.27		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	16.2		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.0423		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	32.2		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-7 D3							
Sampled By: BE/AR on 20-JUN-19 @ 10:58							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.000548		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0024		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-8 D4							
Sampled By: BE/AR on 20-JUN-19 @ 14:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	341		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	21.0		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	314		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	13.7		0.50	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.285		0.020	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	92.7		0.30	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	111.1		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							

* 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
L2296166-8 D4							
Sampled By: BE/AR on 20-JUN-19 @ 14:00							
Matrix: W							
Ammonia, Total (as N)	0.023		0.010	mg/L		24-JUN-19	R4685446
Hardness (as CaCO3)	386		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	0.0277		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0207		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0070		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	474		20	mg/L		27-JUN-19	R4690135
Total Kjeldahl Nitrogen	1.61		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	1.61		0.20	mg/L		28-JUN-19	
Total Suspended Solids	21.9		2.0	mg/L		26-JUN-19	R4689267
Total Coliform and E.coli by MPN QT97							
Total Coliforms	27		1	MPN/100mL		21-JUN-19	R4682735
Escherichia Coli	5		1	MPN/100mL		21-JUN-19	R4682735
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0943		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00012		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00147		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0314		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.121		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000073		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	49.8		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	0.000011		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00051		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00017		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00096		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.100		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000088		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0243		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	70.3		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00877		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.00111		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00106		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	11.9		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	0.041		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00531		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000173		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	0.67		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	15.9		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.182		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	34.6		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00385		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00272		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00142		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0050		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2296166-8 D4							
Sampled By: BE/AR on 20-JUN-19 @ 14:00							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0041		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00013		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00139		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0360		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.123		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	47.0		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00015		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00012		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00072		0.00020	mg/L	24-JUN-19	02-JUL-19	R4692322
Iron (Fe)-Dissolved	0.015		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0228		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	65.2		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00255		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.00105		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00076		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	13.6		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00529		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000200		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	0.484		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	15.6		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.158		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	37.2		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00262		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00081		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0041		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-9 D10							
Sampled By: BE/AR on 20-JUN-19 @ 16:15							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	86.9		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	67.2		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							

* 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
L2296166-9 D10							
Sampled By: BE/AR on 20-JUN-19 @ 16:15							
Matrix: W							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	183		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.9		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.318		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	365		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	112.8		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.044		0.010	mg/L		24-JUN-19	R4685446
Hardness (as CaCO3)	533		0.20	mg/L		02-JUL-19	
Phosphorus (P)-Total	0.0279		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0216		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0062		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	770		20	mg/L		27-JUN-19	R4690135
Total Kjeldahl Nitrogen	2.78		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	2.78		0.20	mg/L		28-JUN-19	
Total Suspended Solids	5.6		2.0	mg/L		26-JUN-19	R4689267
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1		1	MPN/100mL		21-JUN-19	R4682735
Escherichia Coli	<1		1	MPN/100mL		21-JUN-19	R4682735
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0352		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00015		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00205		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0180		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-9 D10							
Sampled By: BE/AR on 20-JUN-19 @ 16:15							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.206		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000065		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	38.8		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00035		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	0.00028		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00106		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.046		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000076		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0375		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	112		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.0116		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.000592		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00145		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	16.6		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00589		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000288		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	6.85		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	25.6		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.195		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	140		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00180		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00168		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00221		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	0.00025		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0044		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00195		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0175		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.189		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	37.5		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	0.00019		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	0.00025		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00104		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	0.000053		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0355		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792

* 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
L2296166-9 D10							
Sampled By: BE/AR on 20-JUN-19 @ 16:15							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	107		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00826		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.000555		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00134		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	18.8		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00634		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000263		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	7.20		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	25.7		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.177		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	148		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00015		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	0.00047		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00162		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00172		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0042		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	0.00025		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-10 FB							
Sampled By: BE/AR							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	2.2		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	1.8		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		25-JUN-19	R4690106
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852

* 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
L2296166-10 FB							
Sampled By: BE/AR							
Matrix: W							
BTX plus F1 by GCMS							
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	104.8		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		24-JUN-19	R4685446
Hardness (as CaCO3)	<0.20		0.20	mg/L		03-JUL-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	<4.0		4.0	mg/L		27-JUN-19	R4690135
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	<0.20		0.20	mg/L		28-JUN-19	
Total Suspended Solids	<2.0		2.0	mg/L		27-JUN-19	R4690105
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00012		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.014		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	0.128		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00020		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	<0.010		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	<0.0010		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	0.0125		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	<0.050		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	<0.10		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-10 FB							
Sampled By: BE/AR							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Sodium (Na)-Total	<0.050		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	0.53		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00024		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00061		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0033		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	02-JUL-19	R4692322
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.019		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	0.056		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	02-JUL-19	R4692322
Iron (Fe)-Dissolved	0.023		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	0.0111		0.0050	mg/L	24-JUN-19	26-JUN-19	R4689792
Manganese (Mn)-Dissolved	0.00025		0.00010	mg/L	24-JUN-19	02-JUL-19	R4692322
Molybdenum (Mo)-Dissolved	0.000098		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00021		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-10 FB							
Sampled By: BE/AR							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0048		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-11 BLANK							
Sampled By: BE/AR							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		25-JUN-19	R4690106
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	92.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	107.9		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		24-JUN-19	R4685446
Hardness (as CaCO3)	<0.20		0.20	mg/L		02-JUL-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		28-JUN-19	

* 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
L2296166-11 BLANK							
Sampled By: BE/AR							
Matrix: W							
Total Dissolved Solids	<4.0		4.0	mg/L		27-JUN-19	R4690135
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	<0.20		0.20	mg/L		28-JUN-19	
Total Suspended Solids	<2.0		2.0	mg/L		27-JUN-19	R4690105
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00012		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.012		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	<0.050		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00038		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	<0.010		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	<0.0010		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Total	0.0079		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	<0.050		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	<0.10		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	<0.050		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	0.54		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00057		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-11 BLANK							
Sampled By: BE/AR							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	0.015		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
L2296166-12 QC-01							
Sampled By: BE/AR							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	206		1.2	mg/L		25-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	3.84		0.60	mg/L		25-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	176		1.0	mg/L		24-JUN-19	R4683444
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	177		1.0	mg/L		21-JUN-19	R4687367
Fluoride in Water by IC							
Fluoride (F)	0.144		0.040	mg/L		21-JUN-19	R4687367
Nitrate in Water by IC							

* 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
L2296166-12 QC-01							
Sampled By: BE/AR							
Matrix: W							
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		21-JUN-19	R4687367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		21-JUN-19	R4687367
Sulfate in Water by IC							
Sulfate (SO4)	71.0		0.60	mg/L		21-JUN-19	R4687367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
Toluene	<0.0010		0.0010	mg/L		25-JUN-19	R4691852
Ethyl benzene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
o-Xylene	<0.00050		0.00050	mg/L		25-JUN-19	R4691852
m+p-Xylenes	<0.00040		0.00040	mg/L		25-JUN-19	R4691852
F1 (C6-C10)	<0.10		0.10	mg/L		25-JUN-19	R4691852
Surrogate: 4-Bromofluorobenzene (SS)	89.0		70-130	%		25-JUN-19	R4691852
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	25-JUN-19	29-JUN-19	R4687788
F3 (C16-C34)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
F4 (C34-C50)	<0.25		0.25	mg/L	25-JUN-19	29-JUN-19	R4687788
Surrogate: 2-Bromobenzotrifluoride	104.7		60-140	%	25-JUN-19	29-JUN-19	R4687788
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		07-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		07-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.010		0.010	mg/L		24-JUN-19	R4685446
Hardness (as CaCO3)	224		0.20	mg/L		02-JUL-19	
Phosphorus (P)-Total	0.0174		0.0030	mg/L		27-JUN-19	R4689239
Phosphorus (P)-Total Dissolved	0.0054		0.0030	mg/L		25-JUN-19	R4683769
Phosphorus (P)-Total Particulate	0.0120		0.0042	mg/L		28-JUN-19	
Total Dissolved Solids	586		20	mg/L		27-JUN-19	R4690135
Total Kjeldahl Nitrogen	1.05		0.20	mg/L	27-JUN-19	28-JUN-19	R4690059
Total Nitrogen	1.05		0.20	mg/L		28-JUN-19	
Total Suspended Solids	5.1		2.0	mg/L		27-JUN-19	R4690105
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0481		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Total	0.00018		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Total	0.00202		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Total	0.0418		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Total	0.096		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Total	0.0000118		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Total	41.5		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Chromium (Cr)-Total	0.00050		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Total	0.00093		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Total	0.042		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Total	0.000156		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Total	0.0303		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2296166-12 QC-01							
Sampled By: BE/AR							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Magnesium (Mg)-Total	33.4		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Total	0.00663		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Total	0.00213		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Total	0.00126		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Total	8.38		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Total	0.00372		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Total	0.000115		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Total	2.96		0.10	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Total	0.000011		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Total	127		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Total	0.265		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Total	27.4		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Total	0.00121		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Titanium (Ti)-Total	0.00172		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Total	0.00169		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Total	0.00160		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Total	0.0131		0.0030	mg/L	28-JUN-19	28-JUN-19	R4691567
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-JUN-19	R4682807
Aluminum (Al)-Dissolved	0.0032		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Arsenic (As)-Dissolved	0.00183		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Barium (Ba)-Dissolved	0.0402		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	26-JUN-19	R4689792
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Boron (B)-Dissolved	0.090		0.010	mg/L	24-JUN-19	26-JUN-19	R4689792
Cadmium (Cd)-Dissolved	0.0000055		0.0000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Calcium (Ca)-Dissolved	39.1		0.050	mg/L	24-JUN-19	26-JUN-19	R4689792
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Copper (Cu)-Dissolved	0.00062		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-JUN-19	24-JUN-19	R4684486
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Lithium (Li)-Dissolved	0.0295		0.0010	mg/L	24-JUN-19	26-JUN-19	R4689792
Magnesium (Mg)-Dissolved	30.7		0.0050	mg/L	24-JUN-19	24-JUN-19	R4684486
Manganese (Mn)-Dissolved	0.00048		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Molybdenum (Mo)-Dissolved	0.00187		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Nickel (Ni)-Dissolved	0.00064		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-JUN-19	24-JUN-19	R4684486
Potassium (K)-Dissolved	9.01		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Rubidium (Rb)-Dissolved	0.00361		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Selenium (Se)-Dissolved	0.000100		0.000050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silicon (Si)-Dissolved	3.02		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486

* 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
L2296166-12 QC-01							
Sampled By: BE/AR							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Sodium (Na)-Dissolved	126		0.050	mg/L	24-JUN-19	24-JUN-19	R4684486
Strontium (Sr)-Dissolved	0.232		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Sulfur (S)-Dissolved	29.0		0.50	mg/L	24-JUN-19	24-JUN-19	R4684486
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Tin (Sn)-Dissolved	0.00066		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-JUN-19	24-JUN-19	R4684486
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-JUN-19	24-JUN-19	R4684486
Uranium (U)-Dissolved	0.00158		0.000010	mg/L	24-JUN-19	24-JUN-19	R4684486
Vanadium (V)-Dissolved	0.00116		0.00050	mg/L	24-JUN-19	24-JUN-19	R4684486
Zinc (Zn)-Dissolved	0.0074		0.0010	mg/L	24-JUN-19	24-JUN-19	R4684486
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-JUN-19	24-JUN-19	R4684486

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
HARDNESS-CALC-WP	Water	Hardness Calculated	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 – 0.5°C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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: L2296166 Report Date: 09-JUL-19

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4683444								
WG3087206-9 LCS								
Alkalinity, Total (as CaCO3)			103.3		%		85-115	24-JUN-19
WG3087206-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	24-JUN-19
BTEXS+F1-HSMS-WP	**Water**							
Batch R4691852								
WG3086722-17 LCS								
F1 (C6-C10)			108.2		%		70-130	25-JUN-19
WG3086722-8 LCS								
Benzene			93.2		%		70-130	25-JUN-19
Toluene			98.7		%		70-130	25-JUN-19
Ethyl benzene			104.0		%		70-130	25-JUN-19
o-Xylene			106.0		%		70-130	25-JUN-19
m+p-Xylenes			103.1		%		70-130	25-JUN-19
WG3086722-7 MB								
Benzene			<0.00050		mg/L		0.0005	25-JUN-19
Toluene			<0.0010		mg/L		0.001	25-JUN-19
Ethyl benzene			<0.00050		mg/L		0.0005	25-JUN-19
o-Xylene			<0.00030		mg/L		0.0003	25-JUN-19
m+p-Xylenes			<0.00040		mg/L		0.0004	25-JUN-19
F1 (C6-C10)			<0.10		mg/L		0.1	25-JUN-19
Surrogate: 4-Bromofluorobenzene (SS)			91.0		%		70-130	25-JUN-19
CL-IC-N-WP	**Water**							
Batch R4687367								
WG3084973-2 LCS								
Chloride (Cl)			96.9		%		90-110	21-JUN-19
WG3084973-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	21-JUN-19
F-IC-N-WP	**Water**							
Batch R4687367								
WG3084973-2 LCS								
Fluoride (F)			100.9		%		90-110	21-JUN-19
WG3084973-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	21-JUN-19
F2-F4-FID-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	**Water**							
Batch R4687788								
WG3086117-2 LCS								
F2 (C10-C16)			104.9		%		70-130	29-JUN-19
F3 (C16-C34)			100.9		%		70-130	29-JUN-19
F4 (C34-C50)			114.4		%		70-130	29-JUN-19
WG3087293-2 LCS								
F2 (C10-C16)			105.2		%		70-130	29-JUN-19
F3 (C16-C34)			104.8		%		70-130	29-JUN-19
F4 (C34-C50)			113.5		%		70-130	29-JUN-19
WG3086117-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	29-JUN-19
F3 (C16-C34)			<0.25		mg/L		0.25	29-JUN-19
F4 (C34-C50)			<0.25		mg/L		0.25	29-JUN-19
Surrogate: 2-Bromobenzotrifluoride			84.2		%		60-140	29-JUN-19
WG3087293-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	29-JUN-19
F3 (C16-C34)			<0.25		mg/L		0.25	29-JUN-19
F4 (C34-C50)			<0.25		mg/L		0.25	29-JUN-19
Surrogate: 2-Bromobenzotrifluoride			86.7		%		60-140	29-JUN-19
MET-D-CCMS-WP	**Water**							
Batch R4684486								
WG3086510-2 LCS								
Aluminum (Al)-Dissolved			106.5		%		80-120	24-JUN-19
Antimony (Sb)-Dissolved			101.0		%		80-120	24-JUN-19
Arsenic (As)-Dissolved			105.3		%		80-120	24-JUN-19
Barium (Ba)-Dissolved			102.4		%		80-120	24-JUN-19
Bismuth (Bi)-Dissolved			104.0		%		80-120	24-JUN-19
Cadmium (Cd)-Dissolved			102.4		%		80-120	24-JUN-19
Cesium (Cs)-Dissolved			103.3		%		80-120	24-JUN-19
Chromium (Cr)-Dissolved			104.7		%		80-120	24-JUN-19
Cobalt (Co)-Dissolved			103.9		%		80-120	24-JUN-19
Copper (Cu)-Dissolved			101.5		%		80-120	24-JUN-19
Iron (Fe)-Dissolved			104.3		%		80-120	24-JUN-19
Lead (Pb)-Dissolved			105.2		%		80-120	24-JUN-19
Magnesium (Mg)-Dissolved			109.6		%		80-120	24-JUN-19
Manganese (Mn)-Dissolved			105.0		%		80-120	24-JUN-19
Molybdenum (Mo)-Dissolved			103.3		%		80-120	24-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch	**R4684486**							
WG3086510-2	**LCS**							
Nickel (Ni)-Dissolved			104.6		%		80-120	24-JUN-19
Phosphorus (P)-Dissolved			109.7		%		80-120	24-JUN-19
Potassium (K)-Dissolved			106.7		%		80-120	24-JUN-19
Rubidium (Rb)-Dissolved			103.8		%		80-120	24-JUN-19
Selenium (Se)-Dissolved			101.4		%		80-120	24-JUN-19
Silicon (Si)-Dissolved			108.1		%		80-120	24-JUN-19
Silver (Ag)-Dissolved			107.8		%		80-120	24-JUN-19
Sodium (Na)-Dissolved			106.7		%		80-120	24-JUN-19
Strontium (Sr)-Dissolved			97.6		%		80-120	24-JUN-19
Sulfur (S)-Dissolved			107.2		%		80-120	24-JUN-19
Tellurium (Te)-Dissolved			101.2		%		80-120	24-JUN-19
Thallium (Tl)-Dissolved			103.3		%		80-120	24-JUN-19
Thorium (Th)-Dissolved			104.0		%		80-120	24-JUN-19
Tin (Sn)-Dissolved			103.2		%		80-120	24-JUN-19
Titanium (Ti)-Dissolved			102.3		%		80-120	24-JUN-19
Tungsten (W)-Dissolved			105.9		%		80-120	24-JUN-19
Uranium (U)-Dissolved			107.7		%		80-120	24-JUN-19
Vanadium (V)-Dissolved			106.1		%		80-120	24-JUN-19
Zinc (Zn)-Dissolved			101.5		%		80-120	24-JUN-19
Zirconium (Zr)-Dissolved			97.9		%		80-120	24-JUN-19
WG3086510-1	**MB**							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	24-JUN-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	24-JUN-19
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	24-JUN-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	24-JUN-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	24-JUN-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	24-JUN-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	24-JUN-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	24-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4684486								
WG3086510-1 MB								
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	24-JUN-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	24-JUN-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	24-JUN-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	24-JUN-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	24-JUN-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	24-JUN-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	24-JUN-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	24-JUN-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	24-JUN-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	24-JUN-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	24-JUN-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	24-JUN-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	24-JUN-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	24-JUN-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	24-JUN-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	24-JUN-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	24-JUN-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	24-JUN-19
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091493-2 LCS								
Aluminum (Al)-Total			104.0		%		80-120	28-JUN-19
Antimony (Sb)-Total			101.3		%		80-120	28-JUN-19
Arsenic (As)-Total			101.6		%		80-120	28-JUN-19
Barium (Ba)-Total			100.1		%		80-120	28-JUN-19
Beryllium (Be)-Total			101.4		%		80-120	28-JUN-19
Bismuth (Bi)-Total			97.2		%		80-120	28-JUN-19
Boron (B)-Total			101.6		%		80-120	28-JUN-19
Cadmium (Cd)-Total			101.7		%		80-120	28-JUN-19
Calcium (Ca)-Total			101.0		%		80-120	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091493-2 LCS								
Cesium (Cs)-Total			100.8		%		80-120	28-JUN-19
Chromium (Cr)-Total			99.8		%		80-120	28-JUN-19
Cobalt (Co)-Total			99.4		%		80-120	28-JUN-19
Copper (Cu)-Total			100.5		%		80-120	28-JUN-19
Iron (Fe)-Total			95.8		%		80-120	28-JUN-19
Lead (Pb)-Total			99.0		%		80-120	28-JUN-19
Lithium (Li)-Total			102.0		%		80-120	28-JUN-19
Magnesium (Mg)-Total			101.6		%		80-120	28-JUN-19
Manganese (Mn)-Total			99.98		%		80-120	28-JUN-19
Molybdenum (Mo)-Total			100.8		%		80-120	28-JUN-19
Nickel (Ni)-Total			100.1		%		80-120	28-JUN-19
Potassium (K)-Total			95.4		%		80-120	28-JUN-19
Phosphorus (P)-Total			100.3		%		80-120	28-JUN-19
Rubidium (Rb)-Total			102.4		%		80-120	28-JUN-19
Selenium (Se)-Total			101.3		%		80-120	28-JUN-19
Silicon (Si)-Total			103.2		%		80-120	28-JUN-19
Silver (Ag)-Total			98.2		%		80-120	28-JUN-19
Sodium (Na)-Total			102.2		%		80-120	28-JUN-19
Strontium (Sr)-Total			100.1		%		80-120	28-JUN-19
Sulfur (S)-Total			103.4		%		80-120	28-JUN-19
Tellurium (Te)-Total			97.9		%		80-120	28-JUN-19
Thallium (Tl)-Total			99.8		%		80-120	28-JUN-19
Thorium (Th)-Total			101.5		%		80-120	28-JUN-19
Tin (Sn)-Total			100.5		%		80-120	28-JUN-19
Titanium (Ti)-Total			102.0		%		80-120	28-JUN-19
Tungsten (W)-Total			101.0		%		80-120	28-JUN-19
Uranium (U)-Total			107.3		%		80-120	28-JUN-19
Vanadium (V)-Total			100.4		%		80-120	28-JUN-19
Zinc (Zn)-Total			102.7		%		80-120	28-JUN-19
Zirconium (Zr)-Total			96.3		%		80-120	28-JUN-19
WG3091500-2 LCS								
Aluminum (Al)-Total			101.2		%		80-120	28-JUN-19
Antimony (Sb)-Total			105.4		%		80-120	28-JUN-19
Arsenic (As)-Total			101.9		%		80-120	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091500-2 LCS								
Barium (Ba)-Total			102.4		%		80-120	28-JUN-19
Beryllium (Be)-Total			101.5		%		80-120	28-JUN-19
Bismuth (Bi)-Total			101.8		%		80-120	28-JUN-19
Boron (B)-Total			100.7		%		80-120	28-JUN-19
Cadmium (Cd)-Total			101.6		%		80-120	28-JUN-19
Calcium (Ca)-Total			100.2		%		80-120	28-JUN-19
Cesium (Cs)-Total			101.2		%		80-120	28-JUN-19
Chromium (Cr)-Total			102.7		%		80-120	28-JUN-19
Cobalt (Co)-Total			98.1		%		80-120	28-JUN-19
Copper (Cu)-Total			101.4		%		80-120	28-JUN-19
Iron (Fe)-Total			99.0		%		80-120	28-JUN-19
Lead (Pb)-Total			103.3		%		80-120	28-JUN-19
Lithium (Li)-Total			103.6		%		80-120	28-JUN-19
Magnesium (Mg)-Total			105.7		%		80-120	28-JUN-19
Manganese (Mn)-Total			102.2		%		80-120	28-JUN-19
Molybdenum (Mo)-Total			100.6		%		80-120	28-JUN-19
Nickel (Ni)-Total			98.8		%		80-120	28-JUN-19
Potassium (K)-Total			97.0		%		80-120	28-JUN-19
Phosphorus (P)-Total			107.1		%		80-120	28-JUN-19
Rubidium (Rb)-Total			99.1		%		80-120	28-JUN-19
Selenium (Se)-Total			102.7		%		80-120	28-JUN-19
Silicon (Si)-Total			104.9		%		80-120	28-JUN-19
Silver (Ag)-Total			99.7		%		80-120	28-JUN-19
Sodium (Na)-Total			104.5		%		80-120	28-JUN-19
Strontium (Sr)-Total			103.4		%		80-120	28-JUN-19
Sulfur (S)-Total			105.4		%		80-120	28-JUN-19
Tellurium (Te)-Total			97.4		%		80-120	28-JUN-19
Thallium (Tl)-Total			102.6		%		80-120	28-JUN-19
Thorium (Th)-Total			104.1		%		80-120	28-JUN-19
Tin (Sn)-Total			101.6		%		80-120	28-JUN-19
Titanium (Ti)-Total			98.9		%		80-120	28-JUN-19
Tungsten (W)-Total			101.3		%		80-120	28-JUN-19
Uranium (U)-Total			107.1		%		80-120	28-JUN-19
Vanadium (V)-Total			101.9		%		80-120	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091500-2 LCS								
Zinc (Zn)-Total			102.1		%		80-120	28-JUN-19
Zirconium (Zr)-Total			97.8		%		80-120	28-JUN-19
WG3091493-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	28-JUN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Boron (B)-Total			<0.010		mg/L		0.01	28-JUN-19
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	28-JUN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	28-JUN-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Iron (Fe)-Total			<0.010		mg/L		0.01	28-JUN-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	28-JUN-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	28-JUN-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Potassium (K)-Total			<0.050		mg/L		0.05	28-JUN-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	28-JUN-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Silicon (Si)-Total			<0.10		mg/L		0.1	28-JUN-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Sodium (Na)-Total			<0.050		mg/L		0.05	28-JUN-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Sulfur (S)-Total			<0.50		mg/L		0.5	28-JUN-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091493-1 MB								
Thorium (Th)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	28-JUN-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	28-JUN-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	28-JUN-19
WG3091500-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	28-JUN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Boron (B)-Total			<0.010		mg/L		0.01	28-JUN-19
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	28-JUN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	28-JUN-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Iron (Fe)-Total			<0.010		mg/L		0.01	28-JUN-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	28-JUN-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	28-JUN-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Potassium (K)-Total			<0.050		mg/L		0.05	28-JUN-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	28-JUN-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	28-JUN-19
Silicon (Si)-Total			<0.10		mg/L		0.1	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4691567								
WG3091500-1 MB								
Silver (Ag)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Sodium (Na)-Total			<0.050		mg/L		0.05	28-JUN-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Sulfur (S)-Total			<0.50		mg/L		0.5	28-JUN-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	28-JUN-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	28-JUN-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	28-JUN-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	28-JUN-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	28-JUN-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	28-JUN-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	28-JUN-19
N-TOTKJ-WP	**Water**							
Batch R4690059								
WG3089720-2 LCS								
Total Kjeldahl Nitrogen			97.9		%		75-125	28-JUN-19
WG3089720-6 LCS								
Total Kjeldahl Nitrogen			100.2		%		75-125	28-JUN-19
WG3089720-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	28-JUN-19
WG3089720-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	28-JUN-19
NH3-COL-WP	**Water**							
Batch R4685446								
WG3087895-18 LCS								
Ammonia, Total (as N)			97.2		%		85-115	24-JUN-19
WG3087895-22 LCS								
Ammonia, Total (as N)			97.1		%		85-115	24-JUN-19
WG3087895-17 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	24-JUN-19
WG3087895-21 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	24-JUN-19
NO2-IC-N-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R4687367								
WG3084973-2 LCS								
Nitrite (as N)			99.8		%		90-110	21-JUN-19
WG3084973-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	21-JUN-19
NO3-IC-N-WP	**Water**							
Batch R4687367								
WG3084973-2 LCS								
Nitrate (as N)			95.7		%		90-110	21-JUN-19
WG3084973-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	21-JUN-19
P-T-COL-WP	**Water**							
Batch R4689239								
WG3087513-6 LCS								
Phosphorus (P)-Total			100.9		%		80-120	27-JUN-19
WG3087513-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	27-JUN-19
P-TD-COL-WP	**Water**							
Batch R4683769								
WG3086610-2 LCS								
Phosphorus (P)-Total	Dissolved		101.9		%		80-120	25-JUN-19
WG3086610-6 LCS								
Phosphorus (P)-Total	Dissolved		98.8		%		80-120	25-JUN-19
WG3086610-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	25-JUN-19
WG3086610-5 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	25-JUN-19
SO4-IC-N-WP	**Water**							
Batch R4687367								
WG3084973-2 LCS								
Sulfate (SO4)			97.9		%		90-110	21-JUN-19
WG3084973-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	21-JUN-19
Batch R4690106								
WG3087756-2 LCS								
Sulfate (SO4)			100.2		%		90-110	25-JUN-19
WG3087756-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	25-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-WP	**Water**							
Batch R4687654								
WG3086688-30 LCS								
Total Suspended Solids			94.5		%		85-115	25-JUN-19
WG3086688-29 MB								
Total Suspended Solids			<2.0		mg/L		2	25-JUN-19
Batch R4689267								
WG3087887-2 LCS								
Total Suspended Solids			105.9		%		85-115	26-JUN-19
WG3087887-1 MB								
Total Suspended Solids			<2.0		mg/L		2	26-JUN-19
Batch R4690105								
WG3089211-3 DUP		**L2296166-10**						
Total Suspended Solids		<2.0	<2.0	RPD-NA	mg/L	N/A	20	27-JUN-19
WG3089211-2 LCS								
Total Suspended Solids			88.4		%		85-115	27-JUN-19
WG3089211-1 MB								
Total Suspended Solids			<2.0		mg/L		2	27-JUN-19
TC,EC-QT97-WP	**Water**							
Batch R4682735								
WG3084480-2 DUP		**L2296166-6**						
Total Coliforms		40	30		MPN/100mL	28	65	21-JUN-19
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	21-JUN-19
WG3084480-1 MB								
Total Coliforms			<1		MPN/100mL		1	21-JUN-19
Escherichia Coli			<1		MPN/100mL		1	21-JUN-19
TDS-WP	**Water**							
Batch R4690109								
WG3087866-6 LCS								
Total Dissolved Solids			95.9		%		85-115	26-JUN-19
WG3087866-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	26-JUN-19
Batch R4690135								
WG3089196-2 LCS								
Total Dissolved Solids			102.7		%		85-115	27-JUN-19
WG3089196-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	27-JUN-19

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
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

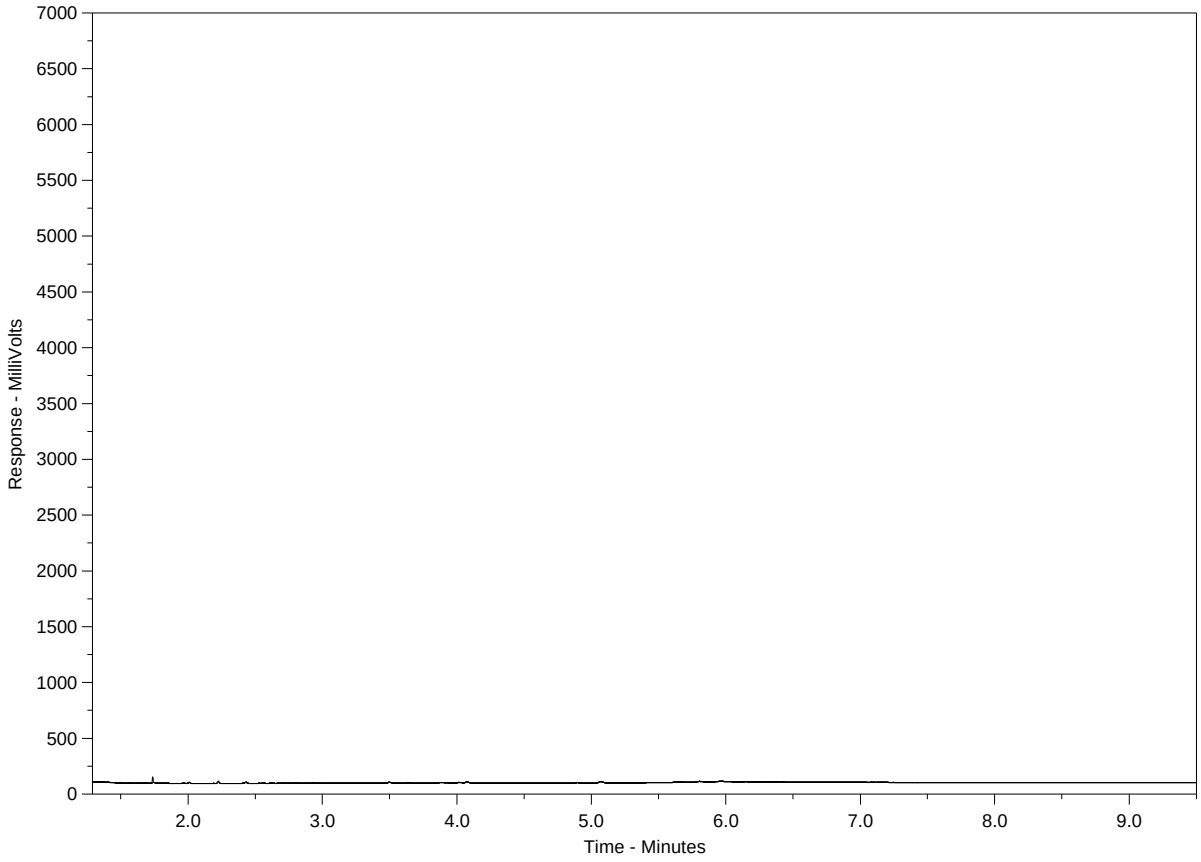
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

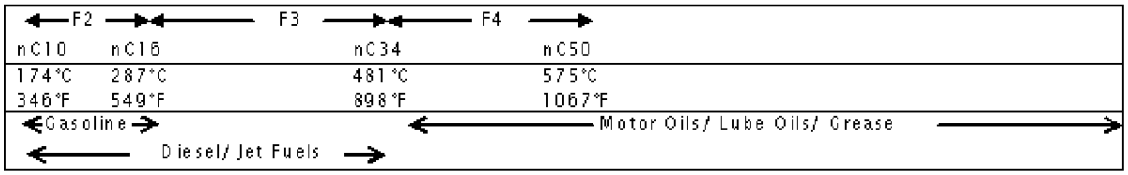
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2296166-1
Client Sample ID: D9





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

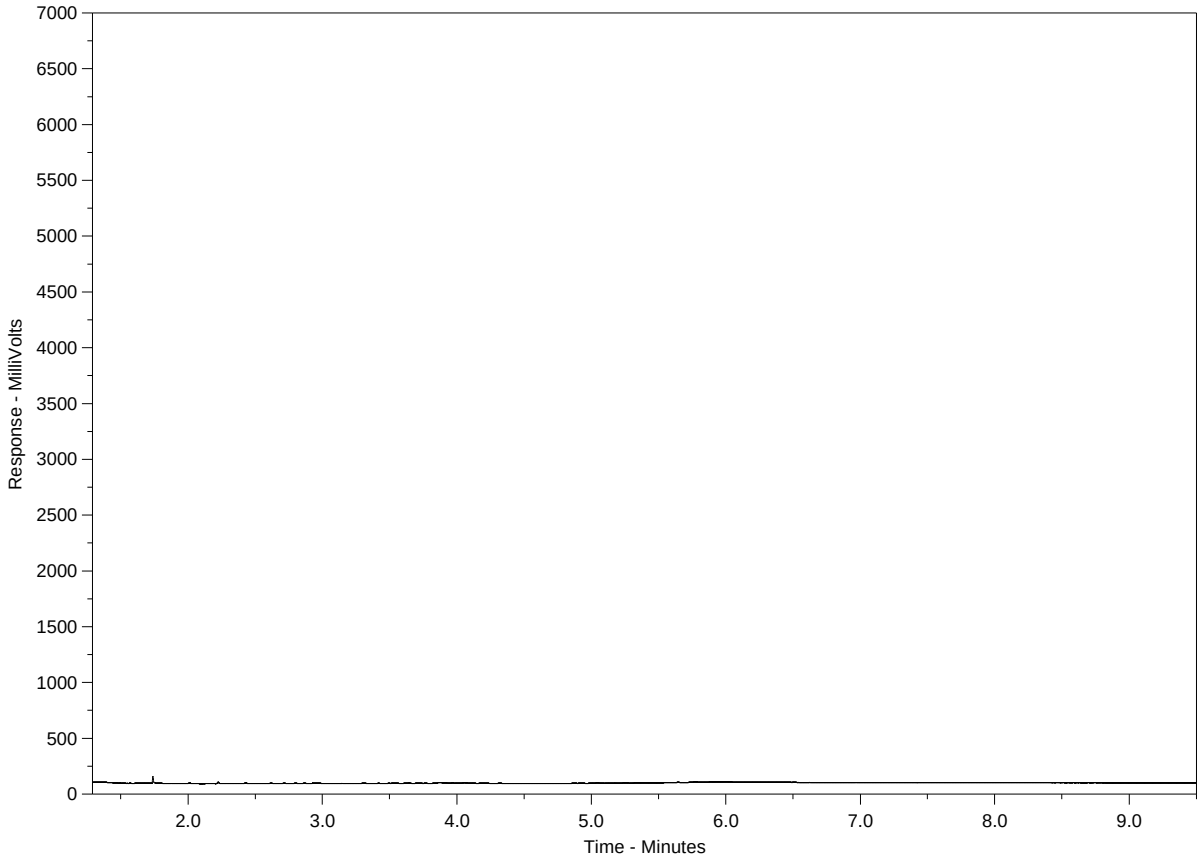
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

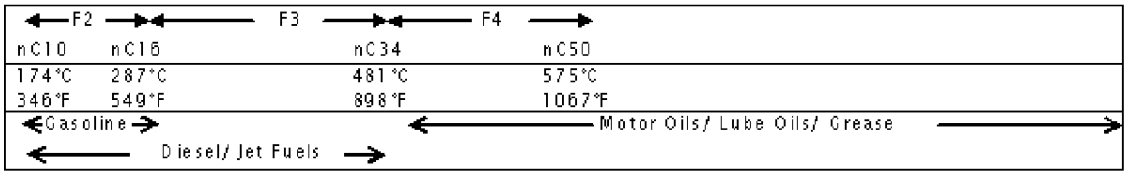
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2296166-2
Client Sample ID: D8





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

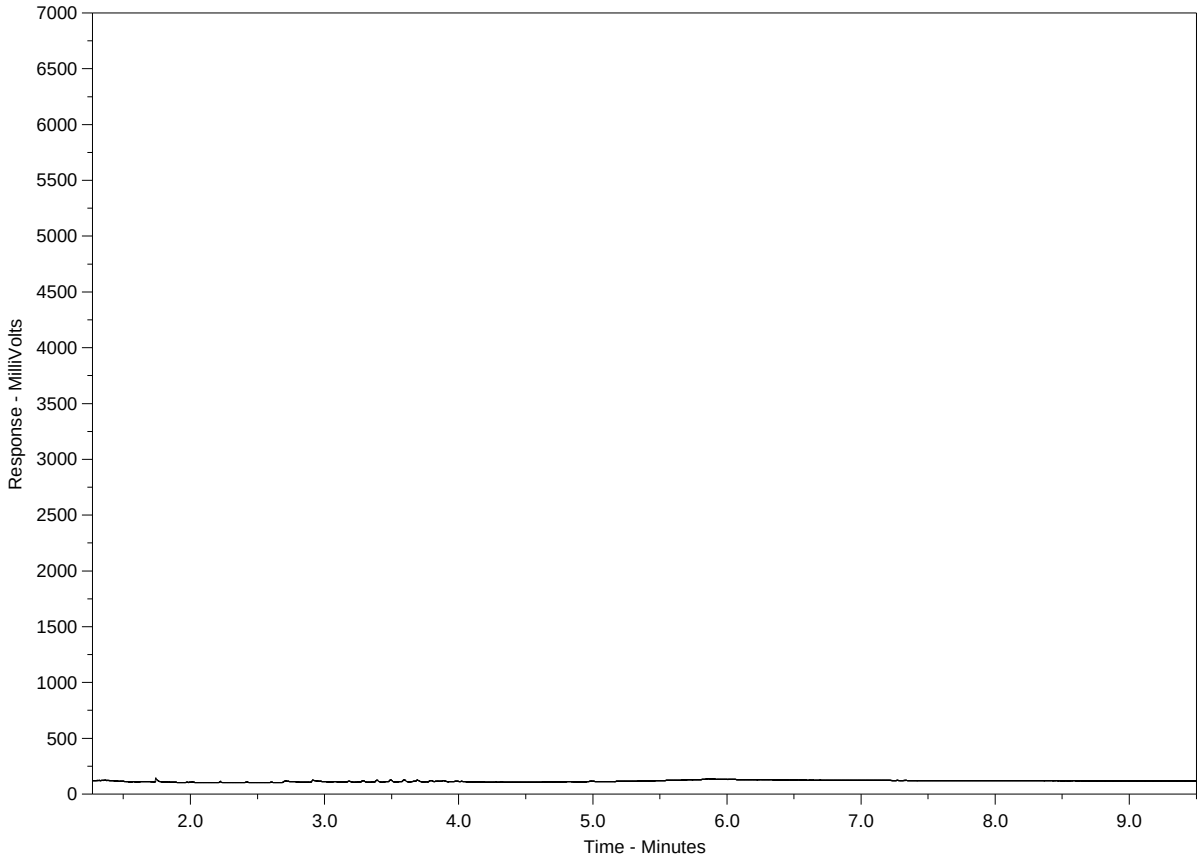
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

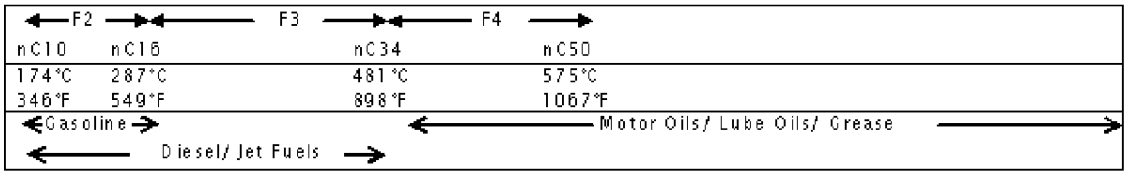
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2296166-3
Client Sample ID: D6





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

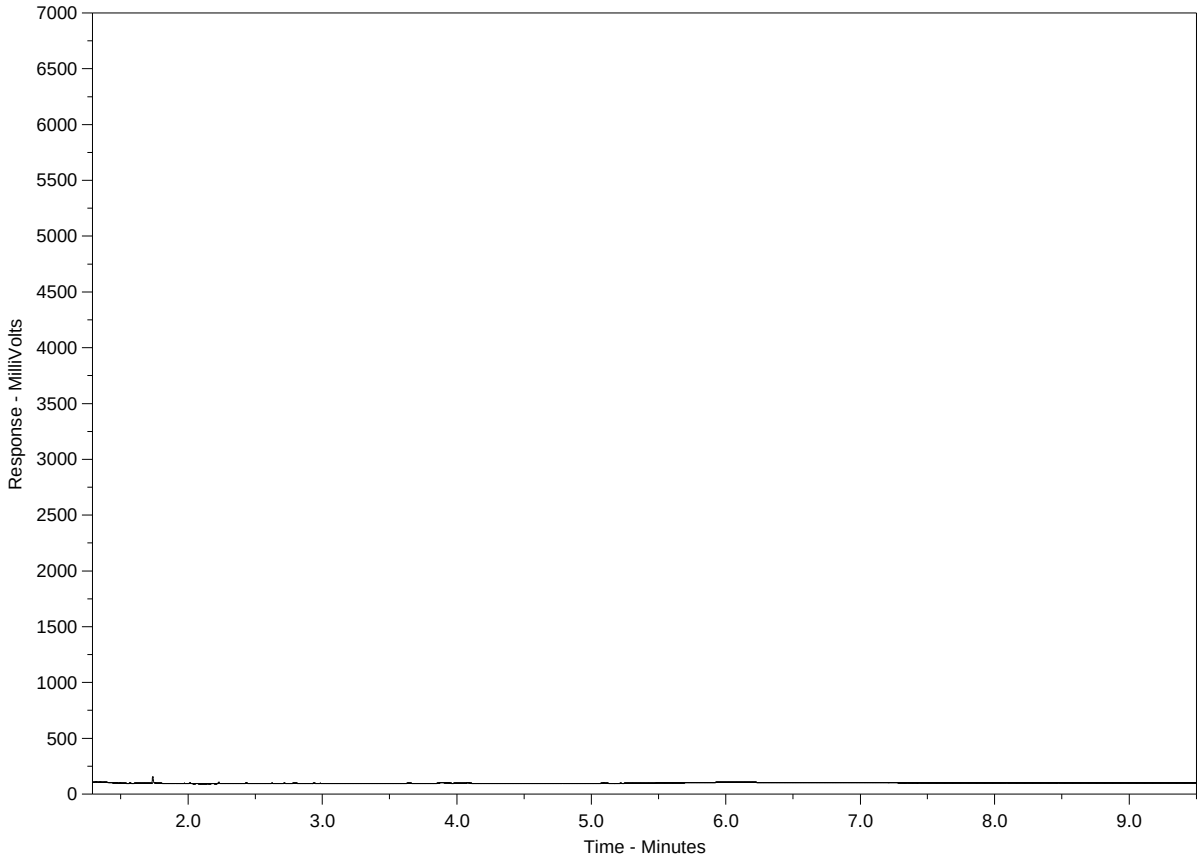
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

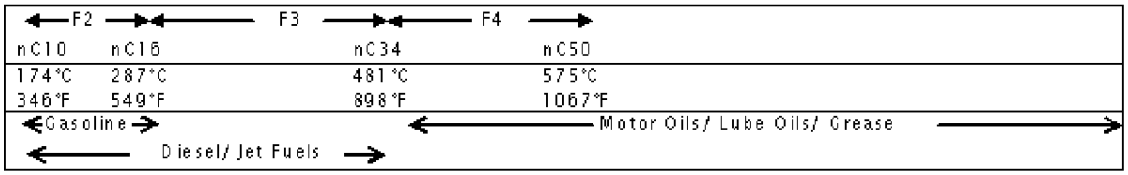
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2296166-4
Client Sample ID: D12





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

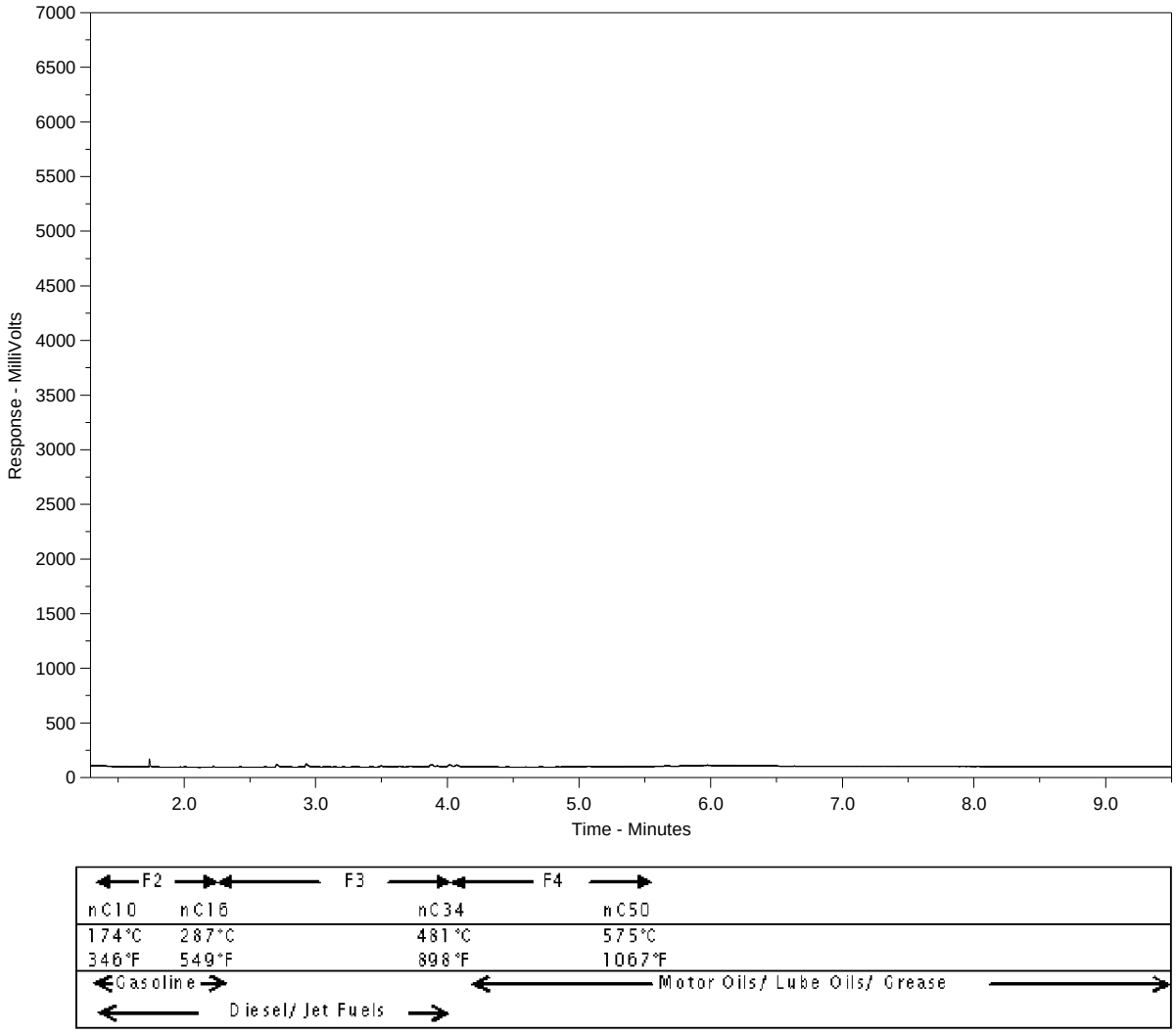
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-5
Client Sample ID: D2



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

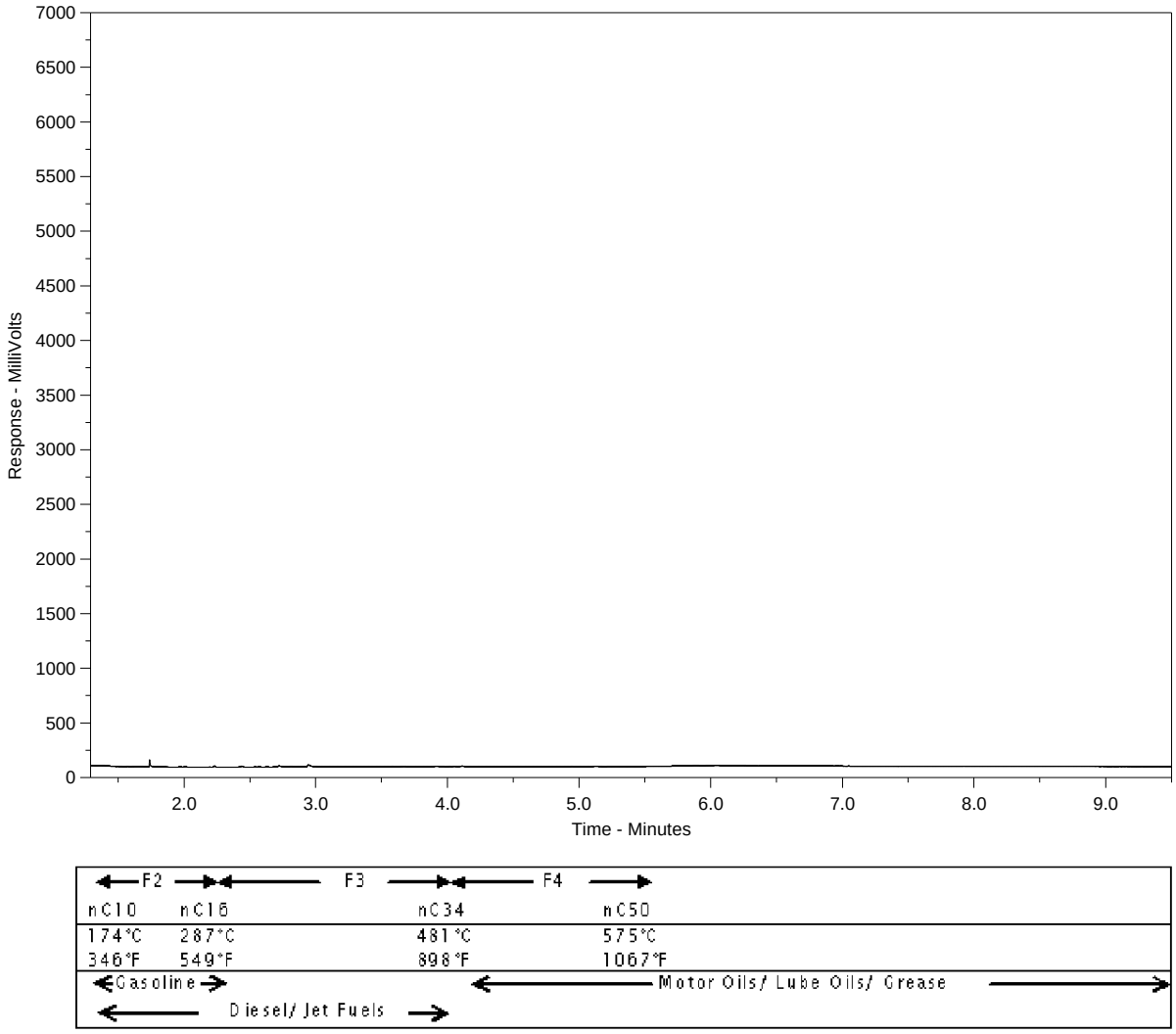
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-6
Client Sample ID: D1



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

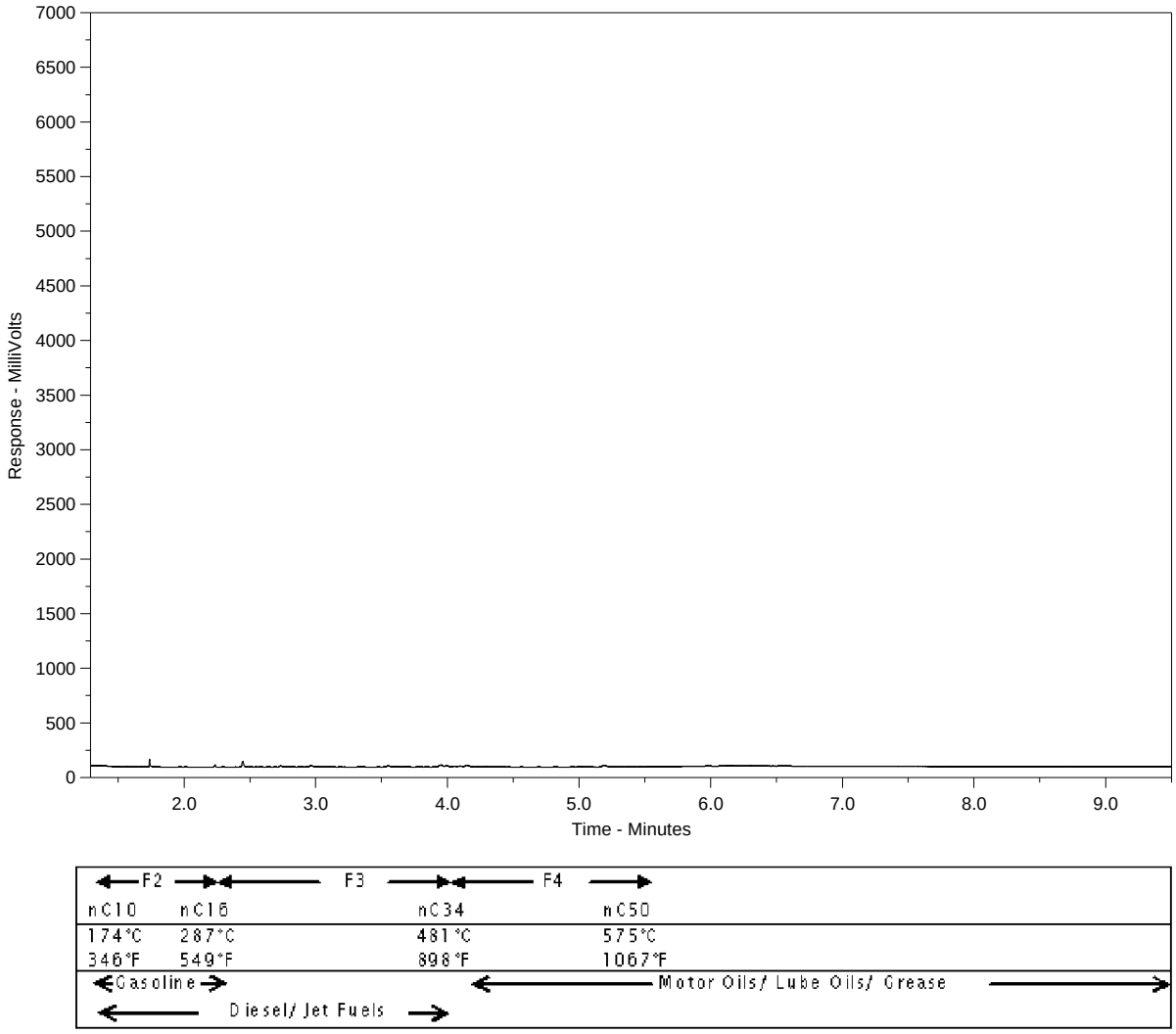
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-7
Client Sample ID: D3



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

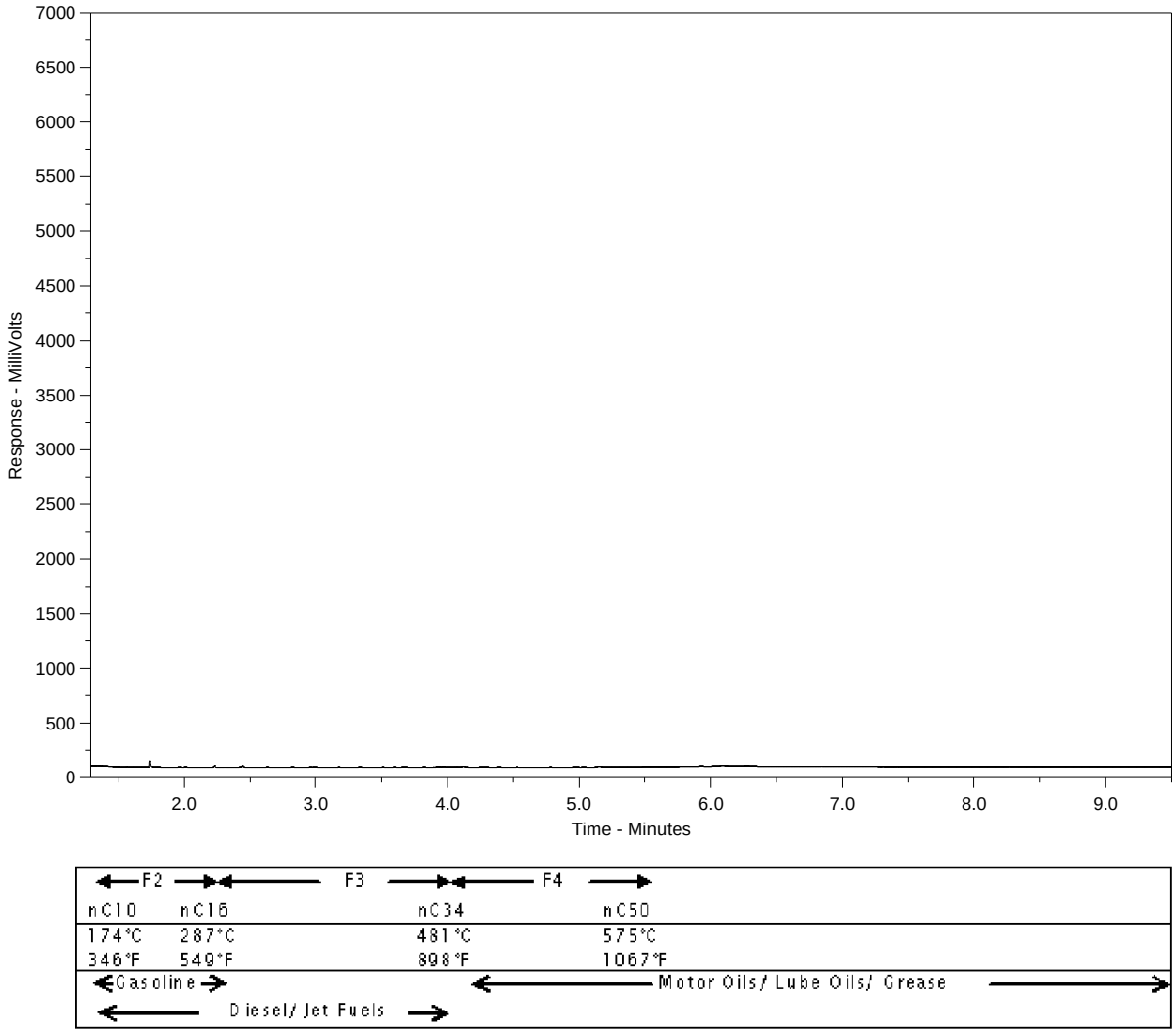
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-8
Client Sample ID: D4



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

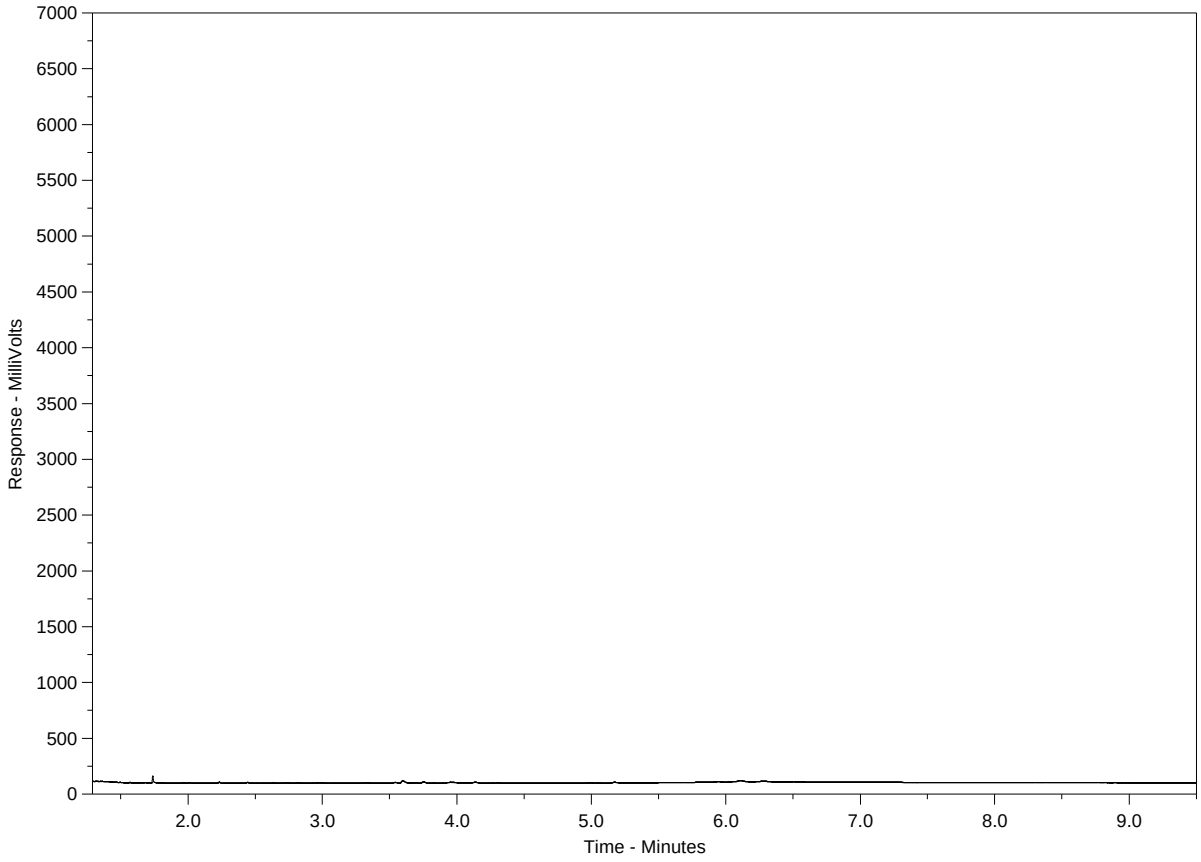
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

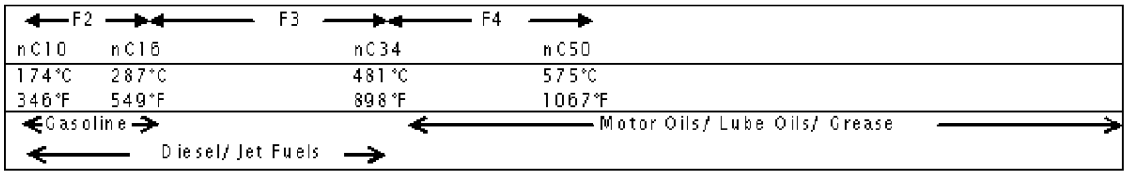
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2296166-9
Client Sample ID: D10





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

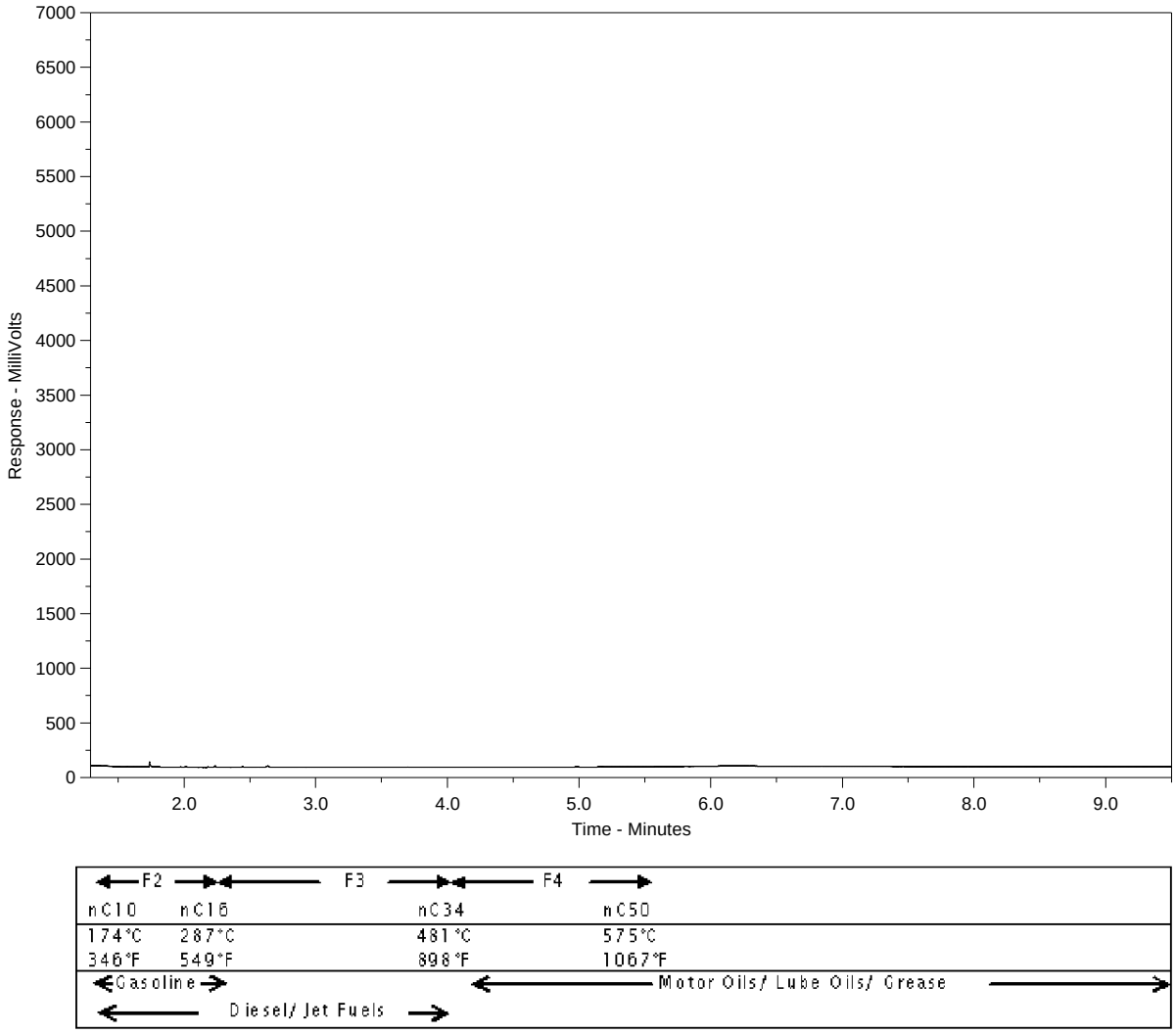
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-10
Client Sample ID: FB



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

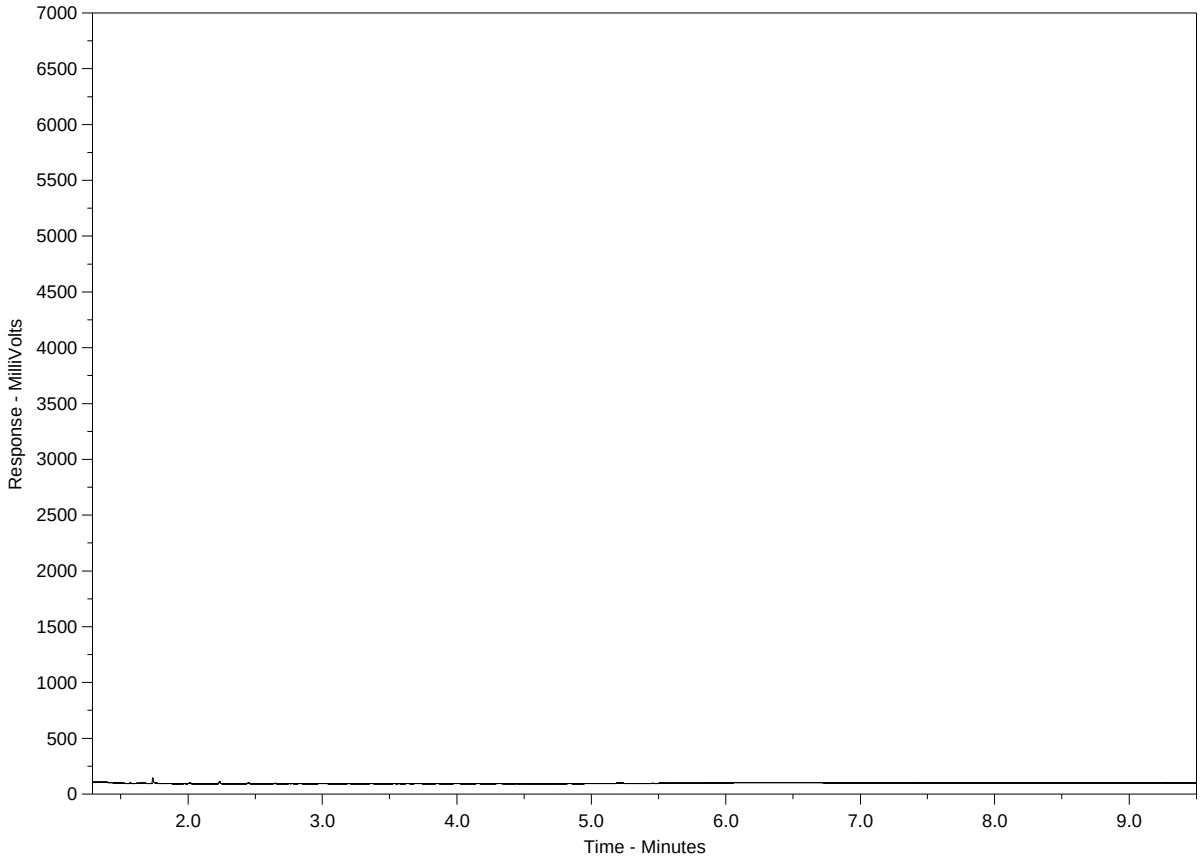
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

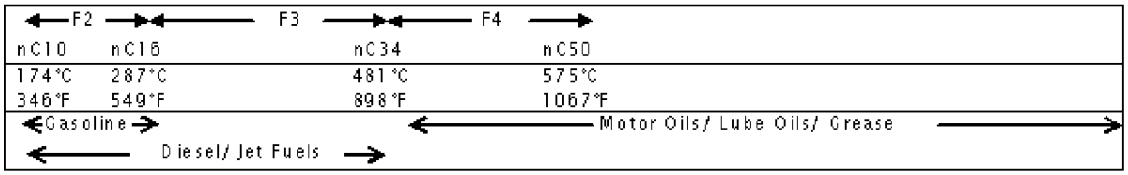
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2296166-11
Client Sample ID: BLANK





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

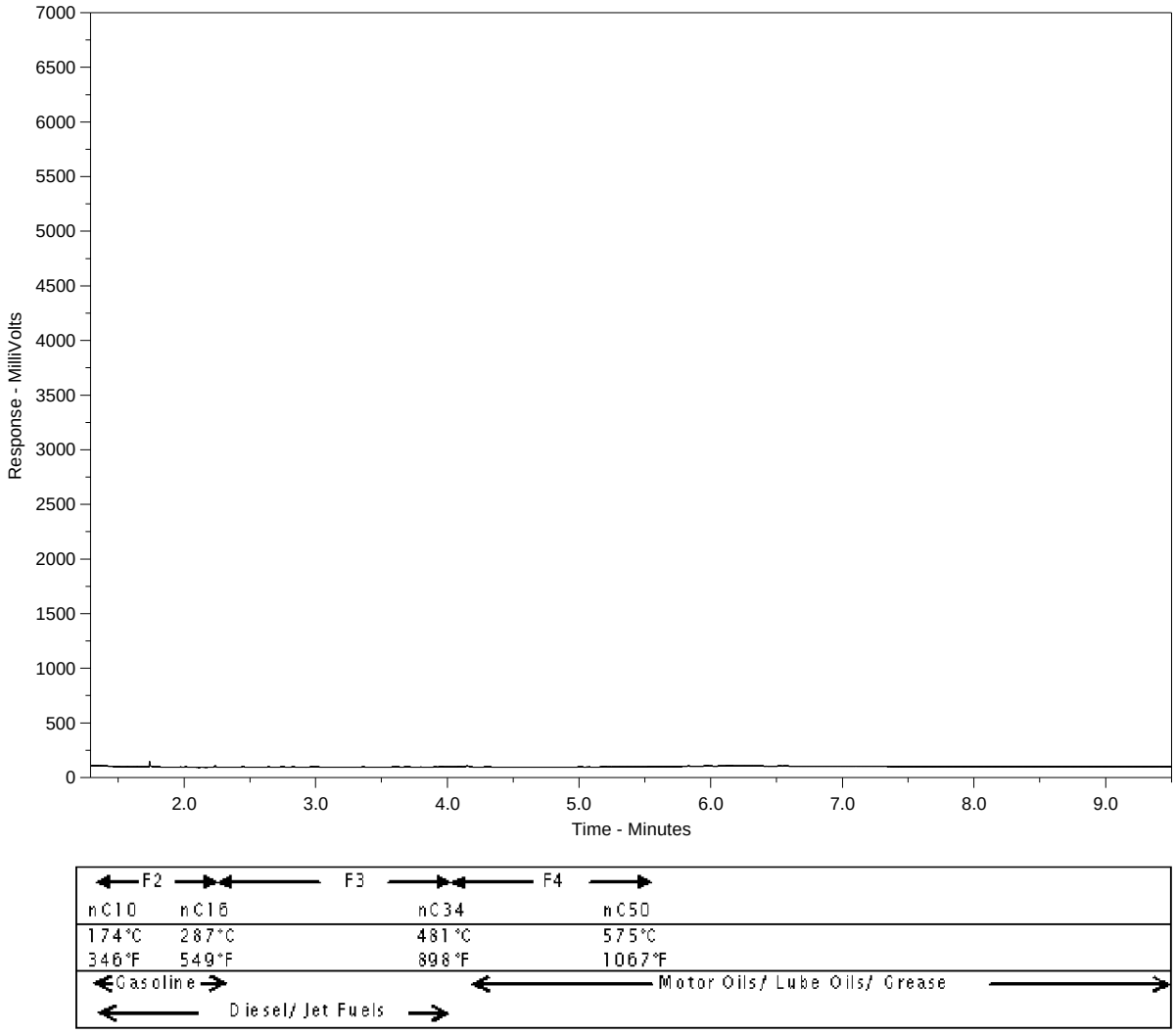
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2296166-12
Client Sample ID: QC-01



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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2296166-COFC

COC Number: 17 - 747901

Page 1 of 2

Report To	Contact and company name below will appear on the final report
Company:	Stantec Consulting
Contact:	Andrea Kneale
Phone:	204-336-5771
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Wpg, MB
Postal Code:	
Invoice To	Same as Report To [ ] YES [X] NO
	Copy of Invoice with Report [X] YES [ ] NO
Company:	Stantec Consulting
Contact:	Karen Mathers

Report Format / Distribution	
Select Report Format:	[X] PDF [X] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[X] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	andrea.kneale@stantec.com
Email 2	karen.mathers@stantec.com
Email 3	

Invoice Distribution	
Select Invoice Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Same as above
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:	1114775107	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: BG, AR

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E - 100%] [ ] | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-TA-N-WP	BTX,F2-F4-WP	EC-SCREEN-WP	ETL-N-TOT-AM3-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOTKJ5-WP	NH3-UV-IAW-WP	UR-UNION-WATER-WP	P-T-COL-WP	P-TD-COL-WP	P-TPART-CALC-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	D9	19-Jun-19	1315	W	13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	D8		1508																		
	D6		1545																		
	D12		1630																		
	D2		1800																		
	D1	20-Jun-19	0835		13																
	D3		1058																		
	D4		1400																		
	D10		1615																		

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

some samples contain E.Coli + Coliform, all dissolved samples field filtered, all samples needing preservative preserved, no name on trip blank provided by lab

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
4.4							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: B. Byard	Date: 21-06-19	Time: 0835	Received by: Em	Date: June 21/19	Time: 820	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2296166-COFC

COC Number: 17 - 747902

Page 2 of 2

Report To	Contact and company name below will appear on the final report
Company:	Stantec Consulting
Contact:	Andrea Kineale
Phone:	204-336-8771
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Wpg, MB
Postal Code:	

Report Format / Distribution	
Select Report Format:	[X] PDF [X] EXCEL | | EDD (DIGITAL)
Quality Control (QC) Report with Report	[X] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[X] EMAIL | | MAIL [ ] FAX
Email 1 or Fax	andrea.kineale@stantec.com
Email 2	Karen.mathers@stantec.com
Email 3	

Invoice To		
	Same as Report To	[ ] YES [X] NO
	Copy of Invoice with Report	[X] YES [ ] NO
Company:	Stantec Consulting	
Contact:	Karen Mathers	

Invoice Distribution	
Select Invoice Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Same as above
Email 2	

Project Information	
ALS Account # / Quote #:	Q74061
Job #:	114175107
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler: BB, AR

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R]: [X] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E - 100%] [ ] | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	SOLIDS-TDTSUS-WP	TC,EC-QT97-WP	TDS-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	D9	19-Jun-19	1315	W	12	✓	✓	✓		
	D8		1508							
	D6		1545							
	D12		1630							
	D2		1800							
	D1	20-Jun-19	0835		13					
	D3		1058							
	D4		1400							
	D10		1615							

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? | | YES | | NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[ ] Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
4.4							

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
B Lynch	20 Jun 21-06-19	0915

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:
Em	June 21/19	8:20

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 25-JUN-19
Report Date: 11-JUL-19 11:57 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2297783

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Connor Cattani
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2297783-1 TH18-03							
Sampled By: BE/AR on 24-JUN-19 @ 14:32							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	398		1.2	mg/L		26-JUN-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		26-JUN-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-JUN-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	326		1.0	mg/L		25-JUN-19	R4687366
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.5		0.50	mg/L		25-JUN-19	R4690106
Fluoride in Water by IC							
Fluoride (F)	0.199		0.020	mg/L		25-JUN-19	R4690106
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		25-JUN-19	R4690106
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		25-JUN-19	R4690106
Sulfate in Water by IC							
Sulfate (SO4)	149		0.30	mg/L		25-JUN-19	R4690106
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-19	R4695793
Toluene	<0.0010		0.0010	mg/L		29-JUN-19	R4695793
Ethyl benzene	<0.00050		0.00050	mg/L		29-JUN-19	R4695793
o-Xylene	<0.00050		0.00050	mg/L		29-JUN-19	R4695793
m+p-Xylenes	<0.00040		0.00040	mg/L		29-JUN-19	R4695793
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-19	R4695793
Surrogate: 4-Bromofluorobenzene (SS)	100.0		70-130	%		29-JUN-19	R4695793
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-JUN-19	07-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	28-JUN-19	07-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	28-JUN-19	07-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	82.8		60-140	%	28-JUN-19	07-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		10-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.121		0.010	mg/L		26-JUN-19	R4689468
Hardness (as CaCO3)	362		0.20	mg/L		05-JUL-19	
Phosphorus (P)-Total	0.0321		0.0030	mg/L		02-JUL-19	R4692451
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		02-JUL-19	R4691861
Phosphorus (P)-Total Particulate	0.0311		0.0042	mg/L		03-JUL-19	
Total Dissolved Solids	532		20	mg/L		28-JUN-19	R4691802
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	28-JUN-19	02-JUL-19	R4692235
Total Nitrogen	<0.20		0.20	mg/L		03-JUL-19	
Total Suspended Solids	238	HTD	2.0	mg/L		03-JUL-19	R4694354
Total Coliform and E.coli by MPN QT97							
Total Coliforms	46		1	MPN/100mL		25-JUN-19	R4688315
Escherichia Coli	<1		1	MPN/100mL		25-JUN-19	R4688315

* 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
L2297783-1 TH18-03							
Sampled By: BE/AR on 24-JUN-19 @ 14:32							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.532		0.0030	mg/L	02-JUL-19	02-JUL-19	R4692322
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Arsenic (As)-Total	0.00041		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Barium (Ba)-Total	0.0215		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	02-JUL-19	02-JUL-19	R4692322
Boron (B)-Total	0.452		0.010	mg/L	02-JUL-19	02-JUL-19	R4692322
Cadmium (Cd)-Total	0.0000065		0.0000050	mg/L	02-JUL-19	02-JUL-19	R4692322
Calcium (Ca)-Total	78.7		0.050	mg/L	02-JUL-19	02-JUL-19	R4692322
Cesium (Cs)-Total	0.000128		0.000010	mg/L	02-JUL-19	02-JUL-19	R4692322
Chromium (Cr)-Total	0.00141		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Cobalt (Co)-Total	0.00052		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Copper (Cu)-Total	0.00190		0.00050	mg/L	02-JUL-19	02-JUL-19	R4692322
Iron (Fe)-Total	0.412		0.010	mg/L	02-JUL-19	02-JUL-19	R4692322
Lead (Pb)-Total	0.000407		0.000050	mg/L	02-JUL-19	02-JUL-19	R4692322
Lithium (Li)-Total	0.0343		0.0010	mg/L	02-JUL-19	02-JUL-19	R4692322
Magnesium (Mg)-Total	61.7		0.0050	mg/L	02-JUL-19	02-JUL-19	R4692322
Manganese (Mn)-Total	0.0288		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Molybdenum (Mo)-Total	0.000557		0.000050	mg/L	02-JUL-19	02-JUL-19	R4692322
Nickel (Ni)-Total	0.00352		0.00050	mg/L	02-JUL-19	02-JUL-19	R4692322
Potassium (K)-Total	6.72		0.050	mg/L	02-JUL-19	02-JUL-19	R4692322
Phosphorus (P)-Total	0.040		0.030	mg/L	02-JUL-19	02-JUL-19	R4692322
Rubidium (Rb)-Total	0.00483		0.00020	mg/L	02-JUL-19	02-JUL-19	R4692322
Selenium (Se)-Total	<0.000050		0.000050	mg/L	02-JUL-19	02-JUL-19	R4692322
Silicon (Si)-Total	6.92		0.10	mg/L	02-JUL-19	02-JUL-19	R4692322
Silver (Ag)-Total	<0.000010		0.000010	mg/L	02-JUL-19	02-JUL-19	R4692322
Sodium (Na)-Total	44.2		0.050	mg/L	02-JUL-19	02-JUL-19	R4692322
Strontium (Sr)-Total	0.415		0.00020	mg/L	02-JUL-19	02-JUL-19	R4692322
Sulfur (S)-Total	53.1		0.50	mg/L	02-JUL-19	02-JUL-19	R4692322
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	02-JUL-19	02-JUL-19	R4692322
Thallium (Tl)-Total	0.000041		0.000010	mg/L	02-JUL-19	02-JUL-19	R4692322
Thorium (Th)-Total	0.00031		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Tin (Sn)-Total	0.00030		0.00010	mg/L	02-JUL-19	03-JUL-19	R4694301
Titanium (Ti)-Total	0.0222		0.00030	mg/L	02-JUL-19	02-JUL-19	R4692322
Tungsten (W)-Total	0.00021		0.00010	mg/L	02-JUL-19	02-JUL-19	R4692322
Uranium (U)-Total	0.00162		0.000010	mg/L	02-JUL-19	02-JUL-19	R4692322
Vanadium (V)-Total	0.00167		0.00050	mg/L	02-JUL-19	02-JUL-19	R4692322
Zinc (Zn)-Total	0.0072		0.0030	mg/L	02-JUL-19	03-JUL-19	R4694301
Zirconium (Zr)-Total	0.00075		0.00020	mg/L	02-JUL-19	02-JUL-19	R4692322
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					28-JUN-19	R4690702
Aluminum (Al)-Dissolved	0.0032		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Arsenic (As)-Dissolved	0.00035		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Barium (Ba)-Dissolved	0.0197		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Boron (B)-Dissolved	0.412		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Calcium (Ca)-Dissolved	63.3		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Cesium (Cs)-Dissolved	0.000029		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567

* 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
L2297783-1 TH18-03							
Sampled By: BE/AR on 24-JUN-19 @ 14:32							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	0.00018		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Cobalt (Co)-Dissolved	0.00033		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Copper (Cu)-Dissolved	0.00047		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Iron (Fe)-Dissolved	0.066		0.010	mg/L	28-JUN-19	28-JUN-19	R4691567
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Lithium (Li)-Dissolved	0.0327		0.0010	mg/L	28-JUN-19	28-JUN-19	R4691567
Magnesium (Mg)-Dissolved	49.6		0.0050	mg/L	28-JUN-19	28-JUN-19	R4691567
Manganese (Mn)-Dissolved	0.0185		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Molybdenum (Mo)-Dissolved	0.000709		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Nickel (Ni)-Dissolved	0.00280		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	28-JUN-19	28-JUN-19	R4691567
Potassium (K)-Dissolved	6.19		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Rubidium (Rb)-Dissolved	0.00397		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silicon (Si)-Dissolved	5.64		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sodium (Na)-Dissolved	42.4		0.050	mg/L	28-JUN-19	28-JUN-19	R4691567
Strontium (Sr)-Dissolved	0.421		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Sulfur (S)-Dissolved	49.2		0.50	mg/L	28-JUN-19	28-JUN-19	R4691567
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567
Thallium (Tl)-Dissolved	0.000034		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	28-JUN-19	03-JUL-19	R4694301
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	28-JUN-19	28-JUN-19	R4691567
Tungsten (W)-Dissolved	0.00036		0.00010	mg/L	28-JUN-19	28-JUN-19	R4691567
Uranium (U)-Dissolved	0.00167		0.000010	mg/L	28-JUN-19	28-JUN-19	R4691567
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	28-JUN-19	28-JUN-19	R4691567
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	28-JUN-19	03-JUL-19	R4694301
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	28-JUN-19	28-JUN-19	R4691567

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
HARDNESS-CALC-WP	Water	Hardness Calculated	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 – 0.5°C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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: L2297783 Report Date: 11-JUL-19

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4687366								
WG3088529-19 LCS								
Alkalinity, Total (as CaCO3)			104.0		%		85-115	25-JUN-19
WG3088529-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	25-JUN-19
BTEXS+F1-HSMS-WP	**Water**							
Batch R4695793								
WG3092989-2 LCS								
Benzene			90.1		%		70-130	29-JUN-19
Toluene			93.4		%		70-130	29-JUN-19
Ethyl benzene			100.9		%		70-130	29-JUN-19
o-Xylene			103.6		%		70-130	29-JUN-19
m+p-Xylenes			104.6		%		70-130	29-JUN-19
WG3092989-3 LCS								
F1 (C6-C10)			70.1		%		70-130	29-JUN-19
WG3092989-1 MB								
Benzene			<0.00050		mg/L		0.0005	29-JUN-19
Toluene			<0.0010		mg/L		0.001	29-JUN-19
Ethyl benzene			<0.00050		mg/L		0.0005	29-JUN-19
o-Xylene			<0.00030		mg/L		0.0003	29-JUN-19
m+p-Xylenes			<0.00040		mg/L		0.0004	29-JUN-19
F1 (C6-C10)			<0.10		mg/L		0.1	29-JUN-19
Surrogate: 4-Bromofluorobenzene (SS)			94.0		%		70-130	29-JUN-19
CL-IC-N-WP	**Water**							
Batch R4690106								
WG3087756-10 LCS								
Chloride (Cl)			99.5		%		90-110	25-JUN-19
WG3087756-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	25-JUN-19
F-IC-N-WP	**Water**							
Batch R4690106								
WG3087756-10 LCS								
Fluoride (F)			100.6		%		90-110	25-JUN-19
WG3087756-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	25-JUN-19
F2-F4-FID-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	**Water**							
Batch R4699009								
WG3092259-2 LCS								
F2 (C10-C16)			103.7		%		70-130	07-JUL-19
F3 (C16-C34)			106.3		%		70-130	07-JUL-19
F4 (C34-C50)			115.0		%		70-130	07-JUL-19
WG3092259-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	07-JUL-19
F3 (C16-C34)			<0.25		mg/L		0.25	07-JUL-19
F4 (C34-C50)			<0.25		mg/L		0.25	07-JUL-19
Surrogate: 2-Bromobenzotrifluoride			88.0		%		60-140	07-JUL-19
MET-D-CCMS-WP	**Water**							
Batch R4691567								
WG3091924-2 LCS								
Aluminum (Al)-Dissolved			104.0		%		80-120	28-JUN-19
Antimony (Sb)-Dissolved			104.7		%		80-120	28-JUN-19
Arsenic (As)-Dissolved			102.7		%		80-120	28-JUN-19
Barium (Ba)-Dissolved			100.8		%		80-120	28-JUN-19
Beryllium (Be)-Dissolved			99.3		%		80-120	28-JUN-19
Bismuth (Bi)-Dissolved			102.2		%		80-120	28-JUN-19
Boron (B)-Dissolved			101.9		%		80-120	28-JUN-19
Cadmium (Cd)-Dissolved			103.5		%		80-120	28-JUN-19
Calcium (Ca)-Dissolved			100.8		%		80-120	28-JUN-19
Cesium (Cs)-Dissolved			108.6		%		80-120	28-JUN-19
Chromium (Cr)-Dissolved			103.0		%		80-120	28-JUN-19
Cobalt (Co)-Dissolved			102.5		%		80-120	28-JUN-19
Copper (Cu)-Dissolved			101.2		%		80-120	28-JUN-19
Iron (Fe)-Dissolved			97.4		%		80-120	28-JUN-19
Lead (Pb)-Dissolved			106.3		%		80-120	28-JUN-19
Lithium (Li)-Dissolved			103.7		%		80-120	28-JUN-19
Magnesium (Mg)-Dissolved			105.6		%		80-120	28-JUN-19
Manganese (Mn)-Dissolved			101.6		%		80-120	28-JUN-19
Molybdenum (Mo)-Dissolved			103.4		%		80-120	28-JUN-19
Nickel (Ni)-Dissolved			102.4		%		80-120	28-JUN-19
Phosphorus (P)-Dissolved			108.6		%		80-120	28-JUN-19
Potassium (K)-Dissolved			98.5		%		80-120	28-JUN-19
Rubidium (Rb)-Dissolved			99.6		%		80-120	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4691567								
WG3091924-2 LCS								
Selenium (Se)-Dissolved			103.7		%		80-120	28-JUN-19
Silicon (Si)-Dissolved			104.7		%		80-120	28-JUN-19
Silver (Ag)-Dissolved			99.4		%		80-120	28-JUN-19
Sodium (Na)-Dissolved			107.0		%		80-120	28-JUN-19
Strontium (Sr)-Dissolved			107.9		%		80-120	28-JUN-19
Sulfur (S)-Dissolved			97.2		%		80-120	28-JUN-19
Tellurium (Te)-Dissolved			96.9		%		80-120	28-JUN-19
Thallium (Tl)-Dissolved			105.1		%		80-120	28-JUN-19
Thorium (Th)-Dissolved			106.1		%		80-120	28-JUN-19
Titanium (Ti)-Dissolved			100.2		%		80-120	28-JUN-19
Tungsten (W)-Dissolved			104.2		%		80-120	28-JUN-19
Uranium (U)-Dissolved			108.7		%		80-120	28-JUN-19
Vanadium (V)-Dissolved			103.2		%		80-120	28-JUN-19
Zirconium (Zr)-Dissolved			101.5		%		80-120	28-JUN-19
WG3091924-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	28-JUN-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	28-JUN-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	28-JUN-19
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	28-JUN-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	28-JUN-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	28-JUN-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	28-JUN-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	28-JUN-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	28-JUN-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	28-JUN-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	28-JUN-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	28-JUN-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4691567								
WG3091924-1 MB								
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	28-JUN-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	28-JUN-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	28-JUN-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	28-JUN-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	28-JUN-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	28-JUN-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	28-JUN-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	28-JUN-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	28-JUN-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	28-JUN-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	28-JUN-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	28-JUN-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	28-JUN-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	28-JUN-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	28-JUN-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	28-JUN-19
MET-T-CCMS-WP	**Water**							
Batch R4692322								
WG3093229-2 LCS								
Aluminum (Al)-Total			103.7		%		80-120	02-JUL-19
Antimony (Sb)-Total			105.0		%		80-120	02-JUL-19
Arsenic (As)-Total			103.4		%		80-120	02-JUL-19
Barium (Ba)-Total			100.2		%		80-120	02-JUL-19
Beryllium (Be)-Total			100.7		%		80-120	02-JUL-19
Bismuth (Bi)-Total			99.8		%		80-120	02-JUL-19
Boron (B)-Total			101.5		%		80-120	02-JUL-19
Cadmium (Cd)-Total			102.1		%		80-120	02-JUL-19
Calcium (Ca)-Total			101.8		%		80-120	02-JUL-19
Cesium (Cs)-Total			102.8		%		80-120	02-JUL-19
Chromium (Cr)-Total			101.0		%		80-120	02-JUL-19
Cobalt (Co)-Total			102.2		%		80-120	02-JUL-19
Copper (Cu)-Total			101.4		%		80-120	02-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4692322								
WG3093229-2 LCS								
Iron (Fe)-Total			94.3		%		80-120	02-JUL-19
Lead (Pb)-Total			99.6		%		80-120	02-JUL-19
Lithium (Li)-Total			103.1		%		80-120	02-JUL-19
Magnesium (Mg)-Total			105.8		%		80-120	02-JUL-19
Manganese (Mn)-Total			101.8		%		80-120	02-JUL-19
Molybdenum (Mo)-Total			103.3		%		80-120	02-JUL-19
Nickel (Ni)-Total			100.0		%		80-120	02-JUL-19
Potassium (K)-Total			95.4		%		80-120	02-JUL-19
Phosphorus (P)-Total			100.8		%		80-120	02-JUL-19
Rubidium (Rb)-Total			101.0		%		80-120	02-JUL-19
Selenium (Se)-Total			103.5		%		80-120	02-JUL-19
Silicon (Si)-Total			102.5		%		80-120	02-JUL-19
Silver (Ag)-Total			101.0		%		80-120	02-JUL-19
Sodium (Na)-Total			101.9		%		80-120	02-JUL-19
Strontium (Sr)-Total			100.9		%		80-120	02-JUL-19
Sulfur (S)-Total			104.0		%		80-120	02-JUL-19
Tellurium (Te)-Total			100.4		%		80-120	02-JUL-19
Thallium (Tl)-Total			99.9		%		80-120	02-JUL-19
Thorium (Th)-Total			98.1		%		80-120	02-JUL-19
Titanium (Ti)-Total			101.2		%		80-120	02-JUL-19
Tungsten (W)-Total			100.4		%		80-120	02-JUL-19
Uranium (U)-Total			102.2		%		80-120	02-JUL-19
Vanadium (V)-Total			102.7		%		80-120	02-JUL-19
Zirconium (Zr)-Total			101.4		%		80-120	02-JUL-19
WG3093229-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	02-JUL-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	02-JUL-19
Boron (B)-Total			<0.010		mg/L		0.01	02-JUL-19
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	02-JUL-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	02-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4692322								
WG3093229-1 MB								
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	02-JUL-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	02-JUL-19
Iron (Fe)-Total			<0.010		mg/L		0.01	02-JUL-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	02-JUL-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	02-JUL-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	02-JUL-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	02-JUL-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	02-JUL-19
Potassium (K)-Total			<0.050		mg/L		0.05	02-JUL-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	02-JUL-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	02-JUL-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	02-JUL-19
Silicon (Si)-Total			<0.10		mg/L		0.1	02-JUL-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	02-JUL-19
Sodium (Na)-Total			<0.050		mg/L		0.05	02-JUL-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	02-JUL-19
Sulfur (S)-Total			<0.50		mg/L		0.5	02-JUL-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	02-JUL-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	02-JUL-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	02-JUL-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	02-JUL-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	02-JUL-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	02-JUL-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	02-JUL-19
N-TOTKJ-WP	**Water**							
Batch R4692235								
WG3091070-10 LCS								
Total Kjeldahl Nitrogen			101.0		%		75-125	02-JUL-19
WG3091070-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	02-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-COL-WP	**Water**							
Batch R4689468								
WG3090325-36 LCS								
Ammonia, Total (as N)			97.7		%		85-115	26-JUN-19
WG3090325-35 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-JUN-19
NO2-IC-N-WP	**Water**							
Batch R4690106								
WG3087756-10 LCS								
Nitrite (as N)			98.8		%		90-110	25-JUN-19
WG3087756-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	25-JUN-19
NO3-IC-N-WP	**Water**							
Batch R4690106								
WG3087756-10 LCS								
Nitrate (as N)			99.8		%		90-110	25-JUN-19
WG3087756-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	25-JUN-19
P-T-COL-WP	**Water**							
Batch R4692451								
WG3092355-2 LCS								
Phosphorus (P)-Total			98.6		%		80-120	02-JUL-19
WG3092355-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	02-JUL-19
P-TD-COL-WP	**Water**							
Batch R4691861								
WG3092367-2 LCS								
Phosphorus (P)-Total	Dissolved		98.6		%		80-120	02-JUL-19
WG3092367-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	02-JUL-19
SO4-IC-N-WP	**Water**							
Batch R4690106								
WG3087756-10 LCS								
Sulfate (SO4)			99.97		%		90-110	25-JUN-19
WG3087756-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	25-JUN-19
SOLIDS-TOTSUS-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-WP	**Water**							
Batch R4694354								
WG3094183-6 LCS								
Total Suspended Solids			101.8		%		85-115	03-JUL-19
WG3094183-5 MB								
Total Suspended Solids			<2.0		mg/L		2	03-JUL-19
TC,EC-QT97-WP	**Water**							
Batch R4688315								
WG3087542-2 DUP		**L2297783-1**						
Total Coliforms		46	31		MPN/100mL	40	65	25-JUN-19
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	25-JUN-19
WG3087542-1 MB								
Total Coliforms			<1		MPN/100mL		1	25-JUN-19
Escherichia Coli			<1		MPN/100mL		1	25-JUN-19
TDS-WP	**Water**							
Batch R4691802								
WG3090976-2 LCS								
Total Dissolved Solids			99.0		%		85-115	28-JUN-19
WG3090976-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	28-JUN-19

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
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Suspended Solids							
	1	24-JUN-19 14:32	03-JUL-19 10:00	7	9	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 L2297783 were received on 25-JUN-19 09:58.

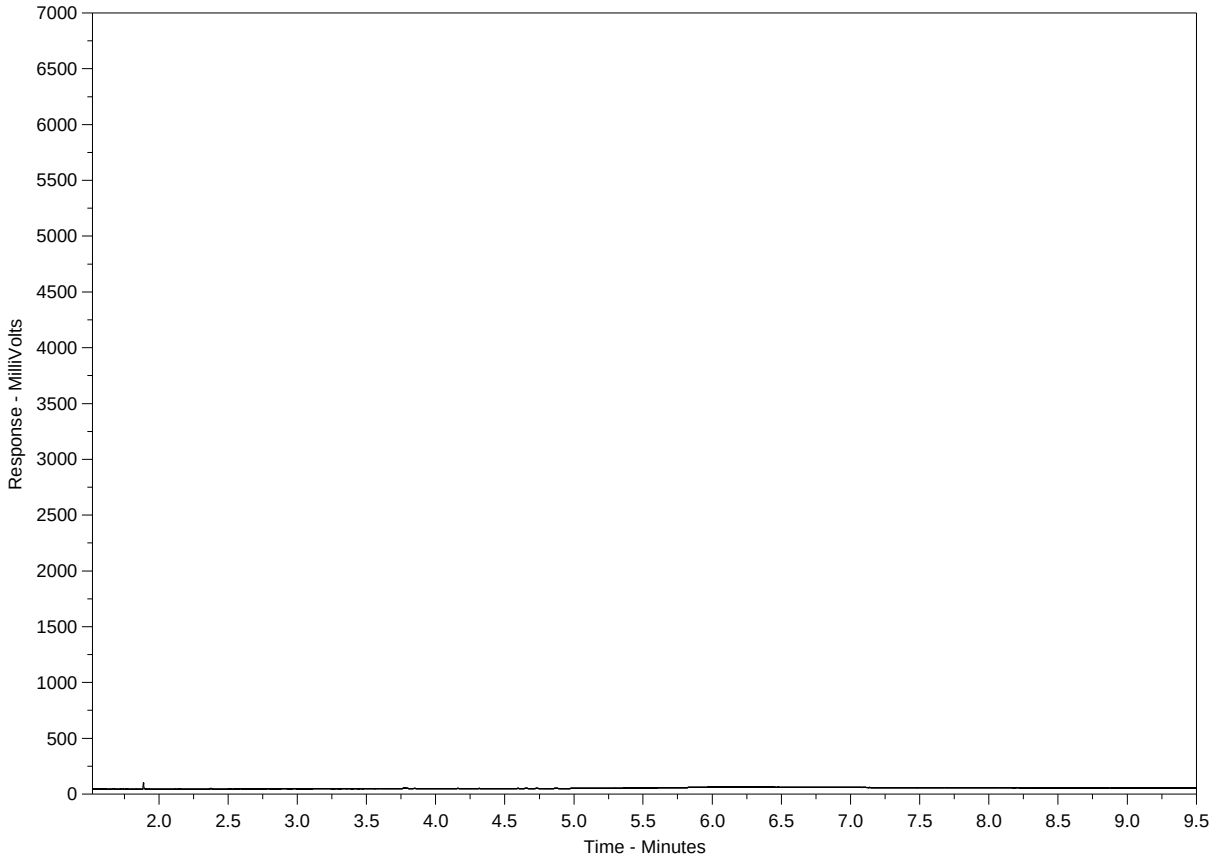
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

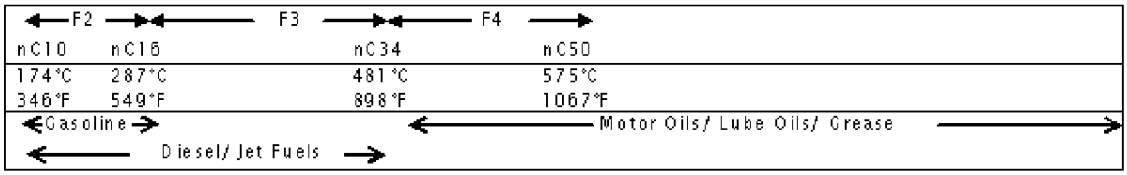
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2297783-1
Client Sample ID: TH18-03





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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2297783-COFC

COC Number: 17 - 747166

Page 2 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Required - Regular TAT is 5-7 business days - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Stantec Consulting	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Andrea Kneale	Quality Control (QC) Report with Report ☒ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	204-336-5771	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	500-311 Portage Ave	Email 1 or Fax andrea.kneale@stantec.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Wpg, MB	Email 2 Karen.mathers@stantec.com	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☒ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☒ YES ☐ NO	Email 1 or Fax	
Company:	Stantec Consulting	Email 2 Same as above	
Contact:	Karen Mathers		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:	1144751.07	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: BB, AR

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-LVP	ANIONS-TL-N-LVP	BTEX F4-F4-LVP	EC-SCREEN-LVP	FEL-N-TOT-ANA-LVP	HARDNESS-CALC-LVP	MET-D-CCMS-LVP	MET-T-CCMS-LVP	N-TOT-KJ-LVP	NH3-UNIONIZATION-LVP	NHS-UNIONIZER-LVP	P-T-COL-LVP	P-TD-COL-LVP	P-T-PART-CALC-LVP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	TH18-03	24.06.19	1429	W	13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☑
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☑	No	☐
Cooling Initiated	☑				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
9.1							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: B. Lund	Date: 25.06.19	Time: 0957	Received by: JH	Date: June 25	Time: 9:58	Received by:	Date: 06/25/19	Time: 1002

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2297783-COFC

COC Number: 17 - 747912

Page 2 of 2

Report To	Contact and company name below will appear on the final report
Company:	Stantec Consulting
Contact:	Andrea Kneale
Phone:	204-336-5771
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Wpg, MB
Postal Code:	

Report Format / Distribution	
Select Report Format:	[X] PDF [X] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[X] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	andrea.kneale@stantec.com
Email 2	karen.mathers@stantec.com
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	[X] Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days) 4 day [P4-20%]	[ ]
3 day [P3-25%]	[ ]
2 day [P2-50%]	[ ]
EMERGENCY 1 Business day [E - 100%]	[ ]
Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]	[ ]
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.	

Invoice To			
	Same as Report To	[ ] YES	[X] NO
	Copy of Invoice with Report	[X] YES	[ ] NO
Company:	Stantec Consulting		
Contact:	Karen Mathers		

Invoice Distribution	
Select Invoice Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	same as above
Email 2	

Project Information	
ALS Account # / Quote #:	Q74061
Job #:	111475107
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler: BE, AR

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	SOLIDS-TOTSUS-WP	TCEC-QT97-WP	TDS-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	TH18-03	24-06-19	1432	W	13	✓	✓	✓		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	Sample contains E Coli, all dissolved samples field filtered, all samples needing preservative preserved
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[✓]
Ice Packs	[ ] Ice Cubes [ ]	Custody seal intact	Yes [✓]	No	[ ]
Cooling Initiated	[✓]				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
9.1					

SHIPMENT RELEASE (client use)		
Released by: B. Arend	Date: 25-06-19	Time: 0957

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by: J.H	Date: June 25	Time: 9:58

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 02-JUL-19
Report Date: 16-JUL-19 10:40 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2301696

Project P.O. #: NOT SUBMITTED
Job Reference: 111475107.1714.200
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2301696-1 TH18-09							
Sampled By: AR on 25-JUN-19 @ 14:30							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	369		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	302		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.53		0.50	mg/L		02-JUL-19	R4693415
Fluoride in Water by IC							
Fluoride (F)	0.637		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	108		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-19	R4699449
Toluene	<0.0010		0.0010	mg/L		08-JUL-19	R4699449
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-19	R4699449
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-19	R4699449
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-19	R4699449
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-19	R4699449
Surrogate: 4-Bromofluorobenzene (SS)	95.0		70-130	%		08-JUL-19	R4699449
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	89.7		60-140	%	09-JUL-19	13-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		10-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.137		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	396		0.20	mg/L		10-JUL-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	486		20	mg/L		02-JUL-19	R4692829
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	2.8		2.0	mg/L		02-JUL-19	R4692638
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480

* 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
L2301696-1 TH18-09							
Sampled By: AR on 25-JUN-19 @ 14:30							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00013		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0173		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.55		0.10	mg/L	08-JUL-19	09-JUL-19	R4702112
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	74.6		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	0.000025		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00145		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.037		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Lead (Pb)-Total	0.000115		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0324		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	55.9		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.00536		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.000196		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	10.5		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00591		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.82		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	34.1		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.561		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	42.5		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.000736		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	0.0039		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0033		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Barium (Ba)-Dissolved	0.0222		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.528		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	69.8		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	0.000030		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00024		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301

* 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
L2301696-1 TH18-09							
Sampled By: AR on 25-JUN-19 @ 14:30							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	09-JUL-19	R4702112
Iron (Fe)-Dissolved	0.051		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	0.000119		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Lithium (Li)-Dissolved	0.0343		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	53.8		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.00561		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.000219		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	10.4		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00575		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silicon (Si)-Dissolved	5.79		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	33.4		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.542		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	39.9		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	0.00012		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.000771		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0085		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
L2301696-2 TH18-27							
Sampled By: AR on 26-JUN-19 @ 16:15							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	282		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	231		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.9		0.50	mg/L		02-JUL-19	R4693415
Fluoride in Water by IC							
Fluoride (F)	0.756		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	132		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							

* 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
L2301696-2 TH18-27							
Sampled By: AR on 26-JUN-19 @ 16:15							
Matrix: W							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-19	R4707926
Toluene	<0.0010		0.0010	mg/L		10-JUL-19	R4707926
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-19	R4707926
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-19	R4707926
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-19	R4707926
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-19	R4707926
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		10-JUL-19	R4707926
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	89.7		60-140	%	09-JUL-19	13-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		12-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.188		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	300		0.20	mg/L		10-JUL-19	
Phosphorus (P)-Total	0.0043		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	428		20	mg/L		03-JUL-19	R4694654
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	8.0		2.0	mg/L		03-JUL-19	R4693447
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0119		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Arsenic (As)-Total	0.00212		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0219		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.60		0.10	mg/L	08-JUL-19	09-JUL-19	R4702112
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	57.7		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00048		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	0.00024		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.118		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Lead (Pb)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0254		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	41.9		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.0105		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.00108		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	7.92		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00369		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480

* 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
L2301696-2 TH18-27							
Sampled By: AR on 26-JUN-19 @ 16:15							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.06		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	42.6		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.462		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	51.6		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	0.000013		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	0.00071		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	0.00062		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.000984		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	0.0050		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0019		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	0.00204		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Barium (Ba)-Dissolved	0.0266		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.560		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	54.4		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	0.00024		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Copper (Cu)-Dissolved	0.00135		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Iron (Fe)-Dissolved	0.111		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Lithium (Li)-Dissolved	0.0270		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	39.8		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.00985		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.00104		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	7.89		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00373		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silicon (Si)-Dissolved	5.04		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	42.9		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.450		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	50.0		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	0.000013		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	0.00017		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301

* 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
L2301696-2 TH18-27							
Sampled By: AR on 26-JUN-19 @ 16:15							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.00104		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0064		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
L2301696-3 TH18-21							
Sampled By: AR on 27-JUN-19 @ 11:30							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	315		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	258		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.47		0.50	mg/L		02-JUL-19	R4693415
Fluoride in Water by IC							
Fluoride (F)	0.419		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	106		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
Toluene	<0.0010		0.0010	mg/L		11-JUL-19	R4707926
Ethyl benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
o-Xylene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
m+p-Xylenes	<0.00040		0.00040	mg/L		11-JUL-19	R4707926
F1 (C6-C10)	<0.10		0.10	mg/L		11-JUL-19	R4707926
Surrogate: 4-Bromofluorobenzene (SS)	93.5		70-130	%		11-JUL-19	R4707926
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	89.5		60-140	%	09-JUL-19	13-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		12-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.118		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	304		0.20	mg/L		10-JUL-19	

* 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
L2301696-3 TH18-21							
Sampled By: AR on 27-JUN-19 @ 11:30							
Matrix: W							
Phosphorus (P)-Total	0.0346		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	0.0325		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	392		20	mg/L		04-JUL-19	R4694737
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	51.2		2.0	mg/L		04-JUL-19	R4694448
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.130		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Arsenic (As)-Total	0.00207		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0385		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.516		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	63.2		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	0.000031		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00035		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	0.00023		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.279		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Lead (Pb)-Total	0.000220		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0213		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	48.6		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.0174		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.000633		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	0.00060		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	6.48		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	0.040		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00325		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.05		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	35.5		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.377		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	39.0		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	0.000019		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	0.00705		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.000880		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Vanadium (V)-Total	0.00075		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	0.0155		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0039		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	0.00211		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301

* 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
L2301696-3 TH18-21							
Sampled By: AR on 27-JUN-19 @ 11:30							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Barium (Ba)-Dissolved	0.0421		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.475		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	50.5		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00040		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	0.00015		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Copper (Cu)-Dissolved	0.00130		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Iron (Fe)-Dissolved	0.094		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	0.000065		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Lithium (Li)-Dissolved	0.0224		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	43.3		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.0106		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.000707		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	6.58		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00320		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silicon (Si)-Dissolved	4.81		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	36.5		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.363		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	37.9		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	0.000018		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.000928		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0074		0.0010	mg/L	03-JUL-19	09-JUL-19	R4702112
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
L2301696-4 TH18-13							
Sampled By: AR on 28-JUN-19 @ 09:50							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	415		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	340		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.62		0.50	mg/L		02-JUL-19	R4693415

* 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
L2301696-4 TH18-13							
Sampled By: AR on 28-JUN-19 @ 09:50							
Matrix: W							
Fluoride in Water by IC							
Fluoride (F)	0.554		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	117		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
Toluene	<0.0010		0.0010	mg/L		11-JUL-19	R4707926
Ethyl benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
o-Xylene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
m+p-Xylenes	<0.00040		0.00040	mg/L		11-JUL-19	R4707926
F1 (C6-C10)	<0.10		0.10	mg/L		11-JUL-19	R4707926
Surrogate: 4-Bromofluorobenzene (SS)	79.8		70-130	%		11-JUL-19	R4707926
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	89.2		60-140	%	09-JUL-19	13-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		12-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.121		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	391		0.20	mg/L		10-JUL-19	
Phosphorus (P)-Total	0.0034		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	471		20	mg/L		04-JUL-19	R4694737
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	5.3		2.0	mg/L		05-JUL-19	R4696073
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0244		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Arsenic (As)-Total	0.00050		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0184		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.59		0.10	mg/L	08-JUL-19	09-JUL-19	R4702112
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	73.0		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	0.000020		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00025		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	0.00021		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.097		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480

* 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
L2301696-4 TH18-13							
Sampled By: AR on 28-JUN-19 @ 09:50							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Lead (Pb)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0319		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	56.1		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.0187		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.000219		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	10.3		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00512		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.68		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	33.5		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.554		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	44.1		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	0.00012		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	0.00090		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.000896		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0033		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	0.00048		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Barium (Ba)-Dissolved	0.0237		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.543		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	68.1		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	0.000018		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	0.00020		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	09-JUL-19	R4702112
Iron (Fe)-Dissolved	0.090		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Lithium (Li)-Dissolved	0.0338		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	53.5		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.0190		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.000248		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	10.3		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00515		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301

* 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
L2301696-4 TH18-13							
Sampled By: AR on 28-JUN-19 @ 09:50							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Silicon (Si)-Dissolved	5.58		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	33.9		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.539		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	41.9		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.000946		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0068		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
L2301696-5 TH18-36							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	278		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	228		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.6		0.50	mg/L		02-JUL-19	R4693415
Fluoride in Water by IC							
Fluoride (F)	0.757		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	124		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		12-JUL-19	R4707926
Toluene	<0.0010		0.0010	mg/L		12-JUL-19	R4707926
Ethyl benzene	<0.00050		0.00050	mg/L		12-JUL-19	R4707926
o-Xylene	<0.00050		0.00050	mg/L		12-JUL-19	R4707926
m+p-Xylenes	<0.00040		0.00040	mg/L		12-JUL-19	R4707926
F1 (C6-C10)	<0.10		0.10	mg/L		12-JUL-19	R4707926
Surrogate: 4-Bromofluorobenzene (SS)	90.4		70-130	%		12-JUL-19	R4707926
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	91.7		60-140	%	09-JUL-19	13-JUL-19	R4699009

* 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
L2301696-5 TH18-36							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		12-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.161		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	270		0.20	mg/L		10-JUL-19	
Phosphorus (P)-Total	0.0131		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	0.0034		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	0.0097		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	411		20	mg/L		04-JUL-19	R4694737
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	56.5		2.0	mg/L		05-JUL-19	R4696073
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.137		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Arsenic (As)-Total	0.00088		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0227		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.66		0.10	mg/L	08-JUL-19	09-JUL-19	R4702112
Cadmium (Cd)-Total	0.0000066		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	56.9		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	0.000041		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00066		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	0.00016		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.166		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Lead (Pb)-Total	0.000314		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0304		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	40.7		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.0140		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.000894		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	0.00062		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	8.62		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	0.032		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00407		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.14		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	49.4		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.412		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	45.3		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	0.000011		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	0.00134		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	0.00739		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.00111		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480

* 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
L2301696-5 TH18-36							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	0.00063		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	0.0107		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0017		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	0.00084		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Barium (Ba)-Dissolved	0.0263		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.63		0.10	mg/L	03-JUL-19	05-JUL-19	R4695920
Cadmium (Cd)-Dissolved	0.0000065		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	48.3		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	0.000014		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00030		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Copper (Cu)-Dissolved	0.00135		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Iron (Fe)-Dissolved	0.041		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	0.000111		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Lithium (Li)-Dissolved	0.0320		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	36.4		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.00855		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.000994		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	8.72		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00386		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silicon (Si)-Dissolved	4.82		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	50.2		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.407		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	44.6		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	0.00011		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.00120		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0106		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
L2301696-6 QC-02							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	273		1.2	mg/L		03-JUL-19	
Alkalinity, Carbonate							

* 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
L2301696-6 QC-02							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		03-JUL-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		03-JUL-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	224		1.0	mg/L		02-JUL-19	R4692423
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.4		0.50	mg/L		02-JUL-19	R4693415
Fluoride in Water by IC							
Fluoride (F)	0.750		0.020	mg/L		02-JUL-19	R4693415
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUL-19	R4693415
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-19	R4693415
Sulfate in Water by IC							
Sulfate (SO4)	123		0.30	mg/L		02-JUL-19	R4693415
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
Toluene	<0.0010		0.0010	mg/L		11-JUL-19	R4707926
Ethyl benzene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
o-Xylene	<0.00050		0.00050	mg/L		11-JUL-19	R4707926
m+p-Xylenes	<0.00040		0.00040	mg/L		11-JUL-19	R4707926
F1 (C6-C10)	<0.10		0.10	mg/L		11-JUL-19	R4707926
Surrogate: 4-Bromofluorobenzene (SS)	79.8		70-130	%		11-JUL-19	R4707926
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-19	13-JUL-19	R4699009
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-19	13-JUL-19	R4699009
Surrogate: 2-Bromobenzotrifluoride	88.4		60-140	%	09-JUL-19	13-JUL-19	R4699009
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		16-JUL-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		12-JUL-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.146		0.010	mg/L		08-JUL-19	R4699408
Hardness (as CaCO3)	270		0.20	mg/L		10-JUL-19	
Phosphorus (P)-Total	0.0112		0.0030	mg/L		08-JUL-19	R4697472
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		09-JUL-19	R4698869
Phosphorus (P)-Total Particulate	0.0096		0.0042	mg/L		09-JUL-19	
Total Dissolved Solids	408		20	mg/L		04-JUL-19	R4694737
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-JUL-19	09-JUL-19	R4699635
Total Nitrogen	<0.20		0.20	mg/L		09-JUL-19	
Total Suspended Solids	45.7		2.0	mg/L		05-JUL-19	R4696073
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.147		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Arsenic (As)-Total	0.00090		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Barium (Ba)-Total	0.0224		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480

* 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
L2301696-6 QC-02							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Boron (B)-Total	0.66		0.10	mg/L	08-JUL-19	09-JUL-19	R4702112
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Calcium (Ca)-Total	59.6		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Cesium (Cs)-Total	0.000047		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Chromium (Cr)-Total	0.00036		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Cobalt (Co)-Total	0.00017		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Iron (Fe)-Total	0.184		0.010	mg/L	08-JUL-19	08-JUL-19	R4697480
Lead (Pb)-Total	0.000295		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Lithium (Li)-Total	0.0304		0.0010	mg/L	08-JUL-19	08-JUL-19	R4697480
Magnesium (Mg)-Total	41.1		0.0050	mg/L	08-JUL-19	08-JUL-19	R4697480
Manganese (Mn)-Total	0.0150		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Molybdenum (Mo)-Total	0.000865		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Nickel (Ni)-Total	0.00061		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Potassium (K)-Total	8.69		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-JUL-19	08-JUL-19	R4697480
Rubidium (Rb)-Total	0.00417		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-JUL-19	08-JUL-19	R4697480
Silicon (Si)-Total	5.18		0.10	mg/L	08-JUL-19	08-JUL-19	R4697480
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Sodium (Na)-Total	49.8		0.050	mg/L	08-JUL-19	08-JUL-19	R4697480
Strontium (Sr)-Total	0.419		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Sulfur (S)-Total	46.1		0.50	mg/L	08-JUL-19	08-JUL-19	R4697480
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Thallium (Tl)-Total	0.000011		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Thorium (Th)-Total	0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Titanium (Ti)-Total	0.00810		0.00030	mg/L	08-JUL-19	08-JUL-19	R4697480
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-JUL-19	08-JUL-19	R4697480
Uranium (U)-Total	0.00114		0.000010	mg/L	08-JUL-19	08-JUL-19	R4697480
Vanadium (V)-Total	0.00070		0.00050	mg/L	08-JUL-19	08-JUL-19	R4697480
Zinc (Zn)-Total	0.0078		0.0030	mg/L	08-JUL-19	08-JUL-19	R4697480
Zirconium (Zr)-Total	0.00021		0.00020	mg/L	08-JUL-19	08-JUL-19	R4697480
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-JUL-19	R4693136
Aluminum (Al)-Dissolved	0.0039		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Arsenic (As)-Dissolved	0.00084		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Barium (Ba)-Dissolved	0.0216		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Boron (B)-Dissolved	0.64		0.10	mg/L	03-JUL-19	05-JUL-19	R4695920
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Calcium (Ca)-Dissolved	49.1		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Cesium (Cs)-Dissolved	0.000017		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Chromium (Cr)-Dissolved	0.00012		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Iron (Fe)-Dissolved	0.026		0.010	mg/L	03-JUL-19	03-JUL-19	R4694301
Lead (Pb)-Dissolved	0.000077		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301

* 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
L2301696-6 QC-02							
Sampled By: AR on 28-JUN-19 @ 13:10							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Lithium (Li)-Dissolved	0.0314		0.0010	mg/L	03-JUL-19	03-JUL-19	R4694301
Magnesium (Mg)-Dissolved	35.8		0.0050	mg/L	03-JUL-19	03-JUL-19	R4694301
Manganese (Mn)-Dissolved	0.00851		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Molybdenum (Mo)-Dissolved	0.000898		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-JUL-19	03-JUL-19	R4694301
Potassium (K)-Dissolved	8.61		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Rubidium (Rb)-Dissolved	0.00399		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silicon (Si)-Dissolved	4.84		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sodium (Na)-Dissolved	49.1		0.050	mg/L	03-JUL-19	03-JUL-19	R4694301
Strontium (Sr)-Dissolved	0.410		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Sulfur (S)-Dissolved	43.8		0.50	mg/L	03-JUL-19	03-JUL-19	R4694301
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	09-JUL-19	R4702112
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-JUL-19	03-JUL-19	R4694301
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-JUL-19	03-JUL-19	R4694301
Uranium (U)-Dissolved	0.00116		0.000010	mg/L	03-JUL-19	03-JUL-19	R4694301
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	03-JUL-19	03-JUL-19	R4694301
Zinc (Zn)-Dissolved	0.0037		0.0010	mg/L	03-JUL-19	09-JUL-19	R4702112
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	03-JUL-19	03-JUL-19	R4694301

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
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.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc			
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L
Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC. In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons. In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1. In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3. Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range: 1. All extraction and analysis holding times were met. 2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene. 3. Linearity of gasoline response within 15% throughout the calibration range. Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges: 1. All extraction and analysis holding times were met. 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
HARDNESS-CALC-WP	Water	Hardness Calculated	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4692423								
WG3094135-14 LCS								
Alkalinity, Total (as CaCO3)			103.4		%		85-115	02-JUL-19
WG3094135-19 LCS								
Alkalinity, Total (as CaCO3)			103.8		%		85-115	02-JUL-19
WG3094135-11 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	02-JUL-19
WG3094135-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	02-JUL-19
BTEXS+F1-HSMS-WP	**Water**							
Batch R4699449								
WG3099193-6 LCS								
Benzene			83.1		%		70-130	09-JUL-19
Toluene			86.5		%		70-130	09-JUL-19
Ethyl benzene			95.5		%		70-130	09-JUL-19
o-Xylene			99.2		%		70-130	09-JUL-19
m+p-Xylenes			86.8		%		70-130	09-JUL-19
WG3099193-7 LCS								
F1 (C6-C10)			112.5		%		70-130	09-JUL-19
WG3099193-5 MB								
Benzene			<0.00050		mg/L		0.0005	09-JUL-19
Toluene			<0.0010		mg/L		0.001	09-JUL-19
Ethyl benzene			<0.00050		mg/L		0.0005	09-JUL-19
o-Xylene			<0.00030		mg/L		0.0003	09-JUL-19
m+p-Xylenes			<0.00040		mg/L		0.0004	09-JUL-19
F1 (C6-C10)			<0.10		mg/L		0.1	09-JUL-19
Surrogate: 4-Bromofluorobenzene (SS)			89.0		%		70-130	09-JUL-19
Batch R4707926								
WG3100283-8 DUP		**L2301696-2**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-JUL-19
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	11-JUL-19
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-JUL-19
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	11-JUL-19
m+p-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	11-JUL-19
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	11-JUL-19
WG3100283-6 LCS								
Benzene			75.9		%		70-130	10-JUL-19
Toluene			88.7		%		70-130	10-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Water**							
Batch R4707926								
WG3100283-6 LCS								
Ethyl benzene			91.5		%		70-130	10-JUL-19
o-Xylene			103.4		%		70-130	10-JUL-19
m+p-Xylenes			92.1		%		70-130	10-JUL-19
WG3100283-7 LCS								
F1 (C6-C10)			101.1		%		70-130	10-JUL-19
WG3100283-5 MB								
Benzene			<0.00050		mg/L		0.0005	10-JUL-19
Toluene			<0.0010		mg/L		0.001	10-JUL-19
Ethyl benzene			<0.00050		mg/L		0.0005	10-JUL-19
o-Xylene			<0.00030		mg/L		0.0003	10-JUL-19
m+p-Xylenes			<0.00040		mg/L		0.0004	10-JUL-19
F1 (C6-C10)			<0.10		mg/L		0.1	10-JUL-19
Surrogate: 4-Bromofluorobenzene (SS)			88.6		%		70-130	10-JUL-19
WG3100283-11 MS		**L2301696-3**						
Benzene			97.3		%		50-150	10-JUL-19
Toluene			93.9		%		50-150	10-JUL-19
Ethyl benzene			95.0		%		50-150	10-JUL-19
o-Xylene			106.4		%		50-150	10-JUL-19
m+p-Xylenes			97.5		%		50-150	10-JUL-19
WG3100283-12 MS		**L2301696-4**						
F1 (C6-C10)			95.4		%		50-150	10-JUL-19
CL-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-7 DUP		**L2301696-6**						
Chloride (Cl)		20.4	20.6		mg/L	1.0	20	02-JUL-19
WG3093552-2 LCS								
Chloride (Cl)			94.6		%		90-110	02-JUL-19
WG3093552-6 LCS								
Chloride (Cl)			92.4		%		90-110	02-JUL-19
WG3093552-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	02-JUL-19
WG3093552-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	02-JUL-19
WG3093552-8 MS		**L2301696-6**						
Chloride (Cl)			100.2		%		75-125	02-JUL-19
F-IC-N-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-7 DUP		**L2301696-6**						
Fluoride (F)		0.750	0.753		mg/L	0.4	20	02-JUL-19
WG3093552-2 LCS								
Fluoride (F)			96.8		%		90-110	02-JUL-19
WG3093552-6 LCS								
Fluoride (F)			94.1		%		90-110	02-JUL-19
WG3093552-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	02-JUL-19
WG3093552-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	02-JUL-19
WG3093552-8 MS		**L2301696-6**						
Fluoride (F)			97.2		%		75-125	02-JUL-19
F2-F4-FID-WP	**Water**							
Batch R4699009								
WG3100044-2 LCS								
F2 (C10-C16)			103.1		%		70-130	13-JUL-19
F3 (C16-C34)			104.5		%		70-130	13-JUL-19
F4 (C34-C50)			98.0		%		70-130	13-JUL-19
WG3100044-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	13-JUL-19
F3 (C16-C34)			<0.25		mg/L		0.25	13-JUL-19
F4 (C34-C50)			<0.25		mg/L		0.25	13-JUL-19
Surrogate: 2-Bromobenzotrifluoride			94.0		%		60-140	13-JUL-19
MET-D-CCMS-WP	**Water**							
Batch R4694301								
WG3094939-7 LCS								
Aluminum (Al)-Dissolved			103.3		%		80-120	03-JUL-19
Antimony (Sb)-Dissolved			103.6		%		80-120	03-JUL-19
Arsenic (As)-Dissolved			102.0		%		80-120	03-JUL-19
Barium (Ba)-Dissolved			100.6		%		80-120	03-JUL-19
Beryllium (Be)-Dissolved			98.1		%		80-120	03-JUL-19
Bismuth (Bi)-Dissolved			99.96		%		80-120	03-JUL-19
Boron (B)-Dissolved			99.7		%		80-120	03-JUL-19
Cadmium (Cd)-Dissolved			101.1		%		80-120	03-JUL-19
Calcium (Ca)-Dissolved			99.3		%		80-120	03-JUL-19
Cesium (Cs)-Dissolved			106.9		%		80-120	03-JUL-19
Chromium (Cr)-Dissolved			101.4		%		80-120	03-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4694301								
WG3094939-7 LCS								
Cobalt (Co)-Dissolved			100.3		%		80-120	03-JUL-19
Copper (Cu)-Dissolved			101.8		%		80-120	03-JUL-19
Iron (Fe)-Dissolved			94.2		%		80-120	03-JUL-19
Lead (Pb)-Dissolved			100.5		%		80-120	03-JUL-19
Lithium (Li)-Dissolved			98.3		%		80-120	03-JUL-19
Magnesium (Mg)-Dissolved			113.7		%		80-120	03-JUL-19
Manganese (Mn)-Dissolved			102.1		%		80-120	03-JUL-19
Molybdenum (Mo)-Dissolved			107.1		%		80-120	03-JUL-19
Nickel (Ni)-Dissolved			99.0		%		80-120	03-JUL-19
Phosphorus (P)-Dissolved			105.8		%		80-120	03-JUL-19
Potassium (K)-Dissolved			105.5		%		80-120	03-JUL-19
Rubidium (Rb)-Dissolved			100.8		%		80-120	03-JUL-19
Selenium (Se)-Dissolved			101.7		%		80-120	03-JUL-19
Silicon (Si)-Dissolved			101.5		%		80-120	03-JUL-19
Silver (Ag)-Dissolved			101.8		%		80-120	03-JUL-19
Sodium (Na)-Dissolved			104.4		%		80-120	03-JUL-19
Strontium (Sr)-Dissolved			108.2		%		80-120	03-JUL-19
Sulfur (S)-Dissolved			96.1		%		80-120	03-JUL-19
Tellurium (Te)-Dissolved			96.5		%		80-120	03-JUL-19
Thallium (Tl)-Dissolved			99.7		%		80-120	03-JUL-19
Thorium (Th)-Dissolved			104.2		%		80-120	03-JUL-19
Tin (Sn)-Dissolved			101.8		%		80-120	03-JUL-19
Titanium (Ti)-Dissolved			100.8		%		80-120	03-JUL-19
Tungsten (W)-Dissolved			103.3		%		80-120	03-JUL-19
Uranium (U)-Dissolved			105.2		%		80-120	03-JUL-19
Vanadium (V)-Dissolved			102.3		%		80-120	03-JUL-19
Zinc (Zn)-Dissolved			101.7		%		80-120	03-JUL-19
Zirconium (Zr)-Dissolved			106.5		%		80-120	03-JUL-19
WG3094939-6 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	03-JUL-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4694301								
WG3094939-6 MB								
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	03-JUL-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	03-JUL-19
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	03-JUL-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	03-JUL-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	03-JUL-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	03-JUL-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	03-JUL-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	03-JUL-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	03-JUL-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	03-JUL-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	03-JUL-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	03-JUL-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	03-JUL-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	03-JUL-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	03-JUL-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	03-JUL-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	03-JUL-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	03-JUL-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	03-JUL-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	03-JUL-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	03-JUL-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	03-JUL-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	03-JUL-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	03-JUL-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	03-JUL-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	03-JUL-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	03-JUL-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	03-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4697480								
WG3098802-2 LCS								
Aluminum (Al)-Total			101.1		%		80-120	08-JUL-19
Antimony (Sb)-Total			101.4		%		80-120	08-JUL-19
Arsenic (As)-Total			99.97		%		80-120	08-JUL-19
Barium (Ba)-Total			98.0		%		80-120	08-JUL-19
Beryllium (Be)-Total			98.2		%		80-120	08-JUL-19
Bismuth (Bi)-Total			97.5		%		80-120	08-JUL-19
Boron (B)-Total			100.9		%		80-120	08-JUL-19
Cadmium (Cd)-Total			98.2		%		80-120	08-JUL-19
Calcium (Ca)-Total			100.5		%		80-120	08-JUL-19
Cesium (Cs)-Total			96.3		%		80-120	08-JUL-19
Chromium (Cr)-Total			98.1		%		80-120	08-JUL-19
Cobalt (Co)-Total			96.6		%		80-120	08-JUL-19
Copper (Cu)-Total			98.1		%		80-120	08-JUL-19
Iron (Fe)-Total			87.9		%		80-120	08-JUL-19
Lead (Pb)-Total			96.5		%		80-120	08-JUL-19
Lithium (Li)-Total			92.8		%		80-120	08-JUL-19
Magnesium (Mg)-Total			115.3		%		80-120	08-JUL-19
Manganese (Mn)-Total			97.8		%		80-120	08-JUL-19
Molybdenum (Mo)-Total			101.7		%		80-120	08-JUL-19
Nickel (Ni)-Total			98.2		%		80-120	08-JUL-19
Potassium (K)-Total			103.9		%		80-120	08-JUL-19
Phosphorus (P)-Total			105.9		%		80-120	08-JUL-19
Rubidium (Rb)-Total			100.2		%		80-120	08-JUL-19
Selenium (Se)-Total			99.6		%		80-120	08-JUL-19
Silicon (Si)-Total			101.0		%		80-120	08-JUL-19
Silver (Ag)-Total			98.3		%		80-120	08-JUL-19
Sodium (Na)-Total			100.6		%		80-120	08-JUL-19
Strontium (Sr)-Total			102.8		%		80-120	08-JUL-19
Sulfur (S)-Total			98.3		%		80-120	08-JUL-19
Tellurium (Te)-Total			99.7		%		80-120	08-JUL-19
Thallium (Tl)-Total			99.1		%		80-120	08-JUL-19
Thorium (Th)-Total			93.0		%		80-120	08-JUL-19
Tin (Sn)-Total			99.7		%		80-120	08-JUL-19
Titanium (Ti)-Total			96.6		%		80-120	08-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4697480								
WG3098802-2 LCS								
Tungsten (W)-Total			98.7		%		80-120	08-JUL-19
Uranium (U)-Total			94.8		%		80-120	08-JUL-19
Vanadium (V)-Total			100.1		%		80-120	08-JUL-19
Zinc (Zn)-Total			99.2		%		80-120	08-JUL-19
Zirconium (Zr)-Total			96.5		%		80-120	08-JUL-19
WG3098802-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	08-JUL-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	08-JUL-19
Boron (B)-Total			<0.010		mg/L		0.01	08-JUL-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	08-JUL-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	08-JUL-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	08-JUL-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	08-JUL-19
Iron (Fe)-Total			<0.010		mg/L		0.01	08-JUL-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	08-JUL-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	08-JUL-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	08-JUL-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	08-JUL-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	08-JUL-19
Potassium (K)-Total			<0.050		mg/L		0.05	08-JUL-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	08-JUL-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	08-JUL-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	08-JUL-19
Silicon (Si)-Total			<0.10		mg/L		0.1	08-JUL-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	08-JUL-19
Sodium (Na)-Total			<0.050		mg/L		0.05	08-JUL-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	08-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4697480								
WG3098802-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	08-JUL-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	08-JUL-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	08-JUL-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	08-JUL-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	08-JUL-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	08-JUL-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	08-JUL-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	08-JUL-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	08-JUL-19
N-TOTKJ-WP	**Water**							
Batch R4699635								
WG3098445-10 LCS								
Total Kjeldahl Nitrogen			103.1		%		75-125	09-JUL-19
WG3098445-14 LCS								
Total Kjeldahl Nitrogen			110.1		%		75-125	09-JUL-19
WG3098445-13 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	09-JUL-19
WG3098445-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	09-JUL-19
NH3-COL-WP	**Water**							
Batch R4699408								
WG3099918-2 LCS								
Ammonia, Total (as N)			100.7		%		85-115	08-JUL-19
WG3099918-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	08-JUL-19
NO2-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-7 DUP		**L2301696-6**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	02-JUL-19
WG3093552-2 LCS								
Nitrite (as N)			97.6		%		90-110	02-JUL-19
WG3093552-6 LCS								
Nitrite (as N)			95.0		%		90-110	02-JUL-19
WG3093552-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	02-JUL-19
WG3093552-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	02-JUL-19
WG3093552-8 MS		**L2301696-6**						
Nitrite (as N)			106.3		%		75-125	02-JUL-19
NO3-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-7 DUP		**L2301696-6**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	02-JUL-19
WG3093552-2 LCS								
Nitrate (as N)			94.7		%		90-110	02-JUL-19
WG3093552-6 LCS								
Nitrate (as N)			92.2		%		90-110	02-JUL-19
WG3093552-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	02-JUL-19
WG3093552-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	02-JUL-19
WG3093552-8 MS		**L2301696-6**						
Nitrate (as N)			99.8		%		75-125	02-JUL-19
P-T-COL-WP	**Water**							
Batch R4697472								
WG3098448-15 DUP		**L2301696-4**						
Phosphorus (P)-Total		0.0034	0.0034		mg/L	0.0	20	08-JUL-19
WG3098448-10 LCS								
Phosphorus (P)-Total			101.7		%		80-120	08-JUL-19
WG3098448-14 LCS								
Phosphorus (P)-Total			102.0		%		80-120	08-JUL-19
WG3098448-13 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	08-JUL-19
WG3098448-9 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	08-JUL-19
P-TD-COL-WP	**Water**							
Batch R4698869								
WG3099391-2 LCS								
Phosphorus (P)-Total	Dissolved		100.5		%		80-120	09-JUL-19
WG3099391-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	09-JUL-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP	**Water**							
Batch R4693415								
WG3093552-7 DUP		**L2301696-6**						
Sulfate (SO4)		123	124		mg/L	1.1	20	02-JUL-19
WG3093552-2 LCS								
Sulfate (SO4)			95.8		%		90-110	02-JUL-19
WG3093552-6 LCS								
Sulfate (SO4)			92.7		%		90-110	02-JUL-19
WG3093552-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	02-JUL-19
WG3093552-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	02-JUL-19
WG3093552-8 MS		**L2301696-6**						
Sulfate (SO4)			N/A	MS-B	%		-	02-JUL-19
SOLIDS-TOTSUS-WP	**Water**							
Batch R4692638								
WG3091740-14 LCS								
Total Suspended Solids			99.2		%		85-115	02-JUL-19
WG3091740-13 MB								
Total Suspended Solids			<2.0		mg/L		2	02-JUL-19
Batch R4693447								
WG3093636-18 LCS								
Total Suspended Solids			104.0		%		85-115	03-JUL-19
WG3093636-17 MB								
Total Suspended Solids			<2.0		mg/L		2	03-JUL-19
Batch R4694448								
WG3095167-10 LCS								
Total Suspended Solids			96.8		%		85-115	04-JUL-19
WG3095167-9 MB								
Total Suspended Solids			<2.0		mg/L		2	04-JUL-19
Batch R4696073								
WG3095802-2 LCS								
Total Suspended Solids			98.1		%		85-115	05-JUL-19
WG3095802-1 MB								
Total Suspended Solids			<2.0		mg/L		2	05-JUL-19
TDS-WP	**Water**							
Batch R4692829								
WG3091737-6 LCS								
Total Dissolved Solids			89.4		%		85-115	02-JUL-19
WG3091737-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-WP	**Water**							
Batch R4692829								
WG3091737-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	02-JUL-19
Batch R4694654								
WG3093658-6 LCS								
Total Dissolved Solids			101.4		%		85-115	03-JUL-19
WG3093658-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	03-JUL-19
Batch R4694737								
WG3095176-2 LCS								
Total Dissolved Solids			98.3		%		85-115	04-JUL-19
WG3095176-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	04-JUL-19

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
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.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrate in Water by IC							
	1	25-JUN-19 14:30	02-JUL-19 14:00	3	7	days	EHTR
	2	26-JUN-19 16:15	02-JUL-19 14:00	3	6	days	EHTR
	3	27-JUN-19 11:30	02-JUL-19 14:00	3	5	days	EHTR
	4	28-JUN-19 09:50	02-JUL-19 14:00	3	4	days	EHTR
	5	28-JUN-19 13:10	02-JUL-19 14:00	3	4	days	EHTR
	6	28-JUN-19 13:10	02-JUL-19 14:00	3	4	days	EHTR
Nitrite in Water by IC							
	1	25-JUN-19 14:30	02-JUL-19 14:00	3	7	days	EHTR
	2	26-JUN-19 16:15	02-JUL-19 14:00	3	6	days	EHTR
	3	27-JUN-19 11:30	02-JUL-19 14:00	3	5	days	EHTR
	4	28-JUN-19 09:50	02-JUL-19 14:00	3	4	days	EHTR
	5	28-JUN-19 13:10	02-JUL-19 14:00	3	4	days	EHTR
	6	28-JUN-19 13:10	02-JUL-19 14:00	3	4	days	EHTR

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 L2301696 were received on 02-JUL-19 08:50.

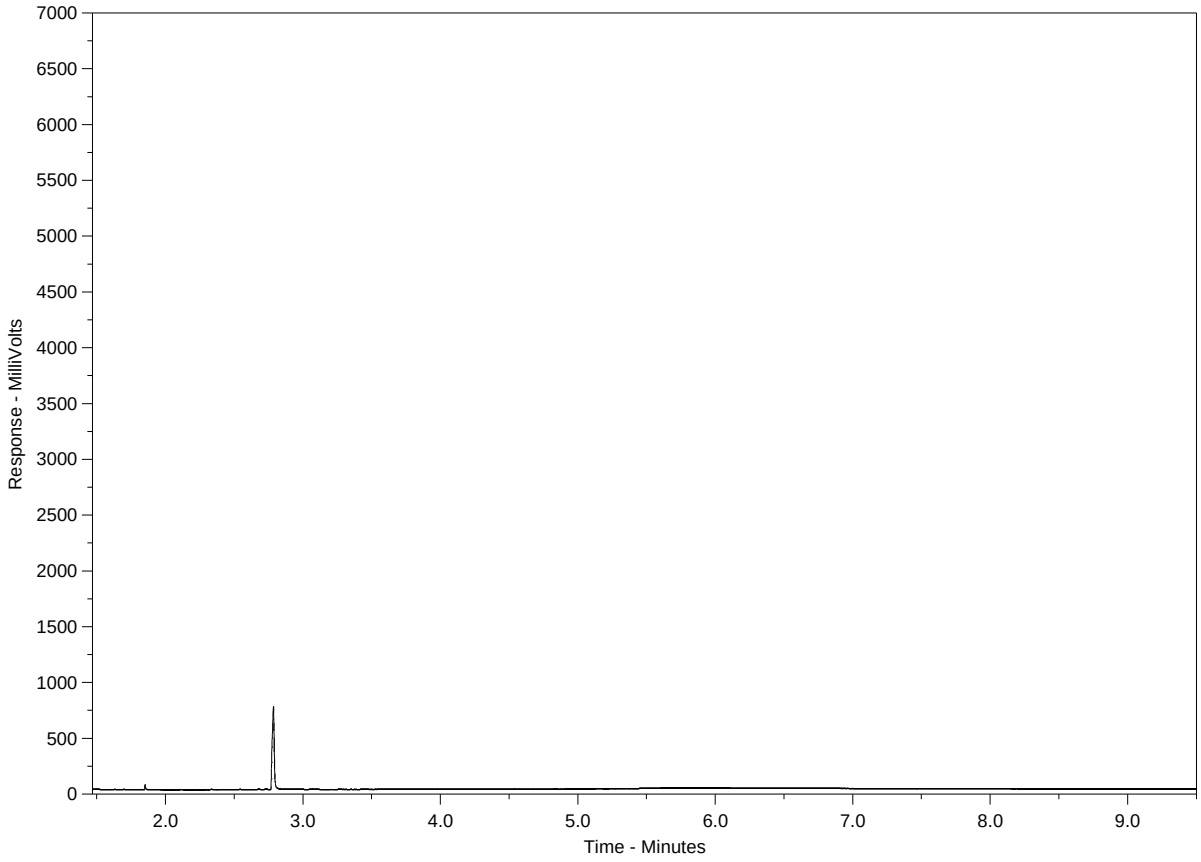
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

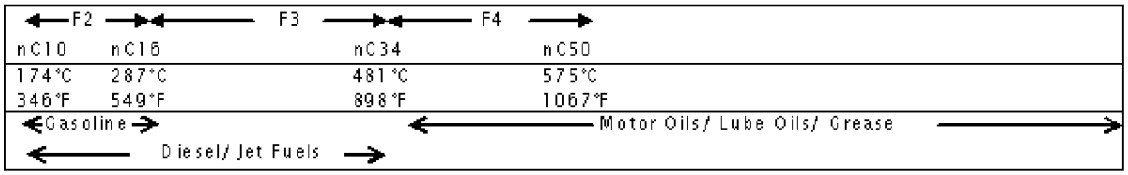
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2301696-1
Client Sample ID: TH18-09





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

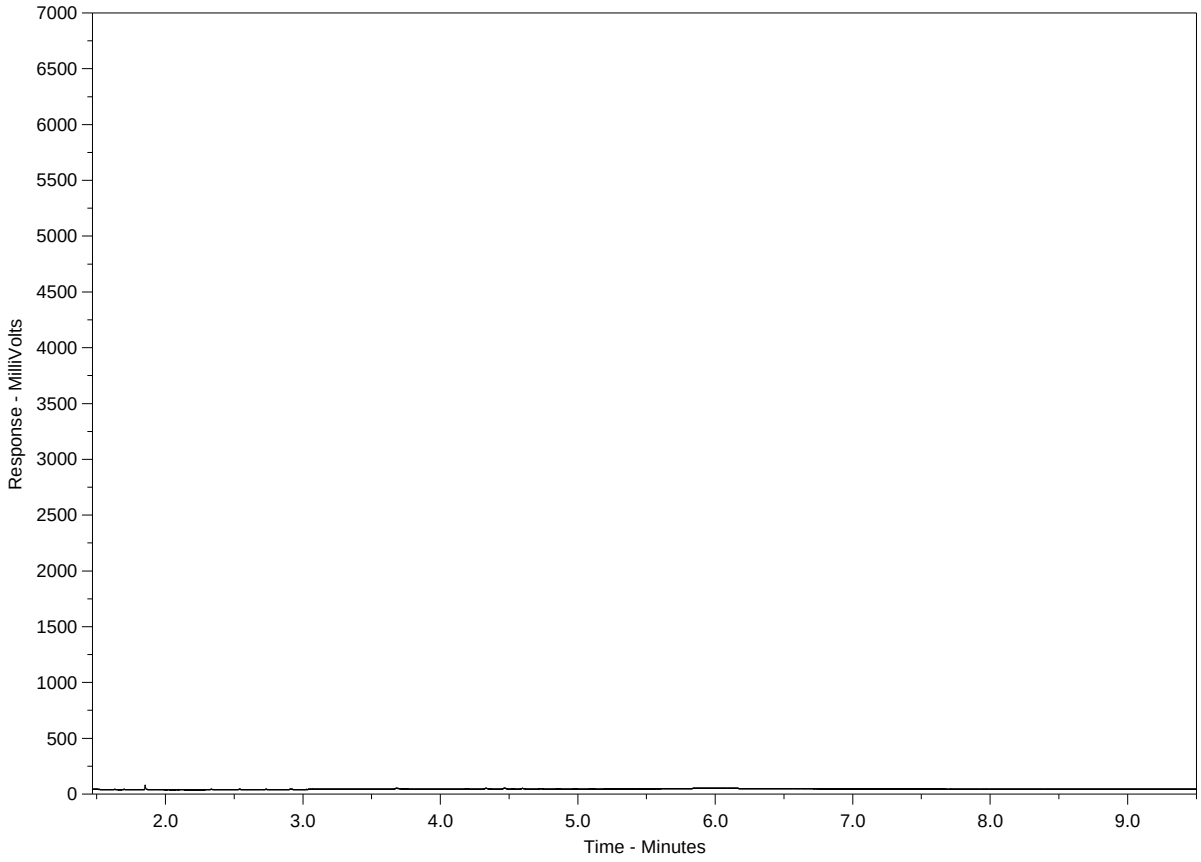
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

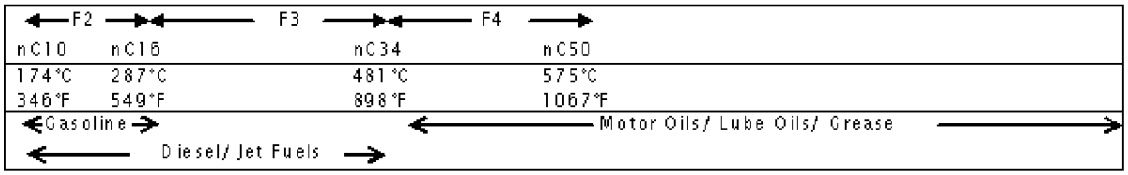
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2301696-2
Client Sample ID: TH18-27





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

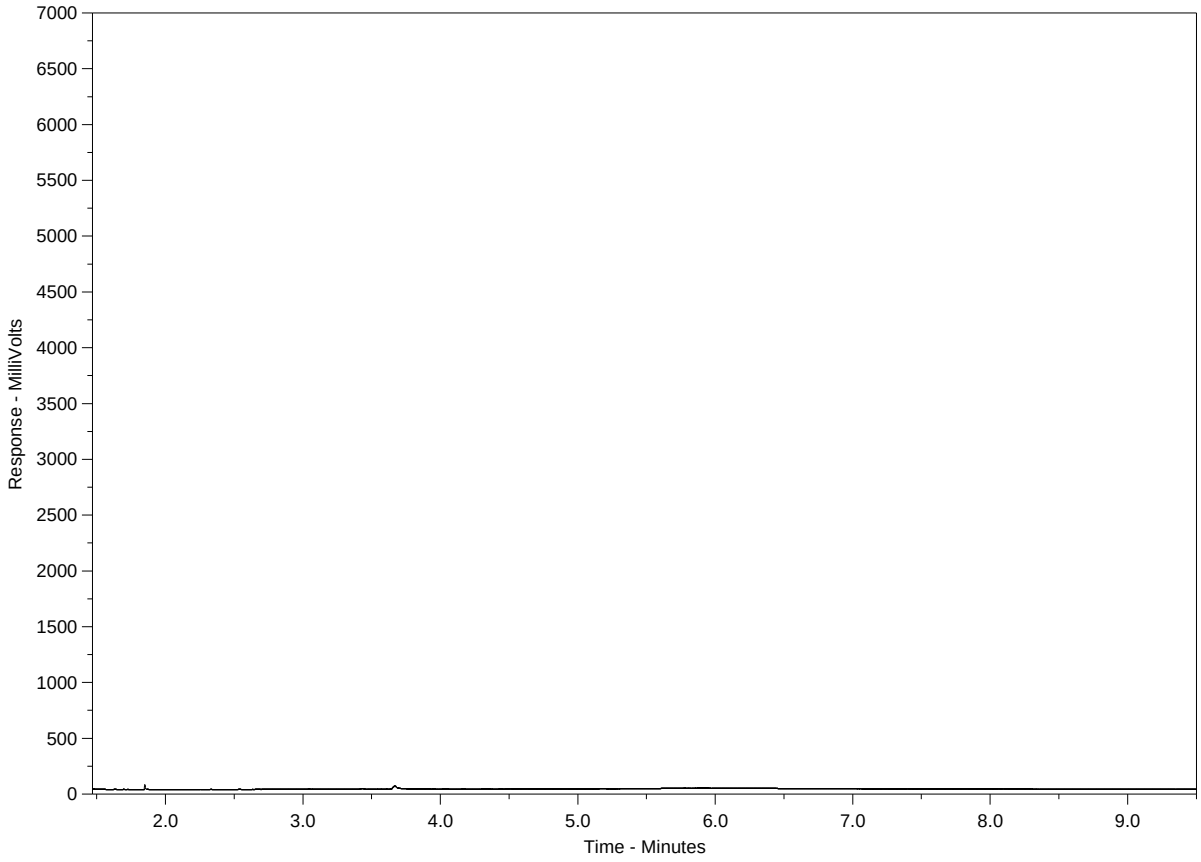
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

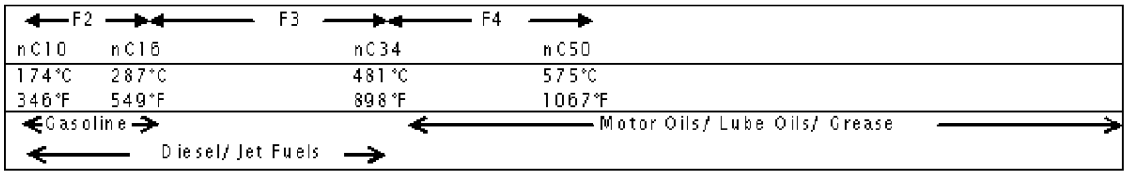
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2301696-3
Client Sample ID: TH18-21





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

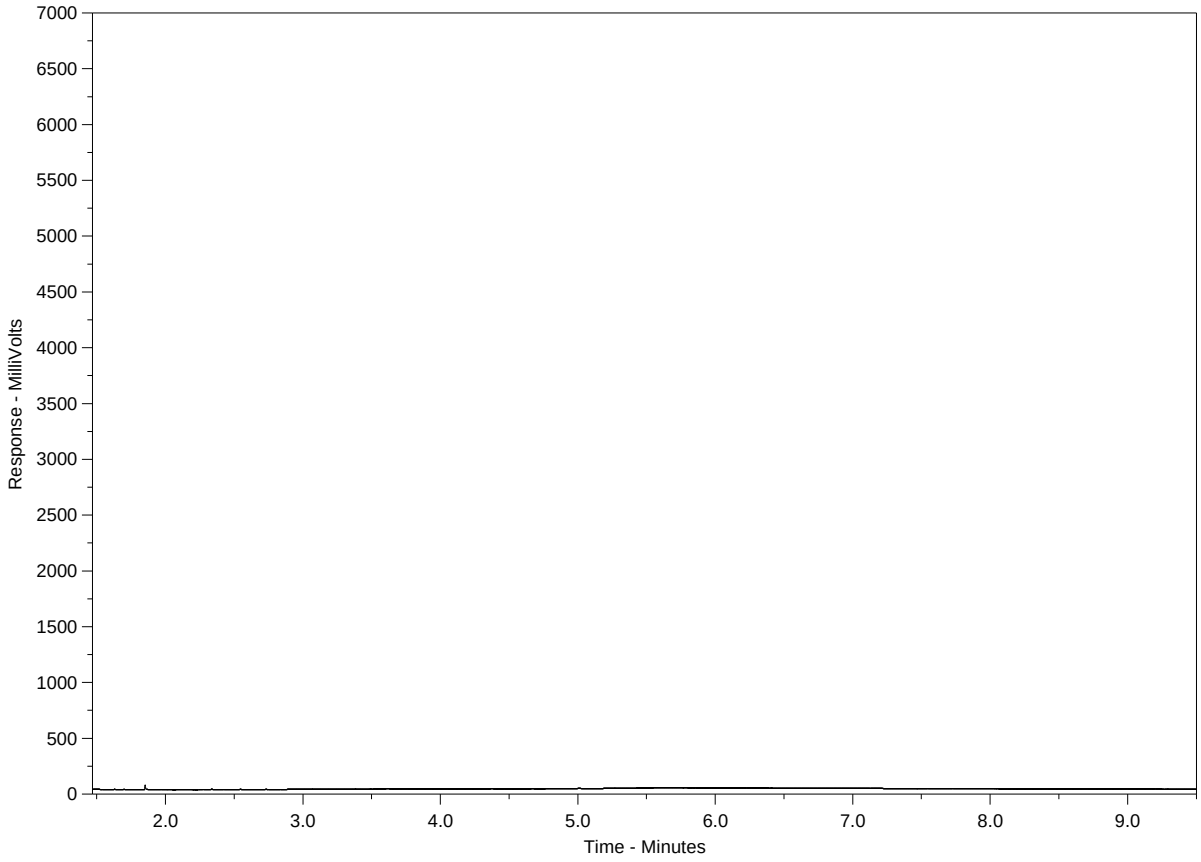
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

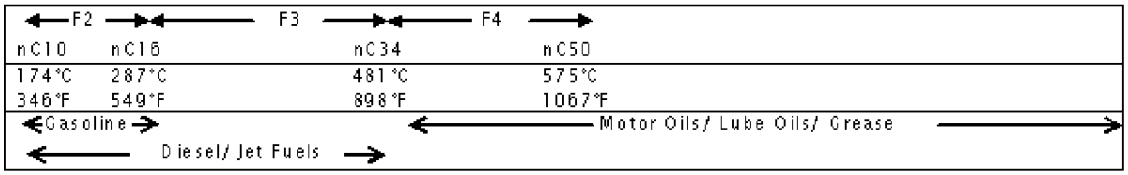
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2301696-4
Client Sample ID: TH18-13





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

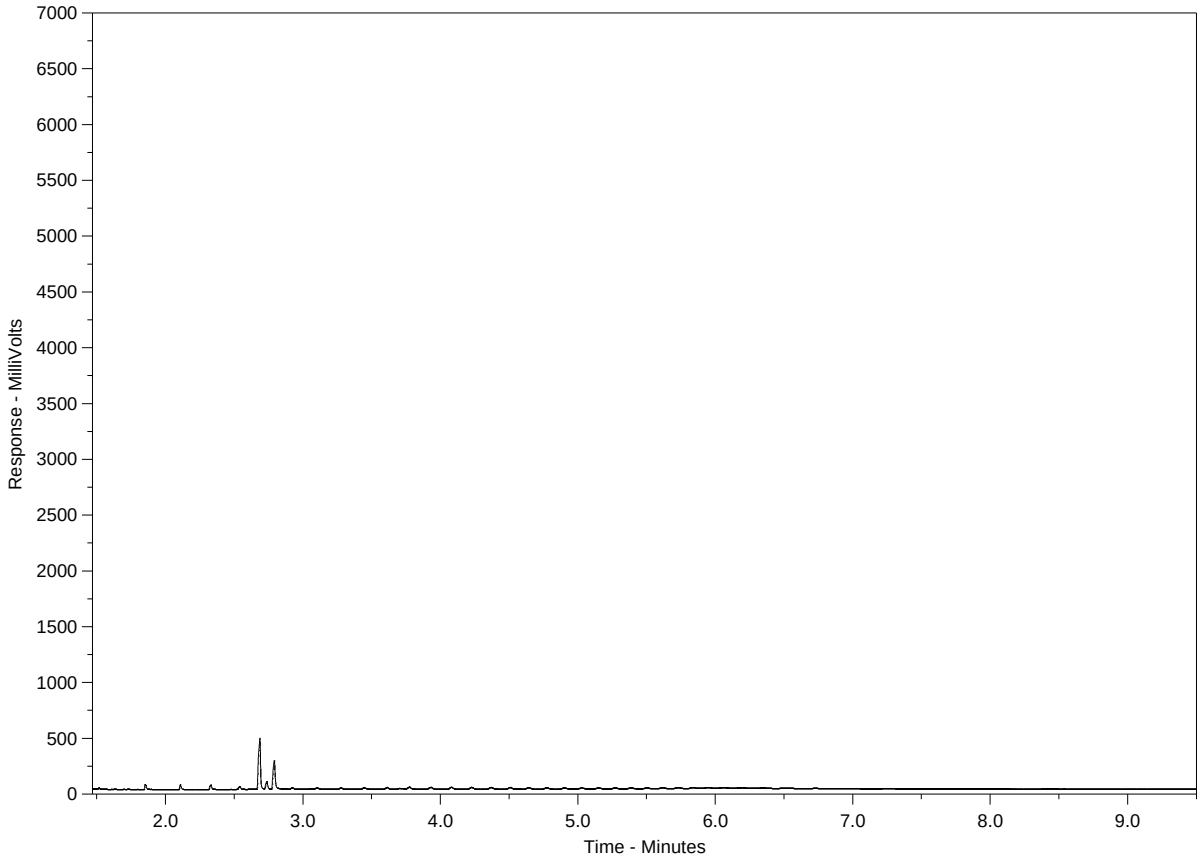
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

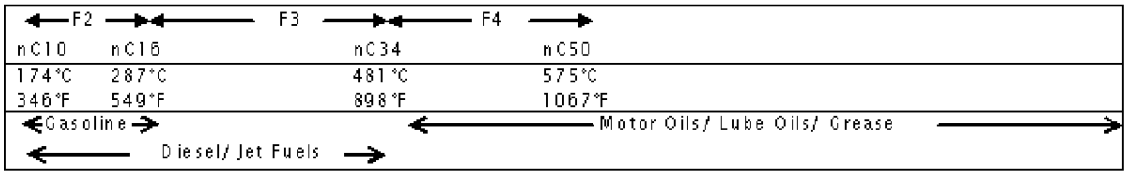
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2301696-5
Client Sample ID: TH18-36





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

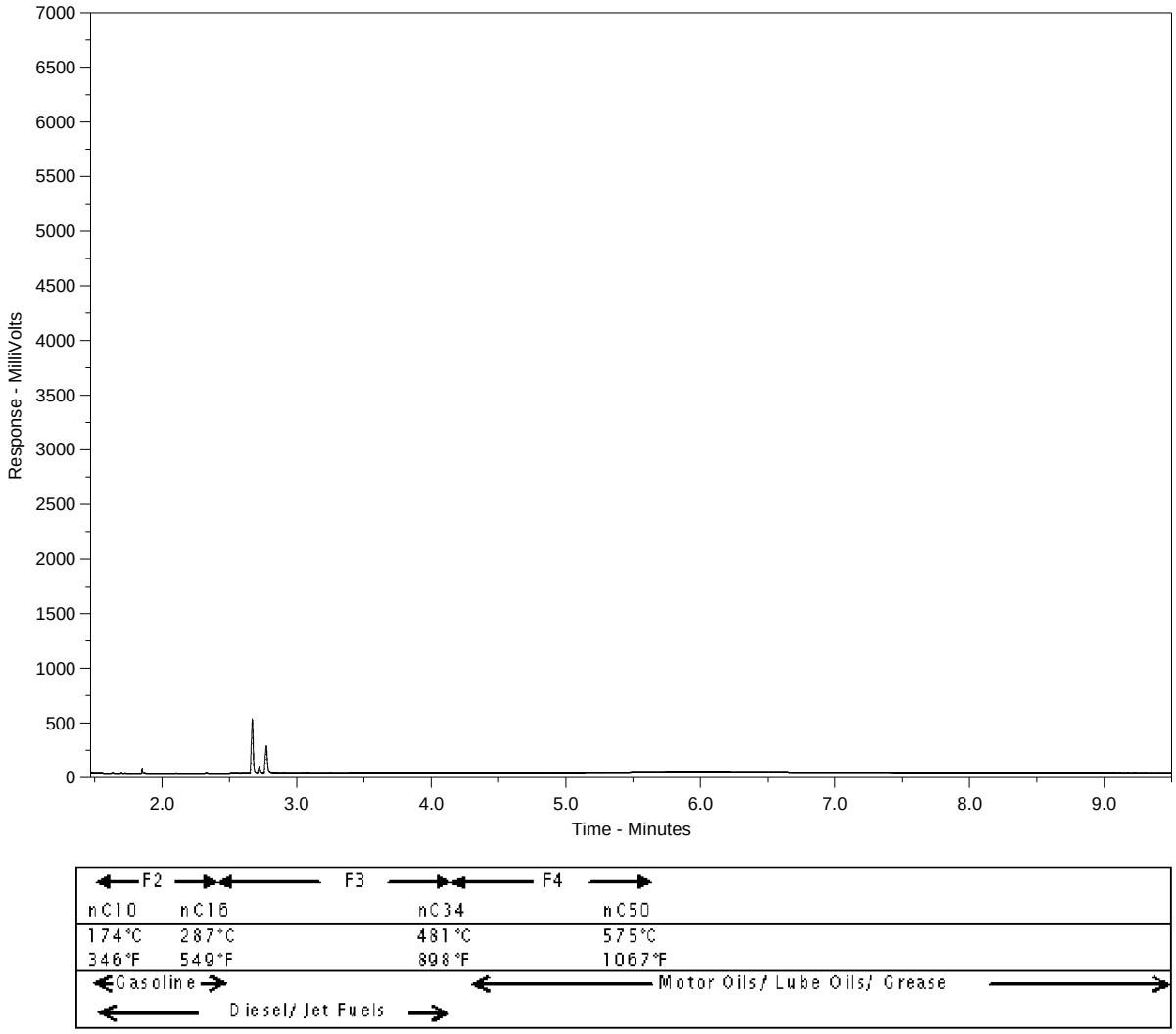
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2301696-6
Client Sample ID: QC-02



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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2301696-COFC

COC Number: 17 - 747904

Report To	Contact and company name below will appear on the final report
Company:	Stantec Consulting
Contact:	Karen Mathers
Phone:	204-928-7621
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Winnipeg, MB
Postal Code:	R3B 2B9

Report Format / Distribution	
Select Report Format:	[x] PDF [x] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[x] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Andrew.Kneale@Stantec.com
Email 2	Karen.Mathers@Stantec.com
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	[x] Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days): 4 day [P4-20%] [ ]	EMERGENCY: 1 Business day [E - 100%] [ ]
3 day [P3-25%] [ ]	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]
2 day [P2-50%] [ ]	
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.	

Invoice To		
	Same as Report To	[x] YES [ ] NO
	Copy of Invoice with Report	[x] YES [ ] NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	[x] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Same as above
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#:
Job #:	1114751071714.200	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: AR

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	EC-SCREEN-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOTKJ-WP	NH3-VN-ION-WP	NH3-WATSON-WSER-WP	P-T-COL-WP	P-TD-COL-WP	P-TPART-CALC-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	TH18-09	25-06-19	1430	W	12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	TH18-27	26-06-19	1615																		
	TH18-21	27-06-19	1130																		
	TH18-13	28-06-19	0950																		
	TH18-36	1	1310																		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	All dissolved samples field filtered, all samples needing preservative preserved
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated [ ]					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
6.6					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: A. Ramsom	Date: July 2, 2019	Time: 8:50	Received by: [illegible]	Date: July 2/19	Time: 850	Received by: [illegible]	Date: 2-7-19	Time: 935

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2301696-COFC

COC Number: 17 - 747905

Report To	Contact and company name below will appear on the final report
Company:	Stantec Consulting
Contact:	Karen Mathers
Phone:	204-928-7621
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Winnipeg / MB
Postal Code:	R3B 2B4
Invoice To	Same as Report To [x] YES [ ] NO
	Copy of Invoice with Report [x] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[x] PDF [x] EXCEL | | EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[x] EMAIL | | MAIL [ ] FAX
Email 1 or Fax	Andrew.Kneale@Stantec.com
Email 2	Karen.Mathers@Stantec.com
Email 3	

Invoice Distribution	
Select Invoice Distribution:	[x] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Same as above
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:	111475107.1714.200	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: AR

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [x] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E - 100%] [ ]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	SOLIDS-TOTSUS-WP	TDS-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	TH18-09	25-06-19	14 30	W	12	✓	✓		
	TH18-27	26-06-19	16 15	"	1	1	1		
	TH18-21	27-06-19	11 30	"	1	1	1		
	TH18-13	28-06-19	09 50	"	1	1	1		
	TH18-36	1	13 10	"	1	1	1		

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? | | YES | | NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
6.6							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
A. Runsom	July 2, 2019	8:50	July 2/19		850		2-7-19	945

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 21-AUG-19
Report Date: 30-AUG-19 09:03 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2332554

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2332554-1 CH19-08							
Sampled By: CLIENT on 19-AUG-19 @ 12:45							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	394		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	323		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.4		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.236		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	147		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	0.0013		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	88.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	90.3		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.141		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	354		0.20	mg/L		29-AUG-19	
Phosphorus (P)-Total	0.108		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	0.0033		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	0.104		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	534		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	0.21		0.20	mg/L		26-AUG-19	
Total Suspended Solids	465		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	75	PEHR	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	PEHR	1	MPN/100mL		21-AUG-19	R4763409

* 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
L2332554-1 CH19-08							
Sampled By: CLIENT on 19-AUG-19 @ 12:45							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	2.15		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Arsenic (As)-Total	0.00134		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0527		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	0.00021		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.412		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cadmium (Cd)-Total	0.0000251		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	176		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000504		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	0.00485		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	0.00146		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	0.00973		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	3.11		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	0.00224		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0351		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	120		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796
Manganese (Mn)-Total	0.121		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.00167		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	0.00764		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Potassium (K)-Total	7.12		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	0.166		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00768		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	9.56		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	0.000035		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	49.2		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.521		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	51.7		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	0.000063		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	0.00174		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	0.00014		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	0.0845		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	0.00086		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.00201		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Vanadium (V)-Total	0.00634		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	0.0158		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	0.00139		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0036		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	0.00050		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0295		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.366		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	59.6		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000018		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251

* 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
L2332554-1 CH19-08							
Sampled By: CLIENT on 19-AUG-19 @ 12:45							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	0.00029		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	0.00109		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Iron (Fe)-Dissolved	0.143		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0309		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	49.9		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0340		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.00204		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	0.00327		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	6.01		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00340		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	5.51		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	45.2		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.453		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	52.3		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	0.000014		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	0.00088		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.00138		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	0.0051		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-2 OW19-16							
Sampled By: CLIENT on 19-AUG-19 @ 15:00							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	432		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	354		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.06		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.740		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							

* 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
L2332554-2 OW19-16							
Sampled By: CLIENT on 19-AUG-19 @ 15:00							
Matrix: GW							
Sulfate in Water by IC							
Sulfate (SO4)	114		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	<0.0010		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	94.1		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.193		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	389		0.20	mg/L		30-AUG-19	
Phosphorus (P)-Total	0.0034		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	492		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	0.25		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	0.25		0.20	mg/L		26-AUG-19	
Total Suspended Solids	9.7		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	2	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0056		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Arsenic (As)-Total	0.00011		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0196		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.544		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	74.9		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000018		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	0.024		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0358		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	59.8		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796

* 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
L2332554-2 OW19-16							
Sampled By: CLIENT on 19-AUG-19 @ 15:00							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.0153		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.000958		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Potassium (K)-Total	10.7		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00649		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	6.01		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	35.4		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.533		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	41.0		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.000613		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Vanadium (V)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0231		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.504		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	69.8		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	29-AUG-19	R4777903
Iron (Fe)-Dissolved	0.015		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0332		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	52.0		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0138		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.000836		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	10.3		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00602		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	5.67		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	32.0		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251

* 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
L2332554-2 OW19-16							
Sampled By: CLIENT on 19-AUG-19 @ 15:00							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.509		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	40.1		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	0.00012		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000574		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	0.0043		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-3 BH19-12							
Sampled By: CLIENT on 19-AUG-19 @ 16:45							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	404		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	331		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.08		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.596		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	123		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	<0.0010		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	88.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	96.3		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	

* 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
L2332554-3 BH19-12							
Sampled By: CLIENT on 19-AUG-19 @ 16:45							
Matrix: GW							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.110		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	369		0.20	mg/L		29-AUG-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	492		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	<0.20		0.20	mg/L		26-AUG-19	
Total Suspended Solids	3.9		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0062		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Arsenic (As)-Total	0.00015		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0200		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.536		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	76.4		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000022		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	0.075		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0338		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	52.6		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796
Manganese (Mn)-Total	0.0214		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.000724		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Potassium (K)-Total	9.65		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00580		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	4.93		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	33.4		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.540		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	40.7		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	0.00015		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.000553		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796

* 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
L2332554-3 BH19-12							
Sampled By: CLIENT on 19-AUG-19 @ 16:45							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0062		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	0.00011		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0245		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.472		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	69.4		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000022		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	0.00044		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Iron (Fe)-Dissolved	0.087		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0320		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	47.7		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0218		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.000677		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	9.69		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00588		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	5.16		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	31.6		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.482		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	45.0		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	0.00012		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000458		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	0.0043		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-4 OW19-05							
Sampled By: CLIENT on 19-AUG-19 @ 18:45							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	279		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							

* 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
L2332554-4 OW19-05							
Sampled By: CLIENT on 19-AUG-19 @ 18:45							
Matrix: GW							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	229		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.0		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.532		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	108		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	0.0098		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	95.7		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.103		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	257		0.20	mg/L		29-AUG-19	
Phosphorus (P)-Total	0.0168		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	0.0031		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	0.0138		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	405		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	<0.20		0.20	mg/L		26-AUG-19	
Total Suspended Solids	32.0		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	24	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	MBHT	1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.483		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	0.00067		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796

* 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
L2332554-4 OW19-05							
Sampled By: CLIENT on 19-AUG-19 @ 18:45							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00346		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0441		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	0.00011		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.469		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cadmium (Cd)-Total	0.0000143		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	53.3		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000130		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	0.00087		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	0.00109		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	0.00396		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	1.07		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	0.000935		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0205		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	43.0		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796
Manganese (Mn)-Total	0.0656		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.00664		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	0.00225		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Potassium (K)-Total	7.22		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	0.049		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00495		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	0.000228		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	4.60		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	0.000014		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	38.9		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.378		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	37.0		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	0.000016		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	0.00060		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	0.00039		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	0.0126		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	0.00337		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.000630		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Vanadium (V)-Total	0.00247		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	0.0045		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	0.00082		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0023		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	0.00052		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	0.00250		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0400		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.420		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	43.9		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000025		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251

* 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
L2332554-4 OW19-05							
Sampled By: CLIENT on 19-AUG-19 @ 18:45							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00032		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0192		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	35.8		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0546		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.00651		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	6.82		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00399		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	0.000124		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	3.90		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	36.6		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.368		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	38.7		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	0.00322		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000202		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	0.0012		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-5 BH19-29							
Sampled By: CLIENT on 20-AUG-19 @ 09:15							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	288		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	236		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.6		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.855		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	145		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							

* 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
L2332554-5 BH19-29							
Sampled By: CLIENT on 20-AUG-19 @ 09:15							
Matrix: GW							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	0.0017		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	96.0		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.198		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	284		0.20	mg/L		30-AUG-19	
Phosphorus (P)-Total	0.0033		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	456		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	0.21		0.20	mg/L		26-AUG-19	
Total Suspended Solids	5.7		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	9		1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1		1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0307		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Arsenic (As)-Total	0.00247		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0248		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.59		0.10	mg/L	27-AUG-19	29-AUG-19	R4777903
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	56.1		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000013		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	0.00028		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	0.150		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0260		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	45.8		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796
Manganese (Mn)-Total	0.0134		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.00109		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796

* 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
L2332554-5 BH19-29							
Sampled By: CLIENT on 20-AUG-19 @ 09:15							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	8.23		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00381		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	5.09		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	47.3		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.425		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	48.6		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	0.000011		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	0.00174		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.000961		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Vanadium (V)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0038		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	0.00216		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0260		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.528		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	50.4		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	0.00021		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	0.00108		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Iron (Fe)-Dissolved	0.135		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0258		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	38.5		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0106		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.00110		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	7.61		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00323		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	5.15		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	42.0		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.438		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	51.8		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251

* 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
L2332554-5 BH19-29							
Sampled By: CLIENT on 20-AUG-19 @ 09:15							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000880		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	0.0036		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-6 OW19-23							
Sampled By: CLIENT on 19-AUG-19 @ 10:30							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	287		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	235		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.9		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.840		0.020	mg/L		21-AUG-19	R4767966
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	135		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	<0.0010		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	89.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	94.8		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							

* 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
L2332554-6 OW19-23							
Sampled By: CLIENT on 19-AUG-19 @ 10:30							
Matrix: GW							
Ammonia, Total (as N)	0.180		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	276		0.20	mg/L		30-AUG-19	
Phosphorus (P)-Total	0.0096		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	0.0071		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	447		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	0.22		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	0.22		0.20	mg/L		26-AUG-19	
Total Suspended Solids	7.7		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	99	PEHR	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	PEHR	1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0833		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Arsenic (As)-Total	0.00050		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Barium (Ba)-Total	0.0251		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Boron (B)-Total	0.68		0.10	mg/L	27-AUG-19	29-AUG-19	R4777903
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Calcium (Ca)-Total	55.0		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Cesium (Cs)-Total	0.000030		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Chromium (Cr)-Total	0.00019		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Cobalt (Co)-Total	0.00013		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Copper (Cu)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Iron (Fe)-Total	0.083		0.010	mg/L	27-AUG-19	27-AUG-19	R4774796
Lead (Pb)-Total	0.000063		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Lithium (Li)-Total	0.0337		0.0010	mg/L	27-AUG-19	27-AUG-19	R4774796
Magnesium (Mg)-Total	40.7		0.0050	mg/L	27-AUG-19	27-AUG-19	R4774796
Manganese (Mn)-Total	0.0139		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Molybdenum (Mo)-Total	0.00104		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Nickel (Ni)-Total	0.00052		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Potassium (K)-Total	9.11		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Phosphorus (P)-Total	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4774796
Rubidium (Rb)-Total	0.00456		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Selenium (Se)-Total	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4774796
Silicon (Si)-Total	4.86		0.10	mg/L	27-AUG-19	27-AUG-19	R4774796
Silver (Ag)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Sodium (Na)-Total	53.1		0.050	mg/L	27-AUG-19	27-AUG-19	R4774796
Strontium (Sr)-Total	0.407		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Sulfur (S)-Total	46.3		0.50	mg/L	27-AUG-19	27-AUG-19	R4774796
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Thorium (Th)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Tin (Sn)-Total	0.00012		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Titanium (Ti)-Total	0.00353		0.00030	mg/L	27-AUG-19	27-AUG-19	R4774796
Tungsten (W)-Total	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4774796
Uranium (U)-Total	0.000938		0.000010	mg/L	27-AUG-19	27-AUG-19	R4774796
Vanadium (V)-Total	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4774796
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	27-AUG-19	27-AUG-19	R4774796
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4774796

* 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
L2332554-6 OW19-23							
Sampled By: CLIENT on 19-AUG-19 @ 10:30							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	0.0038		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	0.00042		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0293		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.61		0.10	mg/L	23-AUG-19	27-AUG-19	R4776010
Cadmium (Cd)-Dissolved	0.0000056		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	52.3		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000011		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	29-AUG-19	R4777903
Iron (Fe)-Dissolved	0.036		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	29-AUG-19	R4777903
Lithium (Li)-Dissolved	0.0320		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Magnesium (Mg)-Dissolved	35.4		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0112		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.00105		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	8.91		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00413		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	4.72		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	48.8		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.418		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	45.7		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	0.00024		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000882		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	23-AUG-19	29-AUG-19	R4777903
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
L2332554-7 QC-01							
Sampled By: CLIENT on 19-AUG-19							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	422		1.2	mg/L		22-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		22-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		22-AUG-19	
Alkalinity, Total (as CaCO3)							

* 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
L2332554-7 QC-01							
Sampled By: CLIENT on 19-AUG-19							
Matrix: GW							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	346		1.0	mg/L		21-AUG-19	R4763750
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.08		0.50	mg/L		21-AUG-19	R4767966
Fluoride in Water by IC							
Fluoride (F)	0.728		0.020	mg/L		24-AUG-19	R4772878
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		21-AUG-19	R4767966
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		21-AUG-19	R4767966
Sulfate in Water by IC							
Sulfate (SO4)	115		0.30	mg/L		21-AUG-19	R4767966
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
Toluene	<0.0010		0.0010	mg/L		22-AUG-19	R4765656
Ethyl benzene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
o-Xylene	<0.00050		0.00050	mg/L		22-AUG-19	R4765656
m+p-Xylenes	<0.00040		0.00040	mg/L		22-AUG-19	R4765656
F1 (C6-C10)	<0.10		0.10	mg/L		22-AUG-19	R4765656
Surrogate: 4-Bromofluorobenzene (SS)	88.0		70-130	%		22-AUG-19	R4765656
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	22-AUG-19	22-AUG-19	R4766908
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-19	22-AUG-19	R4766908
Surrogate: 2-Bromobenzotrifluoride	95.9		60-140	%	22-AUG-19	22-AUG-19	R4766908
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		27-AUG-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		27-AUG-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		27-AUG-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.180		0.010	mg/L		21-AUG-19	R4765054
Hardness (as CaCO3)	387		0.20	mg/L		29-AUG-19	
Phosphorus (P)-Total	0.0033		0.0030	mg/L		22-AUG-19	R4765948
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		23-AUG-19	R4766335
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		23-AUG-19	
Total Dissolved Solids	485		20	mg/L		23-AUG-19	R4768592
Total Kjeldahl Nitrogen	0.23		0.20	mg/L	22-AUG-19	23-AUG-19	R4766868
Total Nitrogen	0.23		0.20	mg/L		26-AUG-19	
Total Suspended Solids	<2.0		2.0	mg/L		23-AUG-19	R4768536
Total Coliform and E.coli by MPN QT97							
Total Coliforms	196	PEHR	1	MPN/100mL		21-AUG-19	R4763409
Escherichia Coli	<1	PEHR	1	MPN/100mL		21-AUG-19	R4763409
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0068		0.0030	mg/L	28-AUG-19	28-AUG-19	R4777539
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Arsenic (As)-Total	0.00012		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Barium (Ba)-Total	0.0198		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	28-AUG-19	28-AUG-19	R4777539

* 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
L2332554-7 QC-01							
Sampled By: CLIENT on 19-AUG-19							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.533		0.010	mg/L	28-AUG-19	28-AUG-19	R4777539
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	28-AUG-19	28-AUG-19	R4777539
Calcium (Ca)-Total	74.5		0.050	mg/L	28-AUG-19	28-AUG-19	R4777539
Cesium (Cs)-Total	0.000016		0.000010	mg/L	28-AUG-19	28-AUG-19	R4777539
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Copper (Cu)-Total	<0.00050		0.00050	mg/L	28-AUG-19	28-AUG-19	R4777539
Iron (Fe)-Total	0.023		0.010	mg/L	28-AUG-19	28-AUG-19	R4777539
Lead (Pb)-Total	<0.000050		0.000050	mg/L	28-AUG-19	28-AUG-19	R4777539
Lithium (Li)-Total	0.0339		0.0010	mg/L	28-AUG-19	28-AUG-19	R4777539
Magnesium (Mg)-Total	45.6		0.0050	mg/L	28-AUG-19	28-AUG-19	R4777539
Manganese (Mn)-Total	0.0148		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Molybdenum (Mo)-Total	0.000703		0.000050	mg/L	28-AUG-19	28-AUG-19	R4777539
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	28-AUG-19	28-AUG-19	R4777539
Potassium (K)-Total	9.88		0.050	mg/L	28-AUG-19	28-AUG-19	R4777539
Phosphorus (P)-Total	<0.030		0.030	mg/L	28-AUG-19	28-AUG-19	R4777539
Rubidium (Rb)-Total	0.00638		0.00020	mg/L	28-AUG-19	28-AUG-19	R4777539
Selenium (Se)-Total	<0.000050		0.000050	mg/L	28-AUG-19	28-AUG-19	R4777539
Silicon (Si)-Total	5.56		0.10	mg/L	28-AUG-19	28-AUG-19	R4777539
Silver (Ag)-Total	0.000046		0.000010	mg/L	28-AUG-19	28-AUG-19	R4777539
Sodium (Na)-Total	31.0		0.050	mg/L	28-AUG-19	28-AUG-19	R4777539
Strontium (Sr)-Total	0.482		0.00020	mg/L	28-AUG-19	28-AUG-19	R4777539
Sulfur (S)-Total	40.2		0.50	mg/L	28-AUG-19	28-AUG-19	R4777539
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	28-AUG-19	28-AUG-19	R4777539
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	28-AUG-19	28-AUG-19	R4777539
Thorium (Th)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Tin (Sn)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Titanium (Ti)-Total	0.00035		0.00030	mg/L	28-AUG-19	28-AUG-19	R4777539
Tungsten (W)-Total	<0.00010		0.00010	mg/L	28-AUG-19	28-AUG-19	R4777539
Uranium (U)-Total	0.000546		0.000010	mg/L	28-AUG-19	28-AUG-19	R4777539
Vanadium (V)-Total	<0.00050		0.00050	mg/L	28-AUG-19	28-AUG-19	R4777539
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	28-AUG-19	28-AUG-19	R4777539
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	28-AUG-19	28-AUG-19	R4777539
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					23-AUG-19	R4767402
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Barium (Ba)-Dissolved	0.0183		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Boron (B)-Dissolved	0.486		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Calcium (Ca)-Dissolved	67.3		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	23-AUG-19	23-AUG-19	R4769251
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Lithium (Li)-Dissolved	0.0349		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251

* 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
L2332554-7 QC-01							
Sampled By: CLIENT on 19-AUG-19							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	53.1		0.0050	mg/L	23-AUG-19	23-AUG-19	R4769251
Manganese (Mn)-Dissolved	0.0128		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Molybdenum (Mo)-Dissolved	0.000280		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	23-AUG-19	23-AUG-19	R4769251
Potassium (K)-Dissolved	10.0		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Rubidium (Rb)-Dissolved	0.00617		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silicon (Si)-Dissolved	5.77		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sodium (Na)-Dissolved	32.5		0.050	mg/L	23-AUG-19	23-AUG-19	R4769251
Strontium (Sr)-Dissolved	0.506		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Sulfur (S)-Dissolved	40.0		0.50	mg/L	23-AUG-19	23-AUG-19	R4769251
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	23-AUG-19	23-AUG-19	R4769251
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4769251
Uranium (U)-Dissolved	0.000522		0.000010	mg/L	23-AUG-19	23-AUG-19	R4769251
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	23-AUG-19	23-AUG-19	R4769251
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	23-AUG-19	23-AUG-19	R4769251
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	23-AUG-19	23-AUG-19	R4769251

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
HARDNESS-CALC-WP	Water	Hardness Calculated	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 – 0.5°C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

WP

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4763750								
WG3139880-19 LCS								
Alkalinity, Total (as CaCO3)			104.3		%		85-115	21-AUG-19
WG3139880-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	21-AUG-19
BTEXS+F1-HSMS-WP	**Water**							
Batch R4765656								
WG3140670-2 LCS								
Benzene			85.2		%		70-130	22-AUG-19
Toluene			91.7		%		70-130	22-AUG-19
Ethyl benzene			103.4		%		70-130	22-AUG-19
o-Xylene			92.7		%		70-130	22-AUG-19
m+p-Xylenes			100.1		%		70-130	22-AUG-19
WG3140670-3 LCS								
F1 (C6-C10)			103.9		%		70-130	23-AUG-19
WG3140670-1 MB								
Benzene			<0.00050		mg/L		0.0005	22-AUG-19
Toluene			<0.0010		mg/L		0.001	22-AUG-19
Ethyl benzene			<0.00050		mg/L		0.0005	22-AUG-19
o-Xylene			<0.00050		mg/L		0.0005	22-AUG-19
m+p-Xylenes			<0.00040		mg/L		0.0004	22-AUG-19
F1 (C6-C10)			<0.10		mg/L		0.1	22-AUG-19
Surrogate: 4-Bromofluorobenzene (SS)			80.0		%		70-130	22-AUG-19
WG3140670-5 MS		**L2332554-3**						
Benzene			89.3		%		50-150	22-AUG-19
Toluene			96.7		%		50-150	22-AUG-19
Ethyl benzene			109.7		%		50-150	22-AUG-19
o-Xylene			98.5		%		50-150	22-AUG-19
m+p-Xylenes			106.6		%		50-150	22-AUG-19
WG3140670-6 MS		**L2332554-6**						
F1 (C6-C10)			113.3		%		50-150	23-AUG-19
CL-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-11 DUP		**L2332554-7**						
Chloride (Cl)		6.08	6.01		mg/L	1.1	20	21-AUG-19
WG3138859-10 LCS								
Chloride (Cl)			97.2		%		90-110	21-AUG-19
WG3138859-6 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-6 LCS								
Chloride (Cl)			98.5		%		90-110	21-AUG-19
WG3138859-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	21-AUG-19
WG3138859-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	21-AUG-19
WG3138859-12 MS		**L2332554-7**						
Chloride (Cl)			102.5		%		75-125	21-AUG-19
F-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-6 LCS								
Fluoride (F)			101.4		%		90-110	21-AUG-19
WG3138859-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	21-AUG-19
Batch R4772878								
WG3142592-2 LCS								
Fluoride (F)			100.8		%		90-110	24-AUG-19
WG3142592-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-AUG-19
F2-F4-FID-WP	**Water**							
Batch R4766908								
WG3140141-2 LCS								
F2 (C10-C16)			87.8		%		70-130	22-AUG-19
F3 (C16-C34)			89.2		%		70-130	22-AUG-19
F4 (C34-C50)			89.8		%		70-130	22-AUG-19
WG3140141-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	22-AUG-19
F3 (C16-C34)			<0.25		mg/L		0.25	22-AUG-19
F4 (C34-C50)			<0.25		mg/L		0.25	22-AUG-19
Surrogate: 2-Bromobenzotrifluoride			94.5		%		60-140	22-AUG-19
MET-D-CCMS-WP	**Water**							
Batch R4769251								
WG3141889-2 LCS								
Aluminum (Al)-Dissolved			103.7		%		80-120	23-AUG-19
Antimony (Sb)-Dissolved			99.6		%		80-120	23-AUG-19
Arsenic (As)-Dissolved			101.9		%		80-120	23-AUG-19
Barium (Ba)-Dissolved			100.9		%		80-120	23-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4769251								
WG3141889-2 LCS								
Beryllium (Be)-Dissolved			97.9		%		80-120	23-AUG-19
Bismuth (Bi)-Dissolved			100.7		%		80-120	23-AUG-19
Boron (B)-Dissolved			103.0		%		80-120	23-AUG-19
Cadmium (Cd)-Dissolved			104.1		%		80-120	23-AUG-19
Calcium (Ca)-Dissolved			103.5		%		80-120	23-AUG-19
Cesium (Cs)-Dissolved			106.1		%		80-120	23-AUG-19
Chromium (Cr)-Dissolved			106.3		%		80-120	23-AUG-19
Cobalt (Co)-Dissolved			104.1		%		80-120	23-AUG-19
Copper (Cu)-Dissolved			108.3		%		80-120	23-AUG-19
Iron (Fe)-Dissolved			99.9		%		80-120	23-AUG-19
Lead (Pb)-Dissolved			103.0		%		80-120	23-AUG-19
Lithium (Li)-Dissolved			102.8		%		80-120	23-AUG-19
Magnesium (Mg)-Dissolved			114.0		%		80-120	23-AUG-19
Manganese (Mn)-Dissolved			104.0		%		80-120	23-AUG-19
Molybdenum (Mo)-Dissolved			102.8		%		80-120	23-AUG-19
Nickel (Ni)-Dissolved			104.3		%		80-120	23-AUG-19
Phosphorus (P)-Dissolved			108.0		%		80-120	23-AUG-19
Potassium (K)-Dissolved			98.5		%		80-120	23-AUG-19
Rubidium (Rb)-Dissolved			102.6		%		80-120	23-AUG-19
Selenium (Se)-Dissolved			107.1		%		80-120	23-AUG-19
Silicon (Si)-Dissolved			101.9		%		80-120	23-AUG-19
Silver (Ag)-Dissolved			100.2		%		80-120	23-AUG-19
Sodium (Na)-Dissolved			106.3		%		80-120	23-AUG-19
Strontium (Sr)-Dissolved			107.2		%		80-120	23-AUG-19
Sulfur (S)-Dissolved			96.1		%		80-120	23-AUG-19
Tellurium (Te)-Dissolved			97.7		%		80-120	23-AUG-19
Thallium (Tl)-Dissolved			99.2		%		80-120	23-AUG-19
Thorium (Th)-Dissolved			100.4		%		80-120	23-AUG-19
Tin (Sn)-Dissolved			99.6		%		80-120	23-AUG-19
Titanium (Ti)-Dissolved			98.5		%		80-120	23-AUG-19
Tungsten (W)-Dissolved			101.1		%		80-120	23-AUG-19
Uranium (U)-Dissolved			109.1		%		80-120	23-AUG-19
Vanadium (V)-Dissolved			106.0		%		80-120	23-AUG-19
Zinc (Zn)-Dissolved			106.4		%		80-120	23-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4769251								
WG3141889-2 LCS								
Zirconium (Zr)-Dissolved			100.4		%		80-120	23-AUG-19
WG3141889-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	23-AUG-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	23-AUG-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	23-AUG-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	23-AUG-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-AUG-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	23-AUG-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	23-AUG-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	23-AUG-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	23-AUG-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	23-AUG-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	23-AUG-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	23-AUG-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	23-AUG-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	23-AUG-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	23-AUG-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	23-AUG-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	23-AUG-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	23-AUG-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	23-AUG-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	23-AUG-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	23-AUG-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	23-AUG-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	23-AUG-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4769251								
WG3141889-1 MB								
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	23-AUG-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	23-AUG-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	23-AUG-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	23-AUG-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	23-AUG-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	23-AUG-19
MET-T-CCMS-WP	**Water**							
Batch R4774796								
WG3144666-2 LCS								
Aluminum (Al)-Total			107.4		%		80-120	27-AUG-19
Antimony (Sb)-Total			102.0		%		80-120	27-AUG-19
Arsenic (As)-Total			104.2		%		80-120	27-AUG-19
Barium (Ba)-Total			104.4		%		80-120	27-AUG-19
Beryllium (Be)-Total			102.8		%		80-120	27-AUG-19
Bismuth (Bi)-Total			100.3		%		80-120	27-AUG-19
Boron (B)-Total			100.9		%		80-120	27-AUG-19
Cadmium (Cd)-Total			104.8		%		80-120	27-AUG-19
Calcium (Ca)-Total			100.4		%		80-120	27-AUG-19
Cesium (Cs)-Total			100.2		%		80-120	27-AUG-19
Chromium (Cr)-Total			105.2		%		80-120	27-AUG-19
Cobalt (Co)-Total			105.3		%		80-120	27-AUG-19
Copper (Cu)-Total			106.3		%		80-120	27-AUG-19
Iron (Fe)-Total			92.8		%		80-120	27-AUG-19
Lead (Pb)-Total			100.8		%		80-120	27-AUG-19
Lithium (Li)-Total			102.9		%		80-120	27-AUG-19
Magnesium (Mg)-Total			119.2		%		80-120	27-AUG-19
Manganese (Mn)-Total			105.7		%		80-120	27-AUG-19
Molybdenum (Mo)-Total			100.3		%		80-120	27-AUG-19
Nickel (Ni)-Total			104.2		%		80-120	27-AUG-19
Potassium (K)-Total			97.7		%		80-120	27-AUG-19
Phosphorus (P)-Total			106.1		%		80-120	27-AUG-19
Rubidium (Rb)-Total			104.2		%		80-120	27-AUG-19
Selenium (Se)-Total			101.8		%		80-120	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4774796								
WG3144666-2 LCS								
Silicon (Si)-Total			97.6		%		80-120	27-AUG-19
Silver (Ag)-Total			98.7		%		80-120	27-AUG-19
Sodium (Na)-Total			105.0		%		80-120	27-AUG-19
Strontium (Sr)-Total			97.7		%		80-120	27-AUG-19
Sulfur (S)-Total			99.6		%		80-120	27-AUG-19
Tellurium (Te)-Total			94.9		%		80-120	27-AUG-19
Thallium (Tl)-Total			100.7		%		80-120	27-AUG-19
Thorium (Th)-Total			91.4		%		80-120	27-AUG-19
Tin (Sn)-Total			98.4		%		80-120	27-AUG-19
Titanium (Ti)-Total			99.6		%		80-120	27-AUG-19
Tungsten (W)-Total			101.8		%		80-120	27-AUG-19
Uranium (U)-Total			100.1		%		80-120	27-AUG-19
Vanadium (V)-Total			105.7		%		80-120	27-AUG-19
Zinc (Zn)-Total			105.9		%		80-120	27-AUG-19
Zirconium (Zr)-Total			96.4		%		80-120	27-AUG-19
WG3144666-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	27-AUG-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	27-AUG-19
Boron (B)-Total			<0.010		mg/L		0.01	27-AUG-19
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	27-AUG-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	27-AUG-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	27-AUG-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	27-AUG-19
Iron (Fe)-Total			<0.010		mg/L		0.01	27-AUG-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	27-AUG-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	27-AUG-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	27-AUG-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4774796								
WG3144666-1 MB								
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	27-AUG-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	27-AUG-19
Potassium (K)-Total			<0.050		mg/L		0.05	27-AUG-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	27-AUG-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	27-AUG-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	27-AUG-19
Silicon (Si)-Total			<0.10		mg/L		0.1	27-AUG-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	27-AUG-19
Sodium (Na)-Total			<0.050		mg/L		0.05	27-AUG-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	27-AUG-19
Sulfur (S)-Total			<0.50		mg/L		0.5	27-AUG-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	27-AUG-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	27-AUG-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	27-AUG-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	27-AUG-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	27-AUG-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	27-AUG-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	27-AUG-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	27-AUG-19
Batch R4777539								
WG3146167-2 LCS								
Aluminum (Al)-Total			104.5		%		80-120	28-AUG-19
Antimony (Sb)-Total			98.0		%		80-120	28-AUG-19
Arsenic (As)-Total			103.2		%		80-120	28-AUG-19
Barium (Ba)-Total			107.8		%		80-120	28-AUG-19
Beryllium (Be)-Total			98.8		%		80-120	28-AUG-19
Bismuth (Bi)-Total			99.8		%		80-120	28-AUG-19
Boron (B)-Total			99.99		%		80-120	28-AUG-19
Cadmium (Cd)-Total			100.5		%		80-120	28-AUG-19
Calcium (Ca)-Total			96.4		%		80-120	28-AUG-19
Cesium (Cs)-Total			92.6		%		80-120	28-AUG-19
Chromium (Cr)-Total			99.5		%		80-120	28-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4777539								
WG3146167-2 LCS								
Cobalt (Co)-Total			100.5		%		80-120	28-AUG-19
Copper (Cu)-Total			99.6		%		80-120	28-AUG-19
Iron (Fe)-Total			96.4		%		80-120	28-AUG-19
Lead (Pb)-Total			97.7		%		80-120	28-AUG-19
Lithium (Li)-Total			105.8		%		80-120	28-AUG-19
Magnesium (Mg)-Total			102.6		%		80-120	28-AUG-19
Manganese (Mn)-Total			102.8		%		80-120	28-AUG-19
Molybdenum (Mo)-Total			96.7		%		80-120	28-AUG-19
Nickel (Ni)-Total			100.9		%		80-120	28-AUG-19
Potassium (K)-Total			103.1		%		80-120	28-AUG-19
Phosphorus (P)-Total			104.0		%		80-120	28-AUG-19
Rubidium (Rb)-Total			100.6		%		80-120	28-AUG-19
Selenium (Se)-Total			99.1		%		80-120	28-AUG-19
Silicon (Si)-Total			97.7		%		80-120	28-AUG-19
Silver (Ag)-Total			97.7		%		80-120	28-AUG-19
Sodium (Na)-Total			100.8		%		80-120	28-AUG-19
Strontium (Sr)-Total			98.7		%		80-120	28-AUG-19
Sulfur (S)-Total			95.6		%		80-120	28-AUG-19
Tellurium (Te)-Total			92.8		%		80-120	28-AUG-19
Thallium (Tl)-Total			94.5		%		80-120	28-AUG-19
Thorium (Th)-Total			90.4		%		80-120	28-AUG-19
Tin (Sn)-Total			97.4		%		80-120	28-AUG-19
Titanium (Ti)-Total			96.4		%		80-120	28-AUG-19
Tungsten (W)-Total			95.6		%		80-120	28-AUG-19
Uranium (U)-Total			96.9		%		80-120	28-AUG-19
Vanadium (V)-Total			102.3		%		80-120	28-AUG-19
Zinc (Zn)-Total			99.7		%		80-120	28-AUG-19
Zirconium (Zr)-Total			92.4		%		80-120	28-AUG-19
WG3146167-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	28-AUG-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	28-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4777539								
WG3146167-1 MB								
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	28-AUG-19
Boron (B)-Total			<0.010		mg/L		0.01	28-AUG-19
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	28-AUG-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	28-AUG-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	28-AUG-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	28-AUG-19
Iron (Fe)-Total			<0.010		mg/L		0.01	28-AUG-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	28-AUG-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	28-AUG-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	28-AUG-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	28-AUG-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	28-AUG-19
Potassium (K)-Total			<0.050		mg/L		0.05	28-AUG-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	28-AUG-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	28-AUG-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	28-AUG-19
Silicon (Si)-Total			<0.10		mg/L		0.1	28-AUG-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	28-AUG-19
Sodium (Na)-Total			<0.050		mg/L		0.05	28-AUG-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	28-AUG-19
Sulfur (S)-Total			<0.50		mg/L		0.5	28-AUG-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	28-AUG-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	28-AUG-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	28-AUG-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	28-AUG-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	28-AUG-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	28-AUG-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	28-AUG-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	28-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOTKJ-WP	**Water**							
Batch R4766868								
WG3140001-10 LCS								
Total Kjeldahl Nitrogen			101.6		%		75-125	23-AUG-19
WG3140001-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	23-AUG-19
NH3-COL-WP	**Water**							
Batch R4765054								
WG3140556-14 LCS								
Ammonia, Total (as N)			100.2		%		85-115	21-AUG-19
WG3140556-13 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	21-AUG-19
NO2-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-11 DUP		**L2332554-7**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	21-AUG-19
WG3138859-10 LCS								
Nitrite (as N)			97.3		%		90-110	21-AUG-19
WG3138859-6 LCS								
Nitrite (as N)			99.6		%		90-110	21-AUG-19
WG3138859-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	21-AUG-19
WG3138859-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	21-AUG-19
WG3138859-12 MS		**L2332554-7**						
Nitrite (as N)			107.9		%		75-125	21-AUG-19
NO3-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-11 DUP		**L2332554-7**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	21-AUG-19
WG3138859-10 LCS								
Nitrate (as N)			97.4		%		90-110	21-AUG-19
WG3138859-6 LCS								
Nitrate (as N)			98.0		%		90-110	21-AUG-19
WG3138859-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	21-AUG-19
WG3138859-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	21-AUG-19
WG3138859-12 MS		**L2332554-7**						
Nitrate (as N)			101.6		%		75-125	21-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WP	**Water**							
Batch R4765948								
WG3139455-10 LCS								
Phosphorus (P)-Total			102.2		%		80-120	22-AUG-19
WG3139455-9 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	22-AUG-19
P-TD-COL-WP	**Water**							
Batch R4766335								
WG3140700-3 DUP		**L2332554-1**						
Phosphorus (P)-Total	Dissolved	0.0033	0.0039		mg/L	15	20	23-AUG-19
WG3140700-2 LCS								
Phosphorus (P)-Total	Dissolved		99.2		%		80-120	23-AUG-19
WG3140700-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	23-AUG-19
WG3140700-4 MS		**L2332554-2**						
Phosphorus (P)-Total	Dissolved		98.7		%		70-130	23-AUG-19
SO4-IC-N-WP	**Water**							
Batch R4767966								
WG3138859-11 DUP		**L2332554-7**						
Sulfate (SO4)		115	114		mg/L	0.5	20	21-AUG-19
WG3138859-10 LCS								
Sulfate (SO4)			98.4		%		90-110	21-AUG-19
WG3138859-6 LCS								
Sulfate (SO4)			99.3		%		90-110	21-AUG-19
WG3138859-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	21-AUG-19
WG3138859-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	21-AUG-19
WG3138859-12 MS		**L2332554-7**						
Sulfate (SO4)			N/A	MS-B	%		-	21-AUG-19
SOLIDS-TOTSUS-WP	**Water**							
Batch R4768536								
WG3141155-10 LCS								
Total Suspended Solids			101.8		%		85-115	23-AUG-19
WG3141155-9 MB								
Total Suspended Solids			<2.0		mg/L		2	23-AUG-19
TC,EC-QT97-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC-QT97-WP	**Water**							
Batch R4763409								
WG3139080-2 DUP		**L2332554-1**						
Total Coliforms		75	51		MPN/100mL	38	65	21-AUG-19
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	21-AUG-19
WG3139080-1 MB								
Total Coliforms			<1		MPN/100mL		1	21-AUG-19
Escherichia Coli			<1		MPN/100mL		1	21-AUG-19
TDS-WP	**Water**							
Batch R4768592								
WG3141158-6 LCS								
Total Dissolved Solids			102.5		%		85-115	23-AUG-19
WG3141158-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	23-AUG-19

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
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.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	19-AUG-19 12:45	21-AUG-19 12:40	30	48	hours	EHTR
	2	19-AUG-19 15:00	21-AUG-19 12:40	30	46	hours	EHTR
	3	19-AUG-19 16:45	21-AUG-19 12:40	30	44	hours	EHTR
	4	19-AUG-19 18:45	21-AUG-19 12:40	30	42	hours	EHTR
	6	19-AUG-19 10:30	21-AUG-19 12:40	30	50	hours	EHTR
	7	19-AUG-19	21-AUG-19 12:40	30	49	hours	EHTR

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 L2332554 were received on 21-AUG-19 08:30.

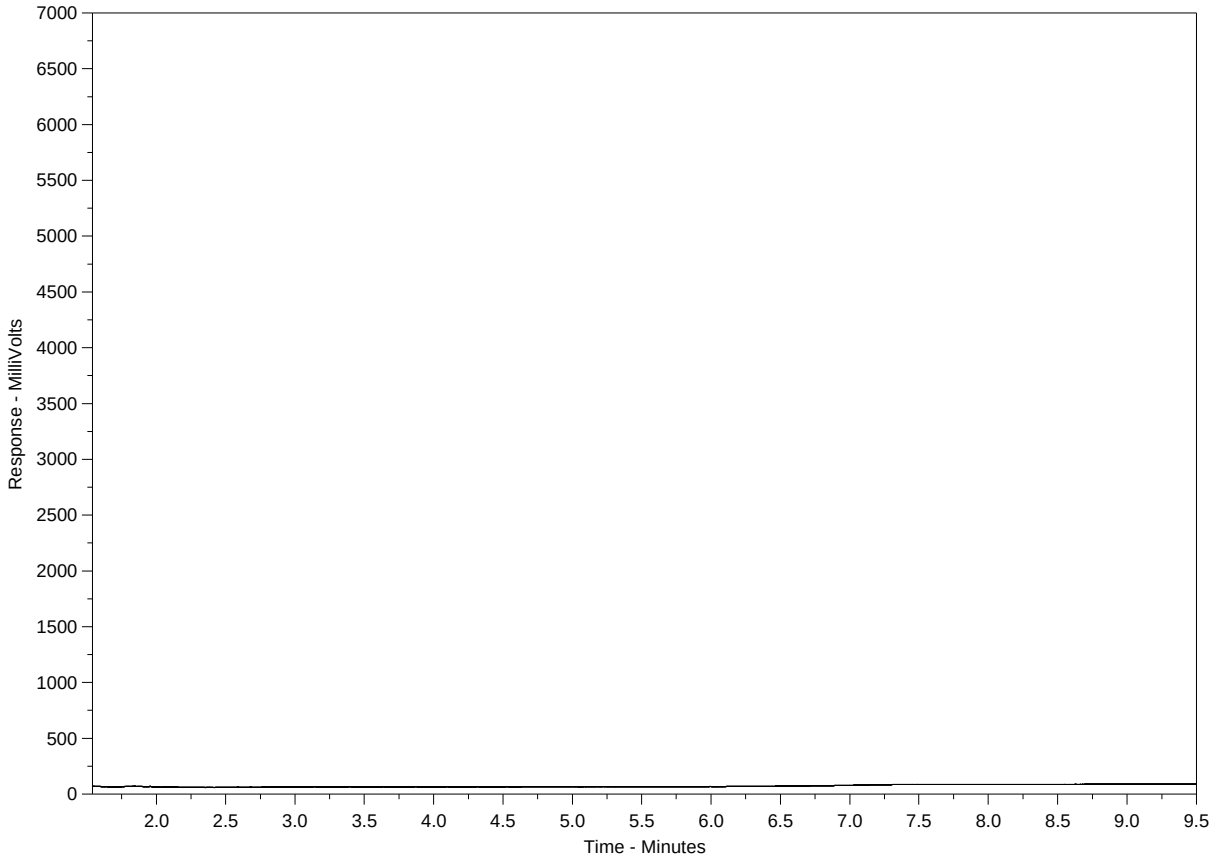
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

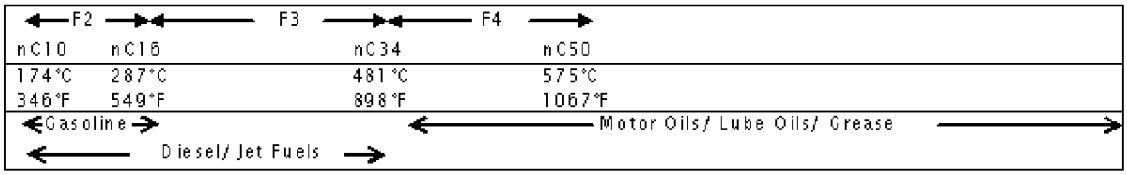
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2332554-1
Client Sample ID: CH19-08





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

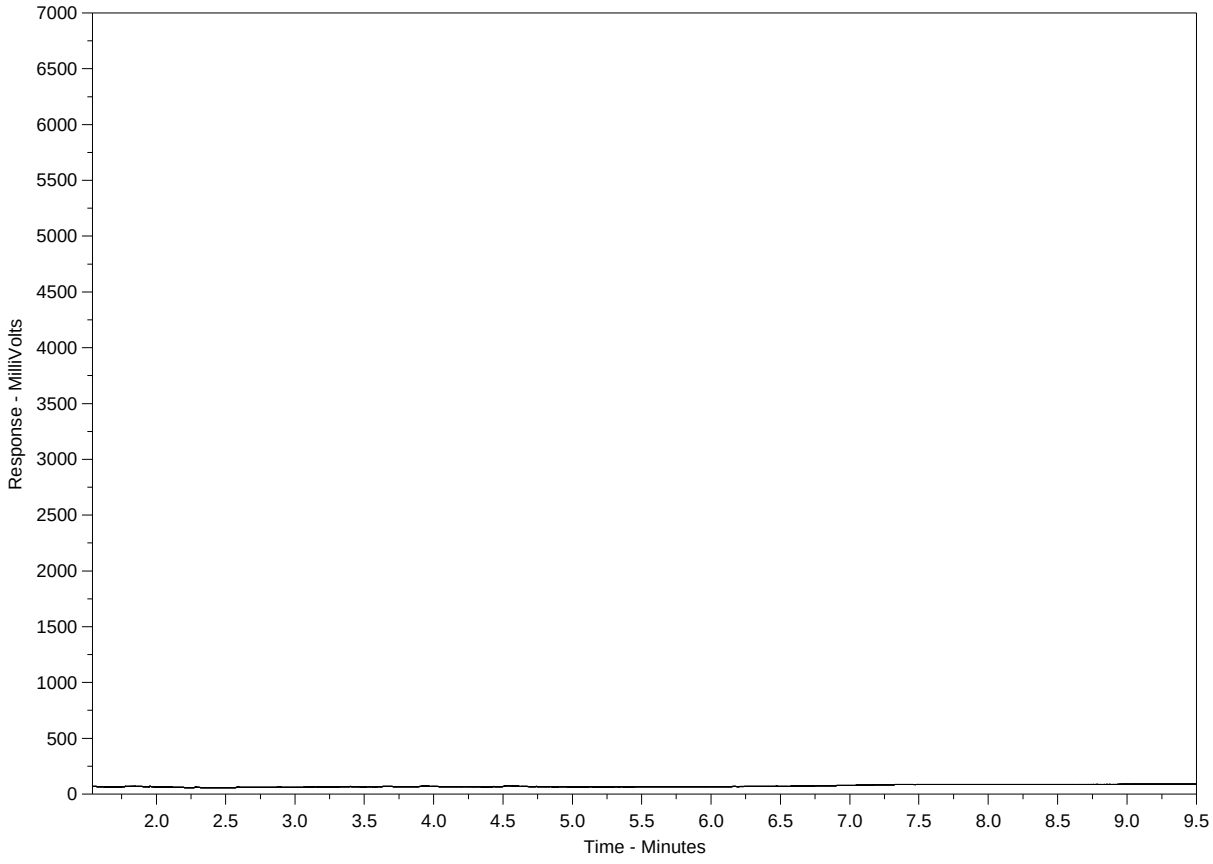
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

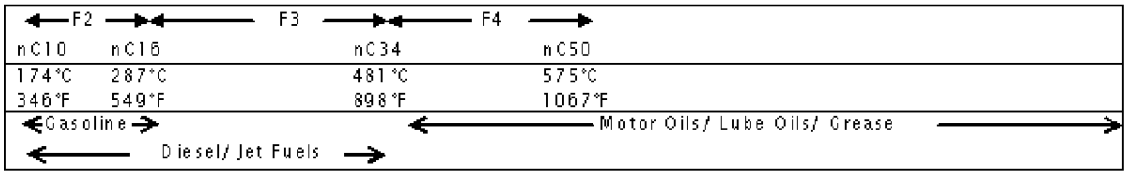
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2332554-2
Client Sample ID: OW19-16





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.

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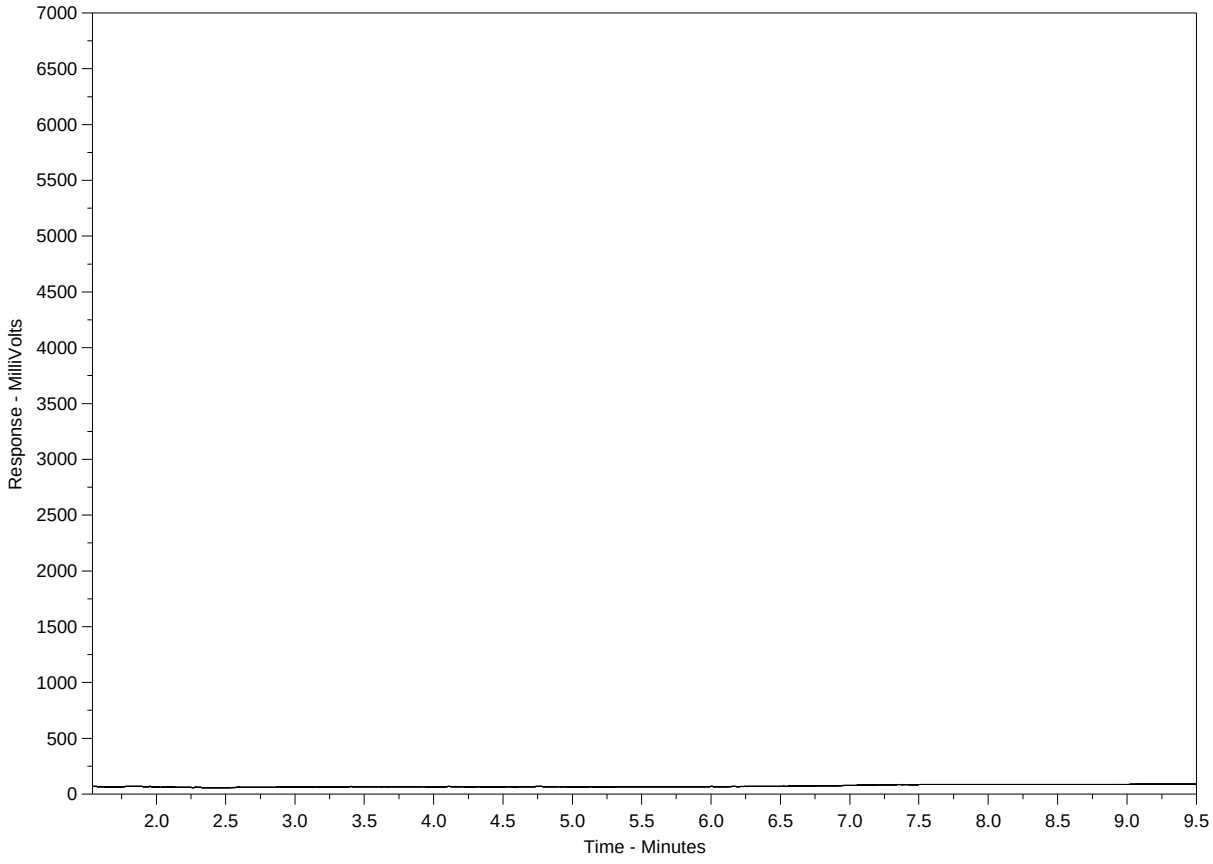
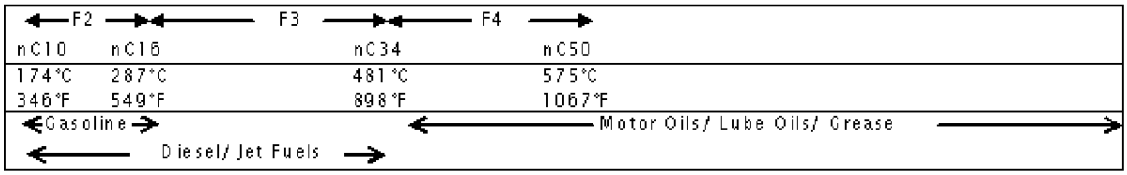
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2332554-3
Client Sample ID: BH19-12





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

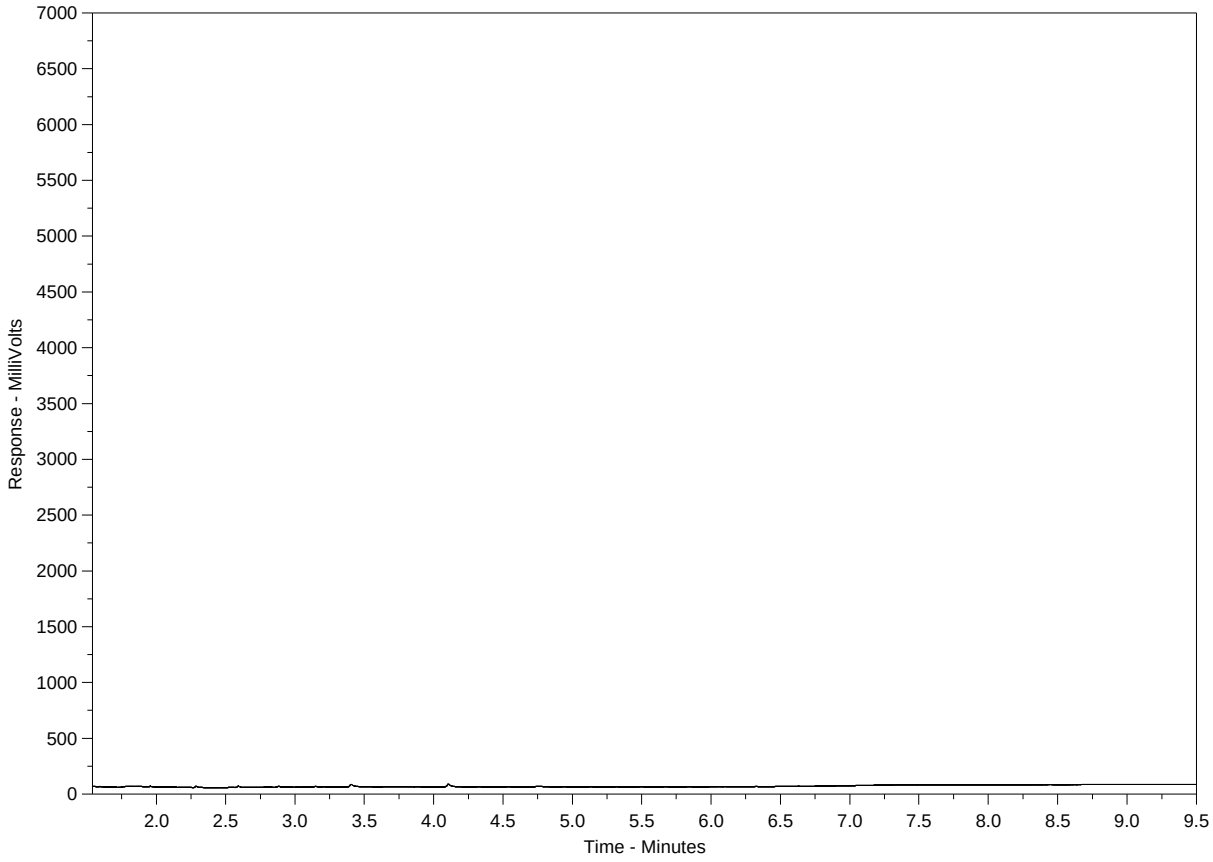
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

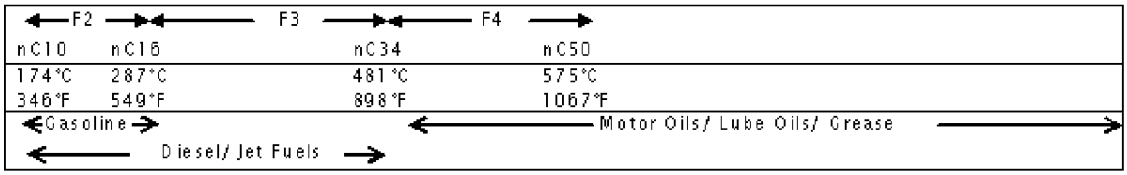
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2332554-4
Client Sample ID: OW19-05





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

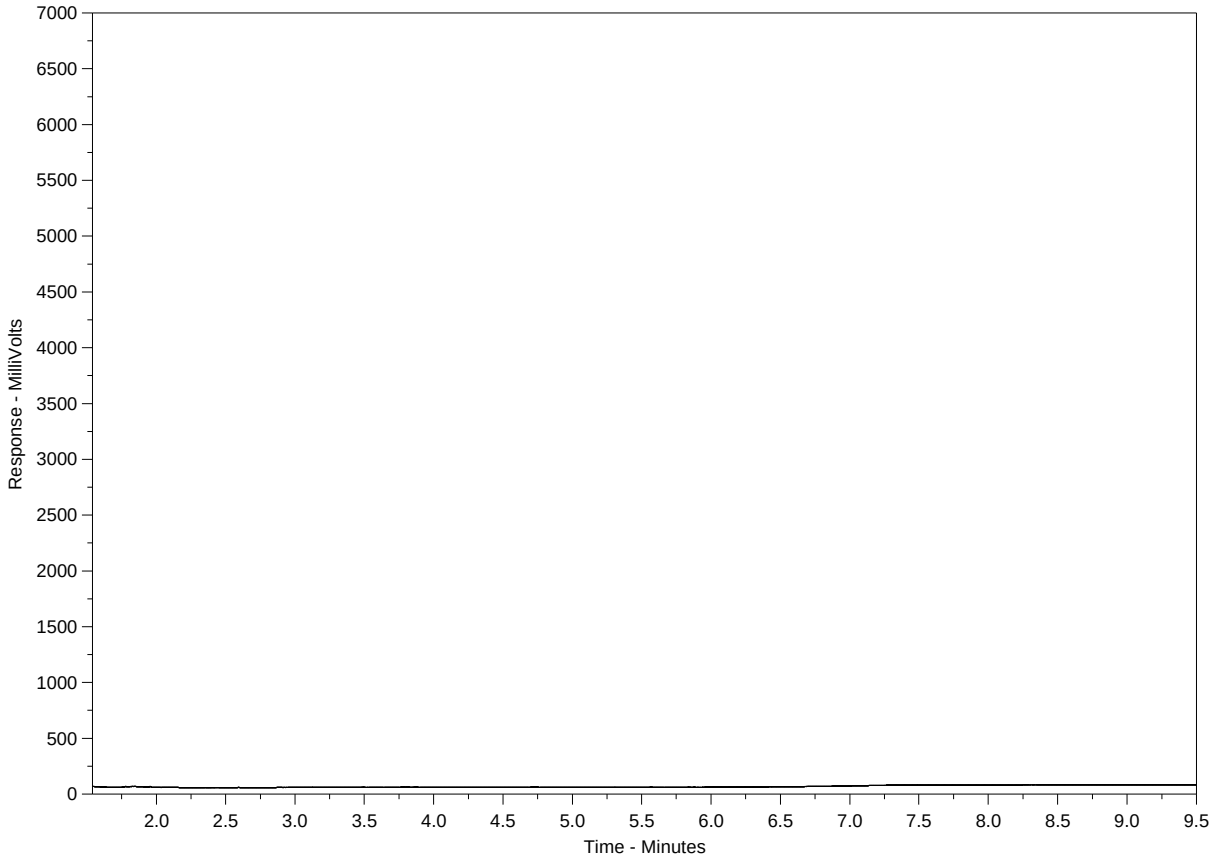
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

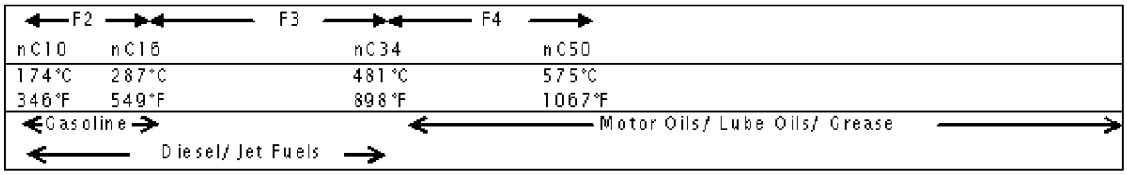
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2332554-5
Client Sample ID: BH19-29





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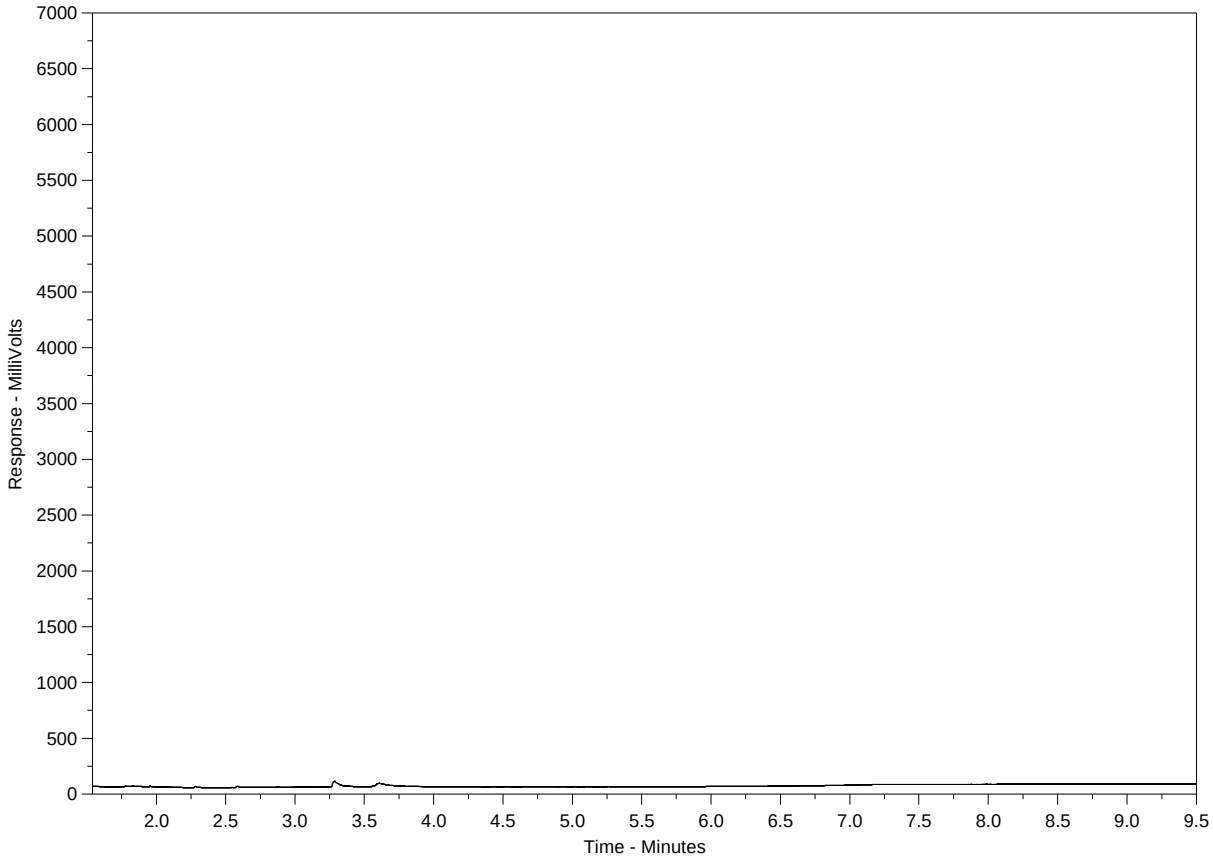
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

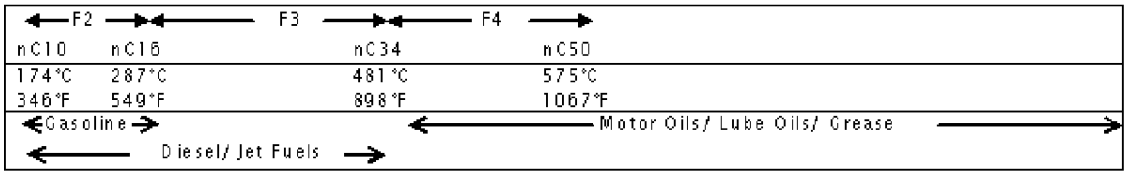
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2332554-6
Client Sample ID: OW19-23





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

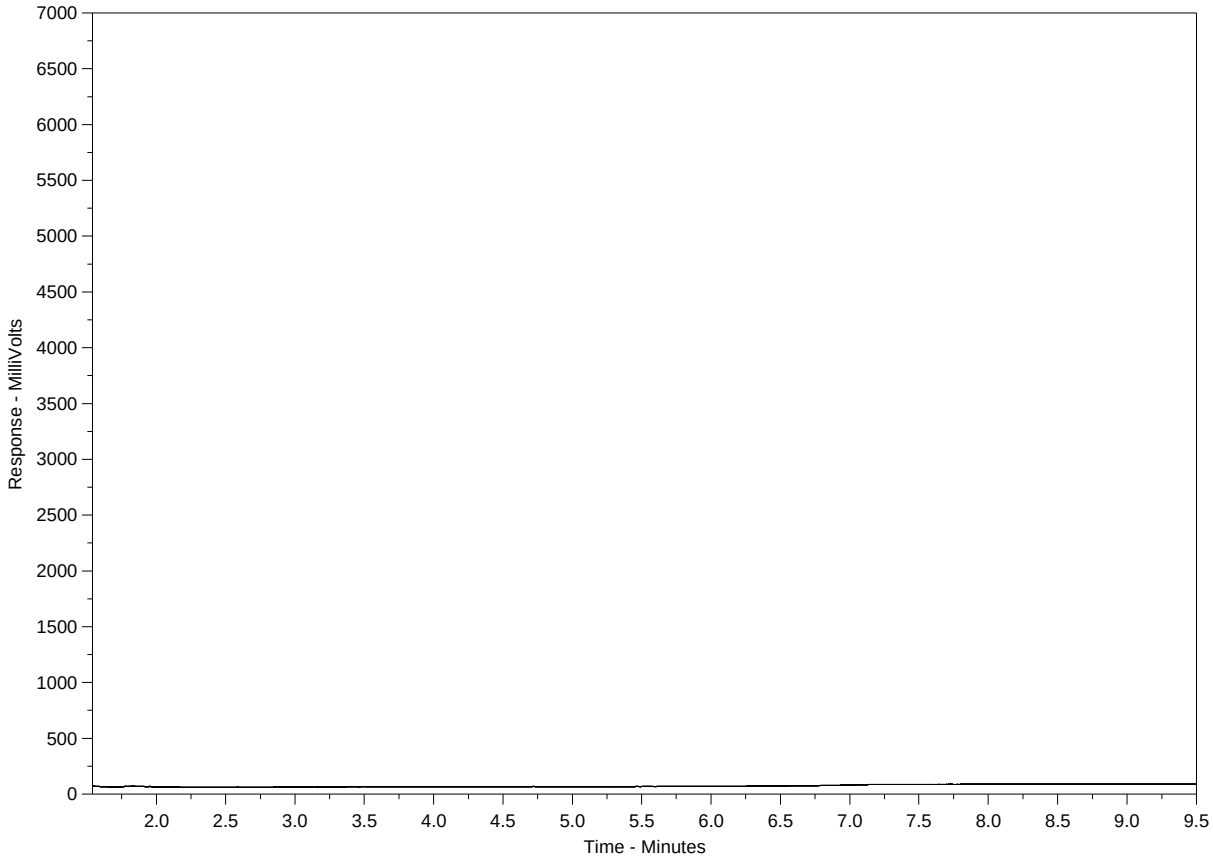
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

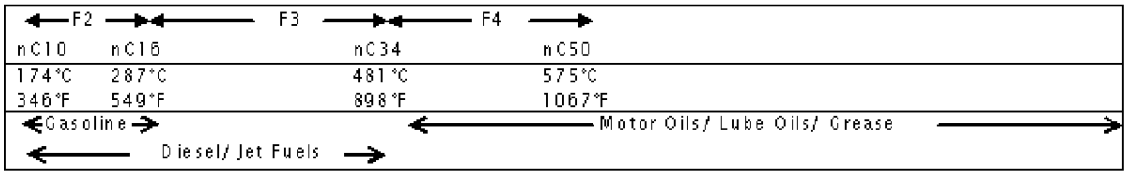
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2332554-7
Client Sample ID: QC-01





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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2332554-COFC

COC Number: 17 - 751523

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	STANTEC	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	ANDREA KNEALE	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	204-928-7615	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	500-311 PORTAGE AVE	Email 1 or Fax andrea.kneale@stantec.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	WPG, MB	Email 2	
Postal Code:	R3B 2B9	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-ICN-WP	BTX,F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOTKJT-WP *NH3-COL-WP	P-T-COL-WP + P-TD-COL-WP	P-TPART-CALC-WP	SOLIDS-TOTSUS-WP	TDS-WP	TC+EC-QT99-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
						P	P		P/F	P	P	P	P	P			P			
1	CH 19-08	19-AUG-19	12:45	GW	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	OW 19-16		15:00		11															
3	BH 19-12		16:45		11															
4	OW 19-05		18:45		11															
5	BH 19-29	20-AUG-19	9:15		11															
6	OW 19-23		10:30		11															
7	QC-01	19-AUG-19	—		11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	NUTRIENTS - DISSOLVED & METALS - DISSOLVED FILTERED IN THE FIELD.
Are samples for human consumption/ use? | | YES | | NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☑
Ice Packs ☐	Ice Cubes ☑	Custody seal intact	Yes ☐	No	☐
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			4.7				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				Aug 21/19	08:30		Aug 21/19	08:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY | YELLOW - CLIENT COPY

JUNE 2015 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 23-AUG-19
Report Date: 05-SEP-19 13:29 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2334482

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2334482-1 D9							
Sampled By: BE, AR on 21-AUG-19 @ 14:45							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	214		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	6.59		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	186		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	194		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.164		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	75.9		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	93.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	96.1		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.024		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	253		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0278		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0055		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0223		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	616		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	1.13		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	1.13		0.20	mg/L		30-AUG-19	
Total Suspended Solids	25.3		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1200	PEHR	1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	11	PEHR	1	MPN/100mL		23-AUG-19	R4767856

* 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
L2334482-1 D9							
Sampled By: BE, AR on 21-AUG-19 @ 14:45							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.108		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00021		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00228		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0420		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.092		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	0.0000053		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	38.8		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	0.000017		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00034		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00013		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00051		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.119		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000232		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0312		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	35.7		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.0124		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00220		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00087		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	9.04		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	<0.030		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00408		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000073		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	3.72		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	131		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.267		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	28.2		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00489		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00176		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00186		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0052		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00017		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00192		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0441		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.114		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	0.0000055		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	41.3		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-1 D9							
Sampled By: BE, AR on 21-AUG-19 @ 14:45							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00023		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.038		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0351		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	36.3		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00115		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00214		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00059		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	9.18		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00386		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000077		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	4.12		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	128		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.262		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	30.2		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00161		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00137		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0048		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-2 D8							
Sampled By: BE, AR on 21-AUG-19 @ 16:32							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	388		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	52.1		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	404		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	25.0		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.359		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							

* 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
L2334482-2 D8							
Sampled By: BE, AR on 21-AUG-19 @ 16:32							
Matrix: W							
Sulfate in Water by IC							
Sulfate (SO4)	191		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	89.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	103.3		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.092		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	613		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0736		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0513		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0223		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	718		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	3.99		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	3.99		0.20	mg/L		30-AUG-19	
Total Suspended Solids	2.9		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	488	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	3	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0818		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00029		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00376		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0145		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.078		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	33.7		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00068		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00033		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00081		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.083		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000074		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0365		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	121		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-2 D8							
Sampled By: BE, AR on 21-AUG-19 @ 16:32							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.0199		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.000777		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00186		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	7.62		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.104		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00330		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000259		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	3.24		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	28.8		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.174		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	66.8		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00260		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00195		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00197		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	0.00043		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0352		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00016		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00346		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0189		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.077		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	35.3		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00022		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00027		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00052		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.027		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0268		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	128		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00989		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00115	RRV	0.000050	mg/L	26-AUG-19	04-SEP-19	R4783328
Nickel (Ni)-Dissolved	0.00143		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	0.049		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	7.74		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00319		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000265		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	3.71		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	28.1		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-2 D8							
Sampled By: BE, AR on 21-AUG-19 @ 16:32							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.167		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	73.2		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00054		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00186		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00162		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0037		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	0.00043		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-3 QC-02							
Sampled By: BE, AR on 21-AUG-19							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	214		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	6.48		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	186		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	195		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.151		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	76.2		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	97.7		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	

* 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
L2334482-3 QC-02							
Sampled By: BE, AR on 21-AUG-19							
Matrix: W							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.010		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	243		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0263		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0064		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0199		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	603		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	1.14		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	1.14		0.20	mg/L		30-AUG-19	
Total Suspended Solids	25.1		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1730	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	24	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.102		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00023		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00237		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0423		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.093		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	0.0000054		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	37.8		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	0.000017		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00038		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00013		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00051		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.114		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000226		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0306		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	35.9		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.0123		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.0111		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00093		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	9.37		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.035		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00417		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000073		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	3.65		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	131		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.266		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	27.6		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00483		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00179		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-3 QC-02							
Sampled By: BE, AR on 21-AUG-19							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	0.00185		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0058		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00017		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00188		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0399		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.085		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	38.2		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00070		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0229		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	35.9		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00057		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00215		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00050		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	9.11		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00398		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000067		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	3.96		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	123		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.268		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	28.9		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00172		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00135		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-4 D1							
Sampled By: BE, AR on 22-AUG-19 @ 07:55							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	210		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							

* 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
L2334482-4 D1							
Sampled By: BE, AR on 22-AUG-19 @ 07:55							
Matrix: W							
Alkalinity, Carbonate							
Carbonate (CO3)	6.16		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	182		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	199		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.144		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	72.8		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	85.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	96.6		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.031		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	234		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0169		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0042		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0127		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	618		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	1.04		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	1.04		0.20	mg/L		30-AUG-19	
Total Suspended Solids	8.4		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	326	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	52	MBHT	1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0243		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00014		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-4 D1							
Sampled By: BE, AR on 22-AUG-19 @ 07:55							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00197		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0395		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.085		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	37.6		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00015		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.026		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000114		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0300		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	34.4		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.00498		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00379		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00070		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	8.77		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	<0.030		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00388		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000067		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	4.38		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	132		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.267		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	27.0		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00110		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00160		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00157		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00177		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0424		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.072		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	37.2		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-4 D1							
Sampled By: BE, AR on 22-AUG-19 @ 07:55							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00145		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0199		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	34.3		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00024		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00315		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00051		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	8.67		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00367		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000061		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	4.76		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	127		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.257		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	27.2		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00152		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00126		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-5 D3							
Sampled By: BE, AR on 22-AUG-19 @ 09:35							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	514		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	33.2		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	477		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.4		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.179		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	138		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							

* 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
L2334482-5 D3							
Sampled By: BE, AR on 22-AUG-19 @ 09:35							
Matrix: W							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	109.4		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.421		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	570		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0522		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0216		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0306		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	718		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	5.43		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	5.43		0.20	mg/L		30-AUG-19	
Total Suspended Solids	9.5		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	326		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	12		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0249		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00019		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00254		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0244		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.050		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	0.0000055		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	29.4		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00027		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00021		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.033		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000105		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0386		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	120		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.150		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00101		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00078		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-5 D3							
Sampled By: BE, AR on 22-AUG-19 @ 09:35							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	18.2		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.052		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00728		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000206		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	9.27		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	27.0		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.0686		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	51.0		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00109		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00193		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00150		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0026		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00016		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00241		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0244		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.044		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	27.7		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00015		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00037		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Iron (Fe)-Dissolved	0.013		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	0.000070		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0242		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	122		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.133		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.000866		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	18.2		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00722		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000148		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	10.3		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	24.8		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.0637		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	52.0		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-5 D3							
Sampled By: BE, AR on 22-AUG-19 @ 09:35							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00038		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00177		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00113		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-6 D2							
Sampled By: BE, AR on 22-AUG-19 @ 10:35							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	414		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	27.8		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	386		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	97.1		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.314		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	222		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	91.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	104.6		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							

* 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
L2334482-6 D2							
Sampled By: BE, AR on 22-AUG-19 @ 10:35							
Matrix: W							
Ammonia, Total (as N)	0.051		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	606		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0384		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0258		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0125		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	844		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	2.85		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	2.85		0.20	mg/L		30-AUG-19	
Total Suspended Solids	2.8		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1300		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	461		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0062		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00014		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00229		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0297		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.137		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	36.8		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00020		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00015		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.025		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0648		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	129		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.00775		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00458		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00115		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	9.48		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.063		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00376		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000116		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	0.23		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	65.2		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.195		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	81.8		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00273		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00081		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-6 D2							
Sampled By: BE, AR on 22-AUG-19 @ 10:35							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0023		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00214		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0339		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.110		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	35.9		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00011		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00022		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.032		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0416		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	125		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00653		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00382		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00095		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	9.34		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00375		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000143		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	0.218		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	61.0		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.188		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	78.1		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00258		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00053		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-7 D4							
Sampled By: BE, AR on 22-AUG-19 @ 12:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	274		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	6.91		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							

* 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
L2334482-7 D4							
Sampled By: BE, AR on 22-AUG-19 @ 12:00							
Matrix: W							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	236		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	19.5		0.50	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.292		0.020	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	141		0.30	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	87.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	98.2		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.180		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	365		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.108		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0163		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0917		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	581		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	3.34		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	3.34		0.20	mg/L		30-AUG-19	
Total Suspended Solids	83.7		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	727		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	727		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	3.06		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00022		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00343		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0754		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-7 D4							
Sampled By: BE, AR on 22-AUG-19 @ 12:00							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.055		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	0.0000423		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	45.4		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	0.000355		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00655		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00189		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00450		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	2.99		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.00165		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0355		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	64.4		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.102		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00149		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00680		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	12.0		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.128		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.0103		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000150		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	11.0		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	0.000020		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	25.0		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.143		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	50.5		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	0.000051		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	0.00070		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.127		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00243		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00764		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	0.0145		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	0.00243		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0062		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00021		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00321		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0580		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.044		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	34.9		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00011		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00016		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00194		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Iron (Fe)-Dissolved	0.013		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	0.000088		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0201		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-7 D4							
Sampled By: BE, AR on 22-AUG-19 @ 12:00							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	67.5		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.0314		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00139		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00097		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	12.0		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00397		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000203		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	5.58		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	25.0		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.120		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	50.9		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00081		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00211		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00184		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0043		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	0.00023		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-8 D10							
Sampled By: BE, AR on 22-AUG-19 @ 13:10							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	750		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	27.0		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	660		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	144		10	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.43		0.40	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	3970		6.0	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396

* 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
L2334482-8 D10							
Sampled By: BE, AR on 22-AUG-19 @ 13:10							
Matrix: W							
BTX plus F1 by GCMS							
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	92.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	104.7		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.257		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	4050		0.24	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.109		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0833		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0258		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	5950	HTD	20	mg/L		28-AUG-19	R4776249
Total Kjeldahl Nitrogen	20.5		2.0	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	20.5		2.0	mg/L		30-AUG-19	
Total Suspended Solids	13.3		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	365		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	19		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0827		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00062		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.0113		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.285		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	0.0000181		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	374		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	0.000015		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00131		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00106		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00183		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.117		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	0.000212		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.231		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.158		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00141		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00576		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	73.9		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.140		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.0180		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000879		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	33.6		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-8 D10							
Sampled By: BE, AR on 22-AUG-19 @ 13:10							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Silver (Ag)-Total	0.000030		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	192		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	0.00030		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00643		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00869		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00452		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	0.00137		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0030		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00063		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.0118		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.330		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.405		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	0.0000151		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	373		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00099		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00099		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00174		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.048		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	0.000179		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.154		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	758		0.050	mg/L	26-AUG-19	28-AUG-19	R4777539
Manganese (Mn)-Dissolved	0.154		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00128		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00537		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	0.116		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	78.1		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.0189		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000920		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	33.8		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	0.000030		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	192		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	1.63		0.0010	mg/L	26-AUG-19	28-AUG-19	R4777539
Sulfur (S)-Dissolved	1270		5.0	mg/L	26-AUG-19	28-AUG-19	R4777539
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00207		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00836		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00432		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-8 D10							
Sampled By: BE, AR on 22-AUG-19 @ 13:10							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Zinc (Zn)-Dissolved	0.0049		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	0.00127		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-9 D12							
Sampled By: BE, AR on 22-AUG-19 @ 15:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	529		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	39.5		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	499		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.1		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	0.348		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	234		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	92.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	99.0		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.071		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	698		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0284		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0172		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0113		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	850		20	mg/L		27-AUG-19	R4771078

* 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
L2334482-9 D12							
Sampled By: BE, AR on 22-AUG-19 @ 15:00							
Matrix: W							
Total Kjeldahl Nitrogen	3.26		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	3.26		0.20	mg/L		30-AUG-19	
Total Suspended Solids	4.7		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	179		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	9		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0111		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00015		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00358		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0353		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.142		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	57.3		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00034		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	0.00017		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00102		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.045		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0404		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	138		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.0137		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.000443		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00115		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	9.90		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	0.038		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00406		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000248		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	1.59		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	27.1		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.289		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	83.0		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00058		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00164		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00075		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	0.00022		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0025		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00354		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0353		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-9 D12							
Sampled By: BE, AR on 22-AUG-19 @ 15:00							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.117		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	57.1		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00024		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00091		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.025		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0262		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	135		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00930		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.000427		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00094		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324
Potassium (K)-Dissolved	9.85		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00397		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000312		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	1.60		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	24.7		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.276		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	81.3		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00040		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00153		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00051		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0013		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	0.00023		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-10 D6							
Sampled By: BE, AR on 22-AUG-19 @ 15:25							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	524		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	30.8		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	481		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	35.2		1.0	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							

* 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
L2334482-10 D6							
Sampled By: BE, AR on 22-AUG-19 @ 15:25							
Matrix: W							
Fluoride in Water by IC							
Fluoride (F)	0.399		0.040	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	295		0.60	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	86.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	115.8		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.076		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	745		0.20	mg/L		03-SEP-19	
Phosphorus (P)-Total	0.0257		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	0.0168		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	0.0089		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	942		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	3.52		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	3.52		0.20	mg/L		30-AUG-19	
Total Suspended Solids	6.9		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	54		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0175		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	0.00012		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00245		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.0363		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	0.190		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	52.7		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00027		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-10 D6							
Sampled By: BE, AR on 22-AUG-19 @ 15:25							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Cobalt (Co)-Total	0.00020		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00096		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	0.047		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	0.0508		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	152		0.0050	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.0124		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	0.00389		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	0.00126		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	12.9		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	<0.030		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	0.00465		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	0.000207		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	1.87		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	38.1		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.288		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	109		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	0.00093		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	0.00198		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	0.00073		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	0.00022		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					26-AUG-19	R4768938
Aluminum (Al)-Dissolved	0.0030		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Arsenic (As)-Dissolved	0.00237		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Barium (Ba)-Dissolved	0.0416		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Boron (B)-Dissolved	0.163		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Calcium (Ca)-Dissolved	54.2		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Chromium (Cr)-Dissolved	0.00013		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Cobalt (Co)-Dissolved	0.00016		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Copper (Cu)-Dissolved	0.00084		0.00020	mg/L	26-AUG-19	03-SEP-19	R4782372
Iron (Fe)-Dissolved	0.035		0.010	mg/L	26-AUG-19	26-AUG-19	R4769324
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Lithium (Li)-Dissolved	0.0346		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Magnesium (Mg)-Dissolved	148		0.0050	mg/L	26-AUG-19	26-AUG-19	R4769324
Manganese (Mn)-Dissolved	0.00987		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Molybdenum (Mo)-Dissolved	0.00378		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Nickel (Ni)-Dissolved	0.00099		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	26-AUG-19	26-AUG-19	R4769324

* 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
L2334482-10 D6							
Sampled By: BE, AR on 22-AUG-19 @ 15:25							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Potassium (K)-Dissolved	12.4		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Rubidium (Rb)-Dissolved	0.00465		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Selenium (Se)-Dissolved	0.000258		0.000050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silicon (Si)-Dissolved	1.77		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sodium (Na)-Dissolved	33.9		0.050	mg/L	26-AUG-19	26-AUG-19	R4769324
Strontium (Sr)-Dissolved	0.307		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Sulfur (S)-Dissolved	94.3		0.50	mg/L	26-AUG-19	26-AUG-19	R4769324
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Titanium (Ti)-Dissolved	0.00033		0.00030	mg/L	26-AUG-19	26-AUG-19	R4769324
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	26-AUG-19	26-AUG-19	R4769324
Uranium (U)-Dissolved	0.00200		0.000010	mg/L	26-AUG-19	26-AUG-19	R4769324
Vanadium (V)-Dissolved	0.00055		0.00050	mg/L	26-AUG-19	26-AUG-19	R4769324
Zinc (Zn)-Dissolved	0.0066		0.0010	mg/L	26-AUG-19	26-AUG-19	R4769324
Zirconium (Zr)-Dissolved	0.00024		0.00020	mg/L	26-AUG-19	26-AUG-19	R4769324
L2334482-11 FB							
Sampled By: BE, AR on 22-AUG-19 @ 09:40							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1.9		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	1.5		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	0.030		0.020	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	0.72		0.30	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	88.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251

* 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
L2334482-11 FB							
Sampled By: BE, AR on 22-AUG-19 @ 09:40							
Matrix: W							
CCME PHC F2-F4 in Water							
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	99.1		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	<0.20		0.20	mg/L		04-SEP-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	200		20	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	<0.20		0.20	mg/L		30-AUG-19	
Total Suspended Solids	<2.0		2.0	mg/L		27-AUG-19	R4770612
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	0.00040		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.00063		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	<0.010		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	0.092		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	0.000021		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00077		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	0.00123		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	<0.010		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	<0.0010		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Manganese (Mn)-Total	0.00017		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	<0.050		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	<0.030		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	0.17		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	0.261		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	0.00038		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	<0.50		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489

* 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
L2334482-11 FB							
Sampled By: BE, AR on 22-AUG-19 @ 09:40							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					27-AUG-19	R4770075
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Antimony (Sb)-Dissolved	0.00020		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Arsenic (As)-Dissolved	0.00027		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Barium (Ba)-Dissolved	0.00034		0.00010	mg/L	27-AUG-19	03-SEP-19	R4782372
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Boron (B)-Dissolved	<0.010		0.010	mg/L	27-AUG-19	27-AUG-19	R4776010
Cadmium (Cd)-Dissolved	0.0000097		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Cesium (Cs)-Dissolved	0.000016		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Chromium (Cr)-Dissolved	0.00046		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Copper (Cu)-Dissolved	0.00204		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Iron (Fe)-Dissolved	0.013		0.010	mg/L	27-AUG-19	27-AUG-19	R4776010
Lead (Pb)-Dissolved	0.000069		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Magnesium (Mg)-Dissolved	0.0098		0.0050	mg/L	27-AUG-19	27-AUG-19	R4776010
Manganese (Mn)-Dissolved	0.00023		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4776010
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4776010
Potassium (K)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Silicon (Si)-Dissolved	0.137		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Sodium (Na)-Dissolved	0.220		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Strontium (Sr)-Dissolved	0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	27-AUG-19	27-AUG-19	R4776010
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Tin (Sn)-Dissolved	0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	27-AUG-19	27-AUG-19	R4776010
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4776010
Zinc (Zn)-Dissolved	0.0037		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
L2334482-12 BLANK							
Sampled By: BE, AR							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							

* 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
L2334482-12 BLANK							
Sampled By: BE, AR							
Matrix: W							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		26-AUG-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		26-AUG-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-AUG-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		23-AUG-19	R4768589
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		23-AUG-19	R4772009
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		23-AUG-19	R4772009
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		23-AUG-19	R4772009
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		23-AUG-19	R4772009
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		23-AUG-19	R4772009
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
Toluene	<0.0010		0.0010	mg/L		28-AUG-19	R4771396
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-19	R4771396
m+p-Xylenes	<0.00040		0.00040	mg/L		28-AUG-19	R4771396
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-19	R4771396
Surrogate: 4-Bromofluorobenzene (SS)	90.0		70-130	%		28-AUG-19	R4771396
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	27-AUG-19	27-AUG-19	R4771251
F3 (C16-C34)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
F4 (C34-C50)	<0.25		0.25	mg/L	27-AUG-19	27-AUG-19	R4771251
Surrogate: 2-Bromobenzotrifluoride	95.6		60-140	%	27-AUG-19	27-AUG-19	R4771251
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		03-SEP-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		03-SEP-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-SEP-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.020		0.010	mg/L		26-AUG-19	R4769874
Hardness (as CaCO3)	<0.20		0.20	mg/L		04-SEP-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		26-AUG-19	R4768533
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		27-AUG-19	R4769484
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		27-AUG-19	
Total Dissolved Solids	<4.0		4.0	mg/L		27-AUG-19	R4771078
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	26-AUG-19	27-AUG-19	R4771369
Total Nitrogen	<0.20		0.20	mg/L		30-AUG-19	
Total Suspended Solids	<2.0		2.0	mg/L		27-AUG-19	R4770612
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		23-AUG-19	R4767856
Escherichia Coli	<1		1	MPN/100mL		23-AUG-19	R4767856
Total Metals in Water by CRC ICPMS							

* 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
L2334482-12 BLANK							
Sampled By: BE, AR							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Arsenic (As)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Barium (Ba)-Total	0.00011		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Boron (B)-Total	<0.010		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Calcium (Ca)-Total	<0.050		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Chromium (Cr)-Total	0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Copper (Cu)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Iron (Fe)-Total	<0.010		0.010	mg/L	30-AUG-19	30-AUG-19	R4780489
Lead (Pb)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Lithium (Li)-Total	<0.0010		0.0010	mg/L	30-AUG-19	30-AUG-19	R4780489
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	30-AUG-19	03-SEP-19	R4782372
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Potassium (K)-Total	<0.050		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Phosphorus (P)-Total	<0.030		0.030	mg/L	30-AUG-19	30-AUG-19	R4780489
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Selenium (Se)-Total	<0.000050		0.000050	mg/L	30-AUG-19	30-AUG-19	R4780489
Silicon (Si)-Total	0.14		0.10	mg/L	30-AUG-19	30-AUG-19	R4780489
Silver (Ag)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Sodium (Na)-Total	<0.050		0.050	mg/L	30-AUG-19	30-AUG-19	R4780489
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Sulfur (S)-Total	0.81		0.50	mg/L	30-AUG-19	30-AUG-19	R4780489
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Thorium (Th)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	30-AUG-19	30-AUG-19	R4780489
Tungsten (W)-Total	<0.00010		0.00010	mg/L	30-AUG-19	30-AUG-19	R4780489
Uranium (U)-Total	<0.000010		0.000010	mg/L	30-AUG-19	30-AUG-19	R4780489
Vanadium (V)-Total	<0.00050		0.00050	mg/L	30-AUG-19	30-AUG-19	R4780489
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-19	30-AUG-19	R4780489
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	30-AUG-19	30-AUG-19	R4780489
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					27-AUG-19	R4770075
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Boron (B)-Dissolved	<0.010		0.010	mg/L	27-AUG-19	27-AUG-19	R4776010
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010

* 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
L2334482-12 BLANK							
Sampled By: BE, AR							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	27-AUG-19	27-AUG-19	R4776010
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	27-AUG-19	27-AUG-19	R4776010
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4776010
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	27-AUG-19	27-AUG-19	R4776010
Potassium (K)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	27-AUG-19	27-AUG-19	R4776010
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	27-AUG-19	27-AUG-19	R4776010
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	27-AUG-19	27-AUG-19	R4776010
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	27-AUG-19	27-AUG-19	R4776010
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	27-AUG-19	27-AUG-19	R4776010
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	27-AUG-19	27-AUG-19	R4776010
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	27-AUG-19	27-AUG-19	R4776010
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	27-AUG-19	27-AUG-19	R4776010
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	27-AUG-19	27-AUG-19	R4776010

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP Water CCME PHC F2-F4 in Water EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP Water Hardness Calculated 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.

MET-D-CCMS-WP Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020B (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-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020B (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.

N-TOTKJ-WP Water Total Kjeldahl Nitrogen APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-TD-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TOTSUS-WP Water Total Suspended Solids APHA 2540 D (modified)

Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.

TC,EC-QT97-WP Water Total Coliform and E.coli by MPN QT97 APHA 9223B QT97

This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 – 0.5°C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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: L2334482 Report Date: 05-SEP-19

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4768589								
WG3143275-24 LCS								
Alkalinity, Total (as CaCO3)			107.9		%		85-115	23-AUG-19
WG3143275-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	23-AUG-19
BTEXS+F1-HSMS-WP	**Water**							
Batch R4771396								
WG3145460-2 LCS								
Benzene			89.7		%		70-130	27-AUG-19
Toluene			92.7		%		70-130	27-AUG-19
Ethyl benzene			102.5		%		70-130	27-AUG-19
o-Xylene			92.7		%		70-130	27-AUG-19
m+p-Xylenes			101.0		%		70-130	27-AUG-19
WG3145460-3 LCS								
F1 (C6-C10)			95.3		%		70-130	27-AUG-19
WG3145460-1 MB								
Benzene			<0.00050		mg/L		0.0005	28-AUG-19
Toluene			<0.0010		mg/L		0.001	28-AUG-19
Ethyl benzene			<0.00050		mg/L		0.0005	28-AUG-19
o-Xylene			<0.00050		mg/L		0.0005	28-AUG-19
m+p-Xylenes			<0.00040		mg/L		0.0004	28-AUG-19
F1 (C6-C10)			<0.10		mg/L		0.1	28-AUG-19
Surrogate: 4-Bromofluorobenzene (SS)			93.0		%		70-130	28-AUG-19
CL-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-10 LCS								
Chloride (Cl)			97.8		%		90-110	23-AUG-19
WG3141426-14 LCS								
Chloride (Cl)			97.7		%		90-110	23-AUG-19
WG3141426-13 MB								
Chloride (Cl)			<0.50		mg/L		0.5	23-AUG-19
WG3141426-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	23-AUG-19
F-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-10 LCS								
Fluoride (F)			96.8		%		90-110	23-AUG-19
WG3141426-14 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-14 LCS								
Fluoride (F)			97.9		%		90-110	23-AUG-19
WG3141426-13 MB								
Fluoride (F)			<0.020		mg/L		0.02	23-AUG-19
WG3141426-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	23-AUG-19
F2-F4-FID-WP	**Water**							
Batch R4771251								
WG3144425-2 LCS								
F2 (C10-C16)			94.8		%		70-130	27-AUG-19
F3 (C16-C34)			98.8		%		70-130	27-AUG-19
F4 (C34-C50)			96.7		%		70-130	27-AUG-19
WG3144425-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	27-AUG-19
F3 (C16-C34)			<0.25		mg/L		0.25	27-AUG-19
F4 (C34-C50)			<0.25		mg/L		0.25	27-AUG-19
Surrogate: 2-Bromobenzotrifluoride			109.8		%		60-140	27-AUG-19
MET-D-CCMS-WP	**Water**							
Batch R4769324								
WG3143757-2 LCS								
Aluminum (Al)-Dissolved			100.5		%		80-120	26-AUG-19
Antimony (Sb)-Dissolved			97.4		%		80-120	26-AUG-19
Arsenic (As)-Dissolved			99.4		%		80-120	26-AUG-19
Barium (Ba)-Dissolved			99.4		%		80-120	26-AUG-19
Beryllium (Be)-Dissolved			91.1		%		80-120	26-AUG-19
Bismuth (Bi)-Dissolved			99.98		%		80-120	26-AUG-19
Boron (B)-Dissolved			87.9		%		80-120	26-AUG-19
Cadmium (Cd)-Dissolved			96.7		%		80-120	26-AUG-19
Calcium (Ca)-Dissolved			95.1		%		80-120	26-AUG-19
Cesium (Cs)-Dissolved			99.4		%		80-120	26-AUG-19
Chromium (Cr)-Dissolved			96.3		%		80-120	26-AUG-19
Cobalt (Co)-Dissolved			93.9		%		80-120	26-AUG-19
Copper (Cu)-Dissolved			94.5		%		80-120	26-AUG-19
Iron (Fe)-Dissolved			88.2		%		80-120	26-AUG-19
Lead (Pb)-Dissolved			101.6		%		80-120	26-AUG-19
Lithium (Li)-Dissolved			84.5		%		80-120	26-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4769324								
WG3143757-2 LCS								
Magnesium (Mg)-Dissolved			99.5		%		80-120	26-AUG-19
Manganese (Mn)-Dissolved			98.0		%		80-120	26-AUG-19
Molybdenum (Mo)-Dissolved			96.3		%		80-120	26-AUG-19
Nickel (Ni)-Dissolved			92.7		%		80-120	26-AUG-19
Phosphorus (P)-Dissolved			102.2		%		80-120	26-AUG-19
Potassium (K)-Dissolved			91.5		%		80-120	26-AUG-19
Rubidium (Rb)-Dissolved			99.6		%		80-120	26-AUG-19
Selenium (Se)-Dissolved			94.9		%		80-120	26-AUG-19
Silicon (Si)-Dissolved			100.6		%		80-120	26-AUG-19
Silver (Ag)-Dissolved			96.1		%		80-120	26-AUG-19
Sodium (Na)-Dissolved			100.1		%		80-120	26-AUG-19
Strontium (Sr)-Dissolved			99.1		%		80-120	26-AUG-19
Sulfur (S)-Dissolved			107.3		%		80-120	26-AUG-19
Tellurium (Te)-Dissolved			94.4		%		80-120	26-AUG-19
Thallium (Tl)-Dissolved			100.9		%		80-120	26-AUG-19
Thorium (Th)-Dissolved			99.9		%		80-120	26-AUG-19
Tin (Sn)-Dissolved			97.4		%		80-120	26-AUG-19
Titanium (Ti)-Dissolved			93.1		%		80-120	26-AUG-19
Tungsten (W)-Dissolved			98.5		%		80-120	26-AUG-19
Uranium (U)-Dissolved			103.8		%		80-120	26-AUG-19
Vanadium (V)-Dissolved			97.1		%		80-120	26-AUG-19
Zinc (Zn)-Dissolved			96.6		%		80-120	26-AUG-19
Zirconium (Zr)-Dissolved			90.4		%		80-120	26-AUG-19
WG3143757-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	26-AUG-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	26-AUG-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	26-AUG-19
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	26-AUG-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	26-AUG-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	26-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4769324								
WG3143757-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	26-AUG-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	26-AUG-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	26-AUG-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	26-AUG-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	26-AUG-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	26-AUG-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	26-AUG-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	26-AUG-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	26-AUG-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	26-AUG-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	26-AUG-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	26-AUG-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	26-AUG-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	26-AUG-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	26-AUG-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	26-AUG-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	26-AUG-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	26-AUG-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	26-AUG-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	26-AUG-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	26-AUG-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	26-AUG-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	26-AUG-19
Batch R4776010								
WG3145055-2 LCS								
Aluminum (Al)-Dissolved			103.9		%		80-120	27-AUG-19
Antimony (Sb)-Dissolved			103.4		%		80-120	27-AUG-19
Arsenic (As)-Dissolved			102.1		%		80-120	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4776010								
WG3145055-2 LCS								
Barium (Ba)-Dissolved			103.6		%		80-120	27-AUG-19
Beryllium (Be)-Dissolved			99.5		%		80-120	27-AUG-19
Bismuth (Bi)-Dissolved			95.2		%		80-120	27-AUG-19
Boron (B)-Dissolved			99.0		%		80-120	27-AUG-19
Cadmium (Cd)-Dissolved			102.4		%		80-120	27-AUG-19
Calcium (Ca)-Dissolved			102.0		%		80-120	27-AUG-19
Cesium (Cs)-Dissolved			103.0		%		80-120	27-AUG-19
Chromium (Cr)-Dissolved			103.0		%		80-120	27-AUG-19
Cobalt (Co)-Dissolved			100.4		%		80-120	27-AUG-19
Copper (Cu)-Dissolved			100.3		%		80-120	27-AUG-19
Iron (Fe)-Dissolved			99.8		%		80-120	27-AUG-19
Lead (Pb)-Dissolved			103.0		%		80-120	27-AUG-19
Lithium (Li)-Dissolved			98.8		%		80-120	27-AUG-19
Magnesium (Mg)-Dissolved			100.7		%		80-120	27-AUG-19
Manganese (Mn)-Dissolved			101.4		%		80-120	27-AUG-19
Molybdenum (Mo)-Dissolved			102.8		%		80-120	27-AUG-19
Nickel (Ni)-Dissolved			99.9		%		80-120	27-AUG-19
Phosphorus (P)-Dissolved			110.7		%		80-120	27-AUG-19
Potassium (K)-Dissolved			102.8		%		80-120	27-AUG-19
Rubidium (Rb)-Dissolved			98.4		%		80-120	27-AUG-19
Selenium (Se)-Dissolved			101.5		%		80-120	27-AUG-19
Silicon (Si)-Dissolved			102.0		%		80-120	27-AUG-19
Silver (Ag)-Dissolved			106.6		%		80-120	27-AUG-19
Sodium (Na)-Dissolved			105.4		%		80-120	27-AUG-19
Strontium (Sr)-Dissolved			102.6		%		80-120	27-AUG-19
Sulfur (S)-Dissolved			104.2		%		80-120	27-AUG-19
Tellurium (Te)-Dissolved			107.4		%		80-120	27-AUG-19
Thallium (Tl)-Dissolved			104.9		%		80-120	27-AUG-19
Thorium (Th)-Dissolved			97.1		%		80-120	27-AUG-19
Tin (Sn)-Dissolved			101.3		%		80-120	27-AUG-19
Titanium (Ti)-Dissolved			95.9		%		80-120	27-AUG-19
Tungsten (W)-Dissolved			103.4		%		80-120	27-AUG-19
Uranium (U)-Dissolved			101.7		%		80-120	27-AUG-19
Vanadium (V)-Dissolved			101.5		%		80-120	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4776010								
WG3145055-2 LCS								
Zinc (Zn)-Dissolved			98.9		%		80-120	27-AUG-19
Zirconium (Zr)-Dissolved			98.9		%		80-120	27-AUG-19
WG3145055-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	27-AUG-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	27-AUG-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	27-AUG-19
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	27-AUG-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-AUG-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	27-AUG-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	27-AUG-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	27-AUG-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	27-AUG-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	27-AUG-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	27-AUG-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	27-AUG-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	27-AUG-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	27-AUG-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	27-AUG-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	27-AUG-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	27-AUG-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	27-AUG-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	27-AUG-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	27-AUG-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	27-AUG-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	27-AUG-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4776010								
WG3145055-1 MB								
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	27-AUG-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	27-AUG-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	27-AUG-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	27-AUG-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	27-AUG-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	27-AUG-19
MET-T-CCMS-WP	**Water**							
Batch R4780489								
WG3148358-2 LCS								
Aluminum (Al)-Total			103.0		%		80-120	30-AUG-19
Antimony (Sb)-Total			104.1		%		80-120	30-AUG-19
Arsenic (As)-Total			102.8		%		80-120	30-AUG-19
Barium (Ba)-Total			101.1		%		80-120	30-AUG-19
Beryllium (Be)-Total			99.9		%		80-120	30-AUG-19
Bismuth (Bi)-Total			100.6		%		80-120	30-AUG-19
Boron (B)-Total			97.8		%		80-120	30-AUG-19
Cadmium (Cd)-Total			100.5		%		80-120	30-AUG-19
Calcium (Ca)-Total			99.4		%		80-120	30-AUG-19
Cesium (Cs)-Total			103.1		%		80-120	30-AUG-19
Chromium (Cr)-Total			102.4		%		80-120	30-AUG-19
Cobalt (Co)-Total			100.4		%		80-120	30-AUG-19
Copper (Cu)-Total			104.4		%		80-120	30-AUG-19
Iron (Fe)-Total			94.8		%		80-120	30-AUG-19
Lead (Pb)-Total			104.7		%		80-120	30-AUG-19
Lithium (Li)-Total			99.7		%		80-120	30-AUG-19
Magnesium (Mg)-Total			109.6		%		80-120	30-AUG-19
Manganese (Mn)-Total			103.6		%		80-120	30-AUG-19
Molybdenum (Mo)-Total			101.9		%		80-120	30-AUG-19
Nickel (Ni)-Total			101.4		%		80-120	30-AUG-19
Potassium (K)-Total			97.9		%		80-120	30-AUG-19
Phosphorus (P)-Total			109.4		%		80-120	30-AUG-19
Rubidium (Rb)-Total			100.3		%		80-120	30-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4780489								
WG3148358-2 LCS								
Selenium (Se)-Total			102.4		%		80-120	30-AUG-19
Silicon (Si)-Total			99.0		%		80-120	30-AUG-19
Silver (Ag)-Total			101.7		%		80-120	30-AUG-19
Sodium (Na)-Total			102.9		%		80-120	30-AUG-19
Strontium (Sr)-Total			106.5		%		80-120	30-AUG-19
Sulfur (S)-Total			96.7		%		80-120	30-AUG-19
Tellurium (Te)-Total			101.3		%		80-120	30-AUG-19
Thallium (Tl)-Total			103.0		%		80-120	30-AUG-19
Thorium (Th)-Total			99.3		%		80-120	30-AUG-19
Tin (Sn)-Total			99.6		%		80-120	30-AUG-19
Titanium (Ti)-Total			99.5		%		80-120	30-AUG-19
Tungsten (W)-Total			104.7		%		80-120	30-AUG-19
Uranium (U)-Total			105.6		%		80-120	30-AUG-19
Vanadium (V)-Total			102.3		%		80-120	30-AUG-19
Zinc (Zn)-Total			99.4		%		80-120	30-AUG-19
Zirconium (Zr)-Total			101.8		%		80-120	30-AUG-19
WG3148358-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	30-AUG-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	30-AUG-19
Boron (B)-Total			<0.010		mg/L		0.01	30-AUG-19
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	30-AUG-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	30-AUG-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	30-AUG-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	30-AUG-19
Iron (Fe)-Total			<0.010		mg/L		0.01	30-AUG-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	30-AUG-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	30-AUG-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	30-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4780489								
WG3148358-1 MB								
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	30-AUG-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	30-AUG-19
Potassium (K)-Total			<0.050		mg/L		0.05	30-AUG-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	30-AUG-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	30-AUG-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	30-AUG-19
Silicon (Si)-Total			<0.10		mg/L		0.1	30-AUG-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	30-AUG-19
Sodium (Na)-Total			<0.050		mg/L		0.05	30-AUG-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	30-AUG-19
Sulfur (S)-Total			<0.50		mg/L		0.5	30-AUG-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	30-AUG-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	30-AUG-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	30-AUG-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	30-AUG-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	30-AUG-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	30-AUG-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	30-AUG-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	30-AUG-19
N-TOTKJ-WP	**Water**							
Batch R4771369								
WG3143145-10 LCS								
Total Kjeldahl Nitrogen			103.0		%		75-125	27-AUG-19
WG3143145-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	27-AUG-19
NH3-COL-WP	**Water**							
Batch R4769874								
WG3144796-10 LCS								
Ammonia, Total (as N)			103.8		%		85-115	26-AUG-19
WG3144796-6 LCS								
Ammonia, Total (as N)			99.6		%		85-115	26-AUG-19
WG3144796-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-COL-WP	**Water**							
Batch R4769874								
WG3144796-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-AUG-19
WG3144796-9 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-AUG-19
NO2-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-10 LCS								
Nitrite (as N)			100.7		%		90-110	23-AUG-19
WG3141426-14 LCS								
Nitrite (as N)			100.7		%		90-110	23-AUG-19
WG3141426-13 MB								
Nitrite (as N)			<0.010		mg/L		0.01	23-AUG-19
WG3141426-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	23-AUG-19
NO3-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-10 LCS								
Nitrate (as N)			98.1		%		90-110	23-AUG-19
WG3141426-14 LCS								
Nitrate (as N)			98.0		%		90-110	23-AUG-19
WG3141426-13 MB								
Nitrate (as N)			<0.020		mg/L		0.02	23-AUG-19
WG3141426-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	23-AUG-19
P-T-COL-WP	**Water**							
Batch R4768533								
WG3142007-7 DUP		**L2334482-10**						
Phosphorus (P)-Total		0.0257	0.0261		mg/L	1.4	20	26-AUG-19
WG3142007-2 LCS								
Phosphorus (P)-Total			102.0		%		80-120	26-AUG-19
WG3142007-6 LCS								
Phosphorus (P)-Total			99.2		%		80-120	26-AUG-19
WG3142007-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	26-AUG-19
WG3142007-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	26-AUG-19
WG3142007-8 MS		**L2334482-11**						
Phosphorus (P)-Total			99.2		%		70-130	26-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-WP	**Water**							
Batch R4769484								
WG3143806-2 LCS								
Phosphorus (P)-Total	Dissolved		95.1		%		80-120	27-AUG-19
WG3143806-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	27-AUG-19
SO4-IC-N-WP	**Water**							
Batch R4772009								
WG3141426-10 LCS								
Sulfate (SO4)			99.2		%		90-110	23-AUG-19
WG3141426-14 LCS								
Sulfate (SO4)			98.8		%		90-110	23-AUG-19
WG3141426-13 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	23-AUG-19
WG3141426-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	23-AUG-19
SOLIDS-TOTSUS-WP	**Water**							
Batch R4770612								
WG3143624-10 LCS								
Total Suspended Solids			88.2		%		85-115	27-AUG-19
WG3143624-9 MB								
Total Suspended Solids			<2.0		mg/L		2	27-AUG-19
TC,EC-QT97-WP	**Water**							
Batch R4767856								
WG3141829-2 DUP		**L2334482-1**						
Total Coliforms		1200	921		MPN/100mL	27	65	23-AUG-19
Escherichia Coli		11	9		MPN/100mL	25	65	23-AUG-19
WG3141829-1 MB								
Total Coliforms			<1		MPN/100mL		1	23-AUG-19
Escherichia Coli			<1		MPN/100mL		1	23-AUG-19
TDS-WP	**Water**							
Batch R4771078								
WG3143629-2 LCS								
Total Dissolved Solids			101.7		%		85-115	27-AUG-19
WG3143629-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	27-AUG-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-WP	**Water**							
Batch R4776249								
WG3144913-6 LCS								
Total Dissolved Solids			96.2		%		85-115	28-AUG-19
WG3144913-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	28-AUG-19

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

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	21-AUG-19 14:45	23-AUG-19 15:40	30	49	hours	EHTR
	2	21-AUG-19 16:32	23-AUG-19 15:40	30	47	hours	EHTR
	3	21-AUG-19	23-AUG-19 15:40	30	52	hours	EHTR
	4	22-AUG-19 07:55	23-AUG-19 15:40	30	32	hours	EHTL

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 L2334482 were received on 23-AUG-19 08:09.

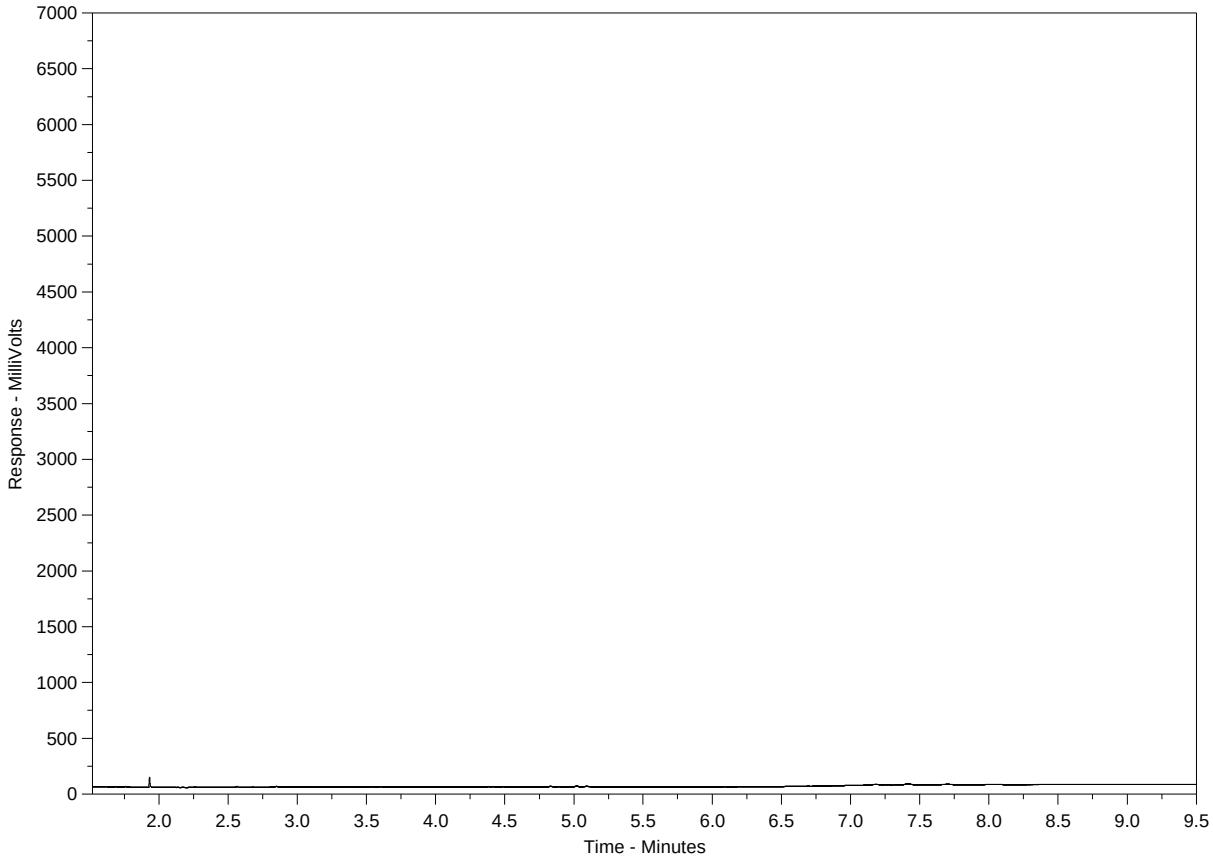
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

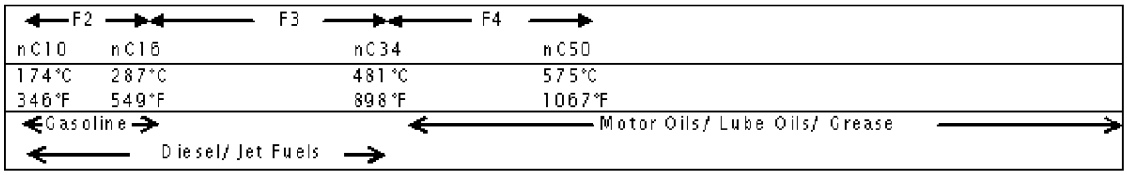
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2334482-1
Client Sample ID: D9





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

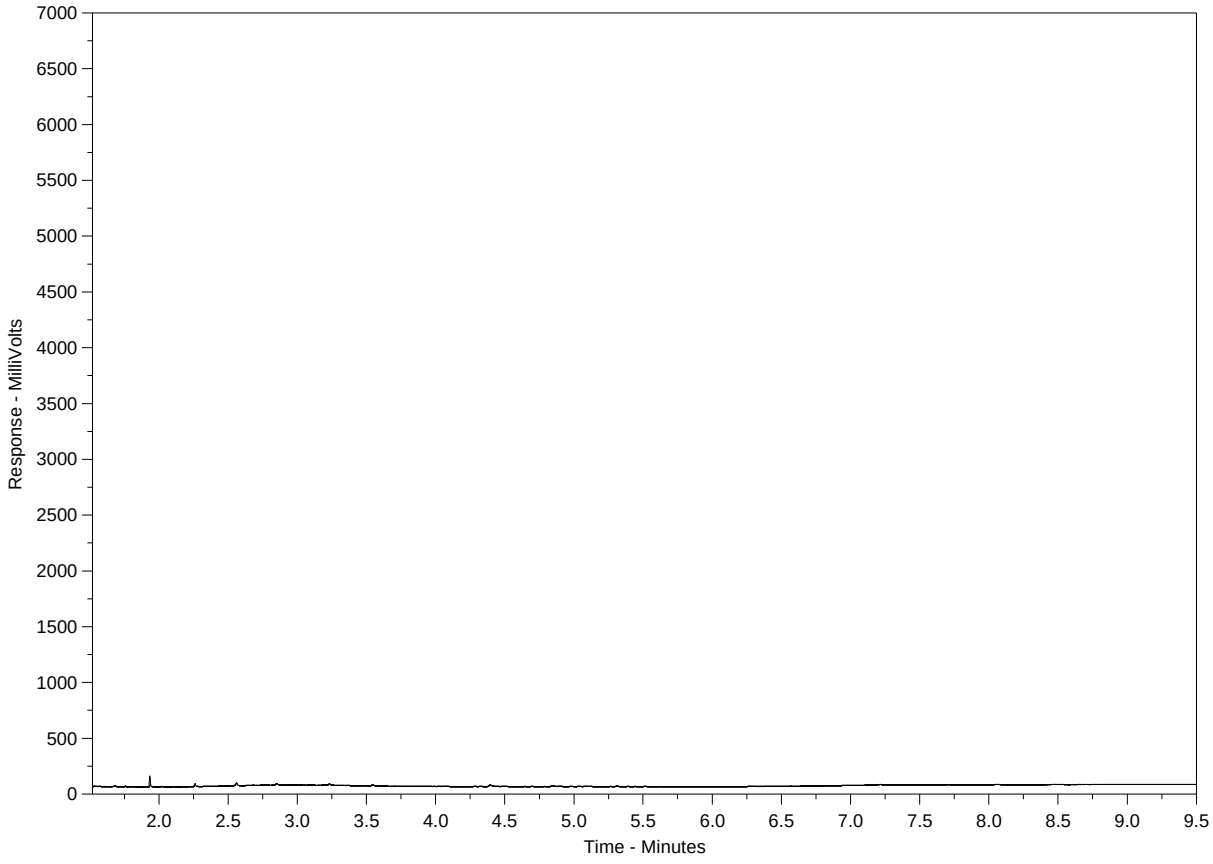
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

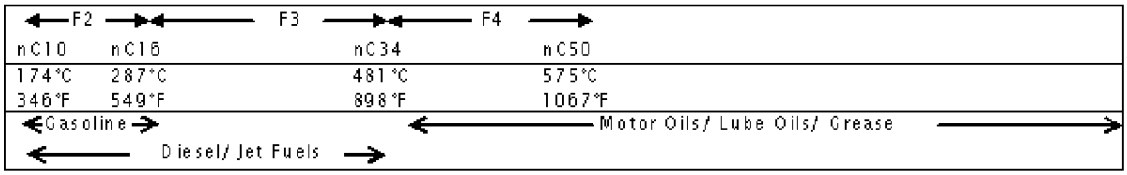
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-2
Client Sample ID: D8





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

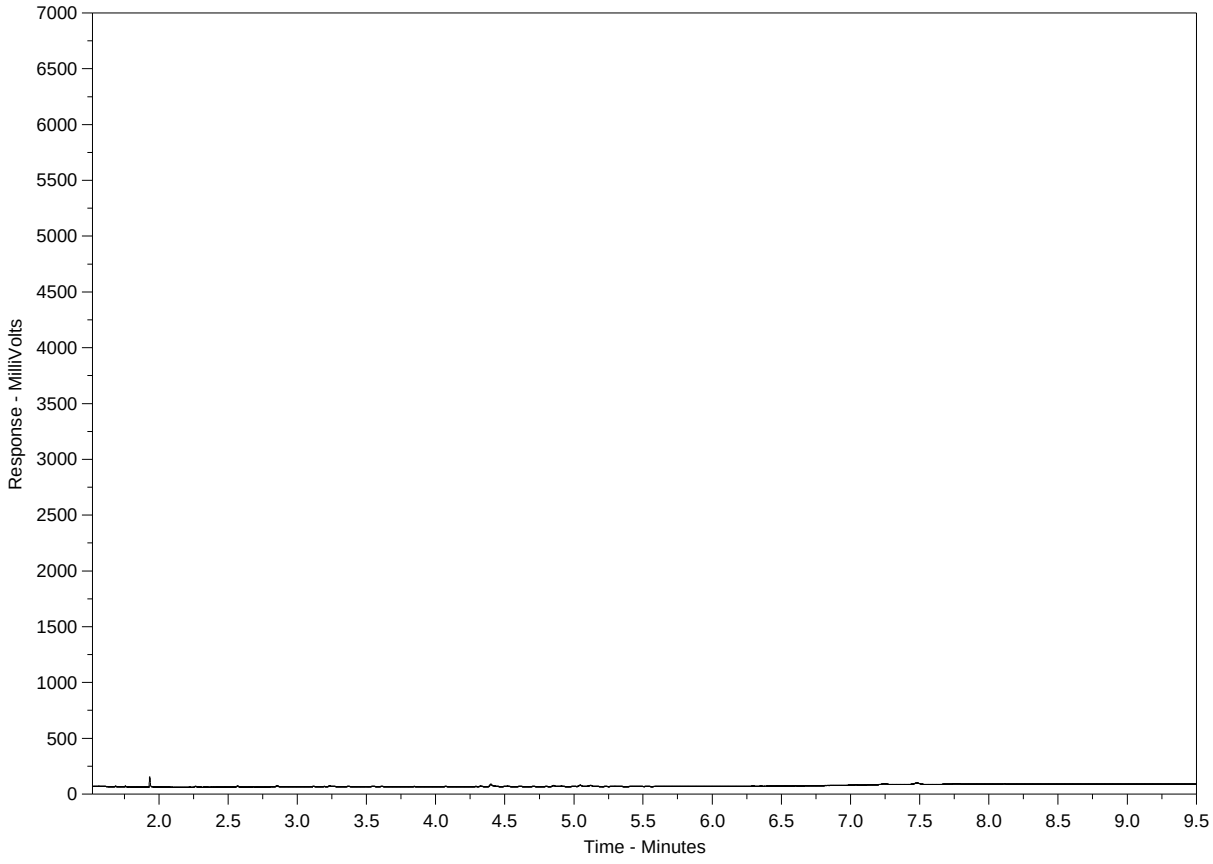
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

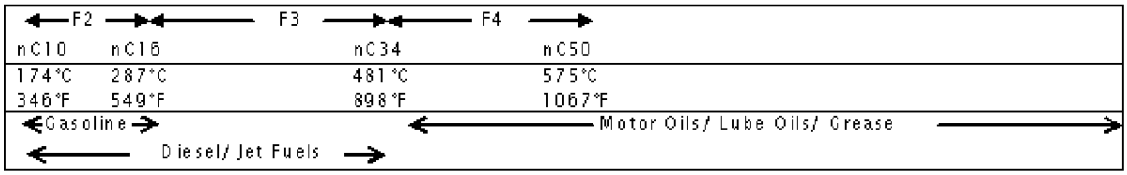
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-3
Client Sample ID: QC-02





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

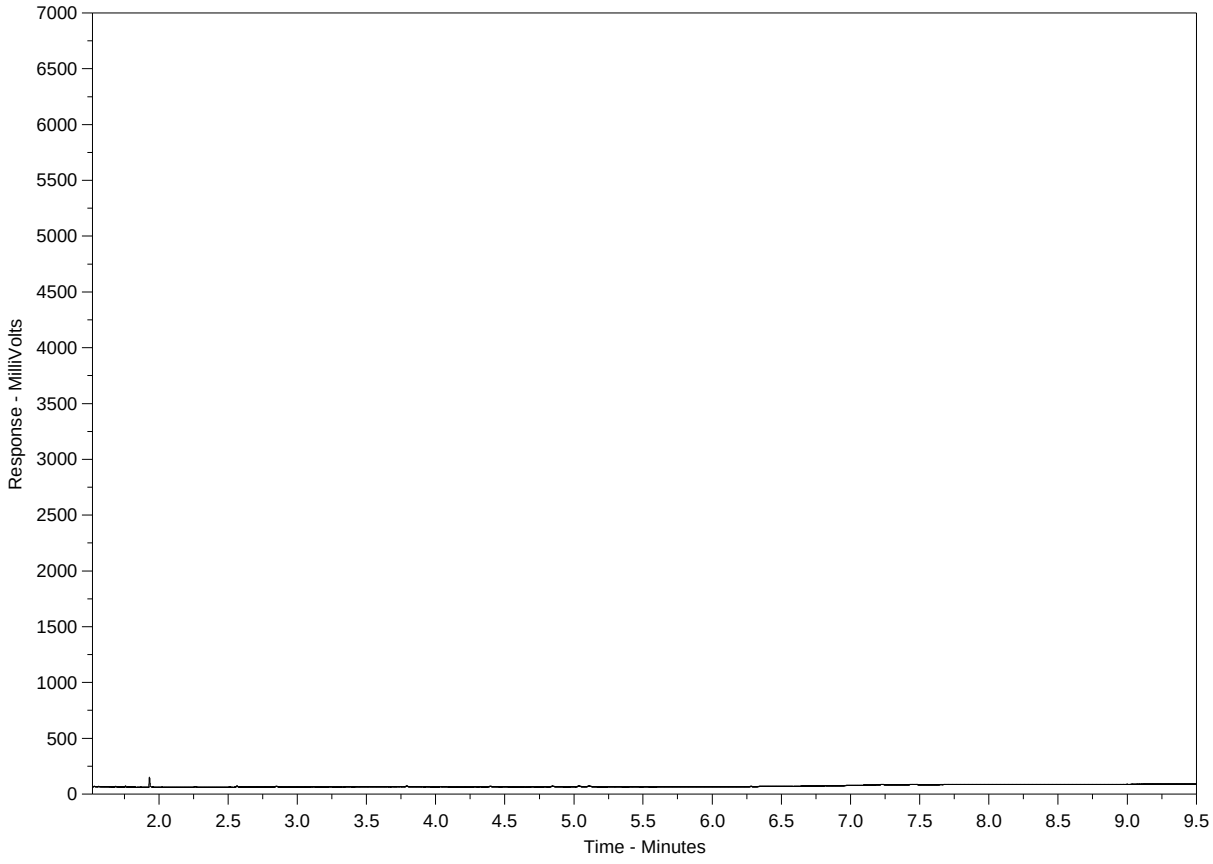
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

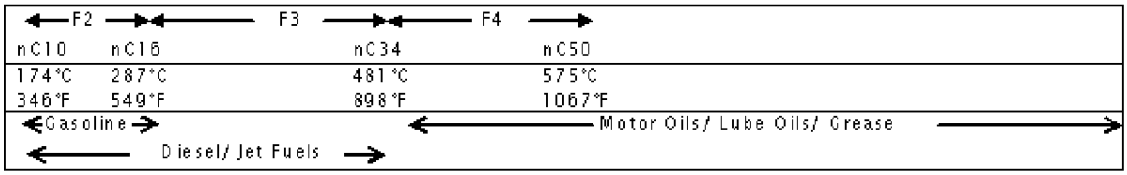
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-4
Client Sample ID: D1





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

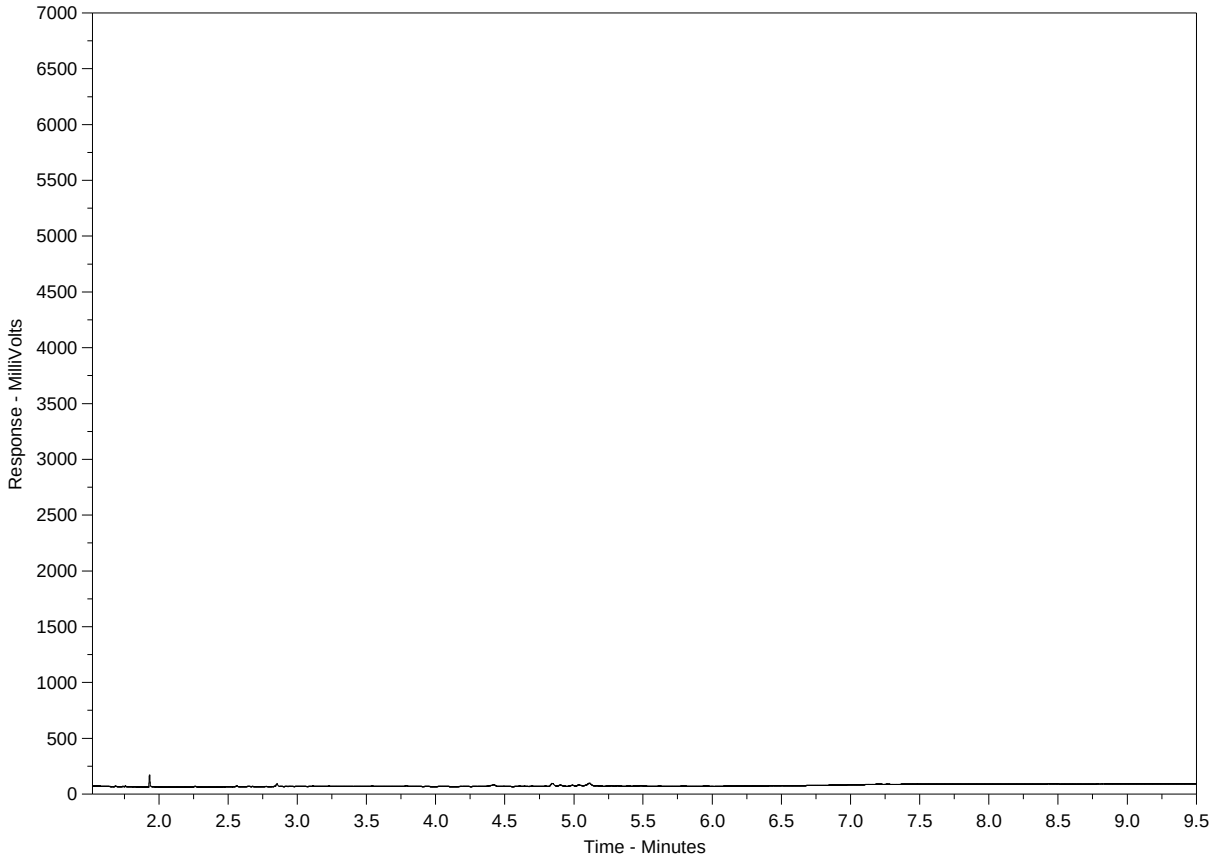
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

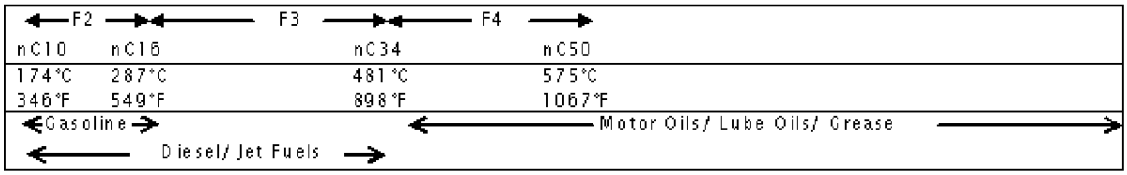
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-5
Client Sample ID: D3





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

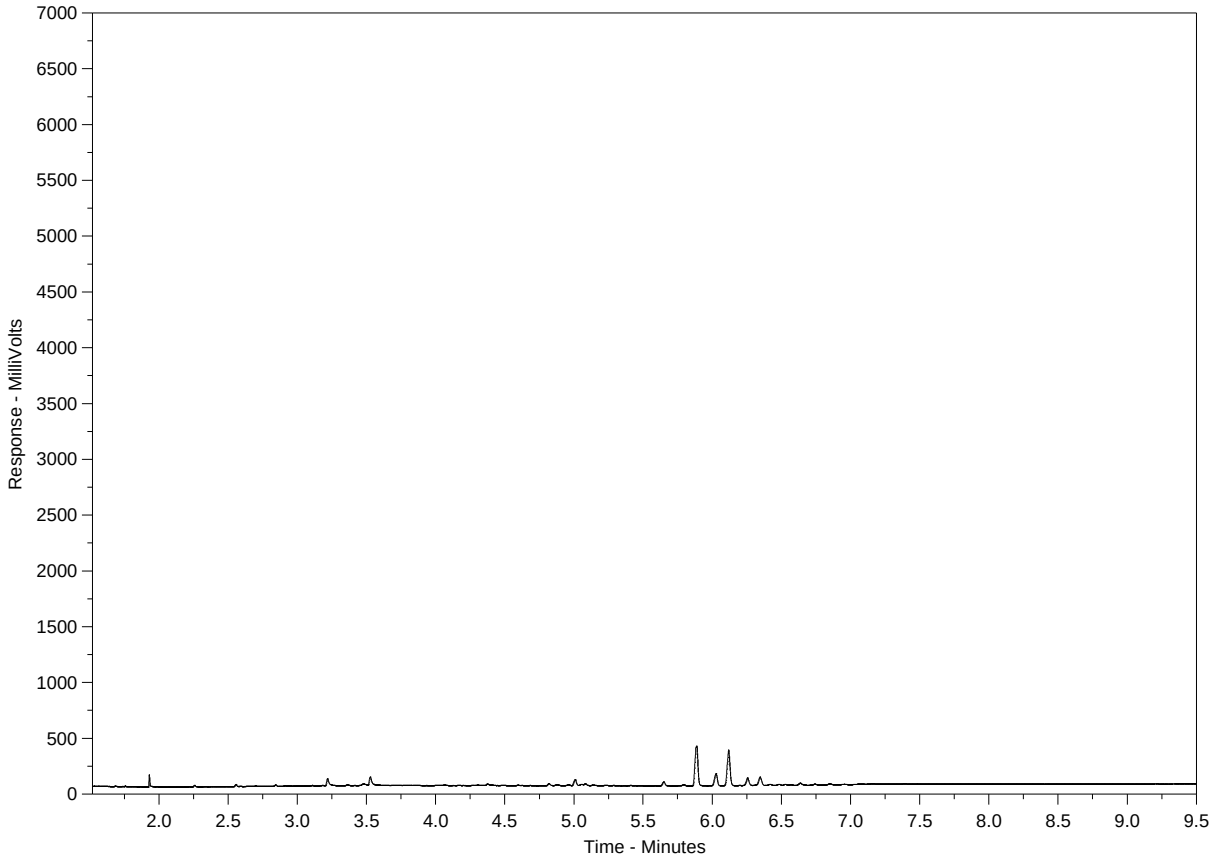
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

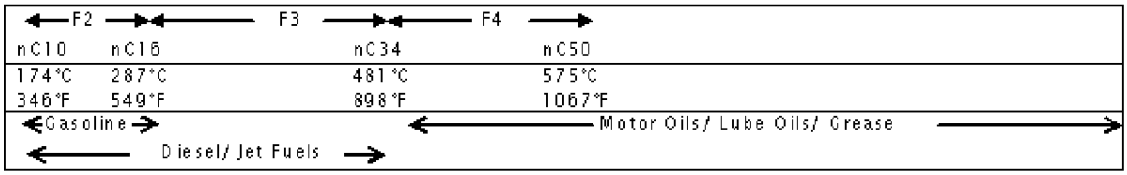
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-6
Client Sample ID: D2





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

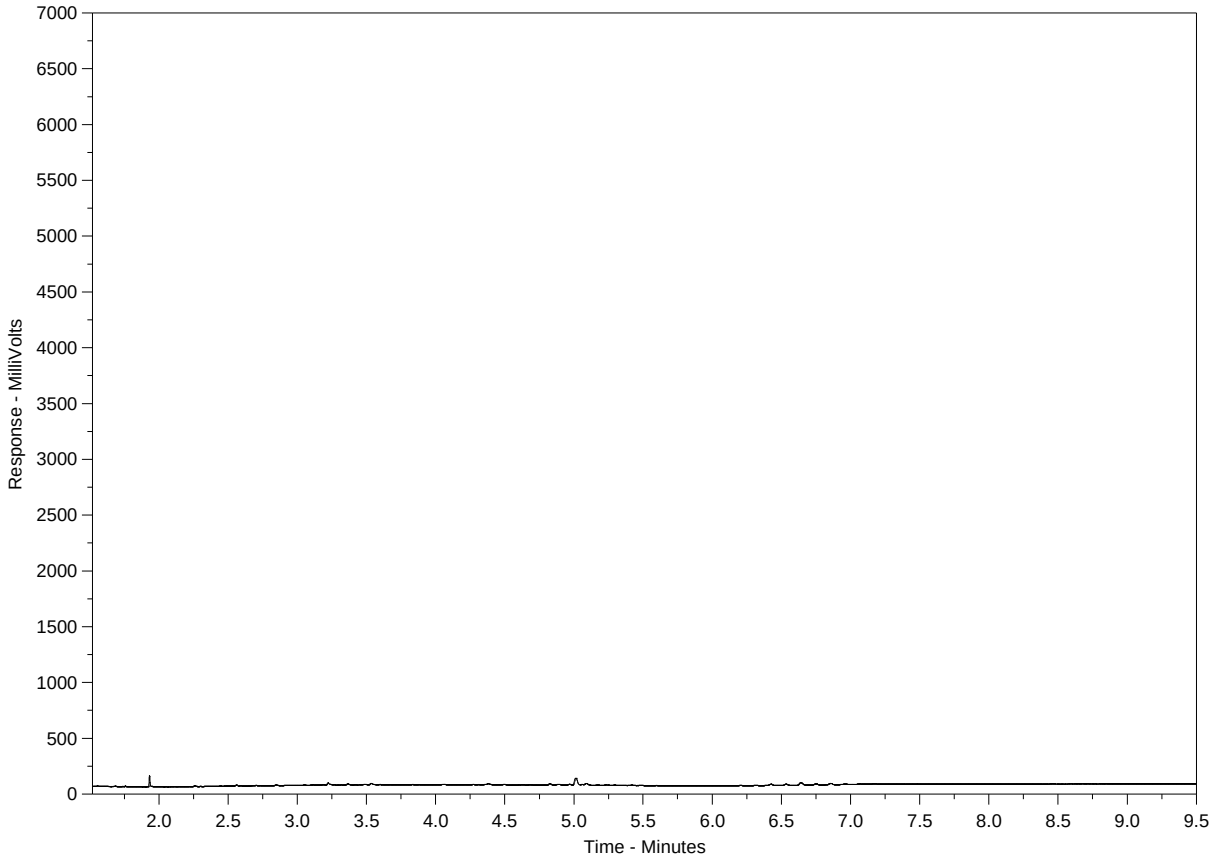
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

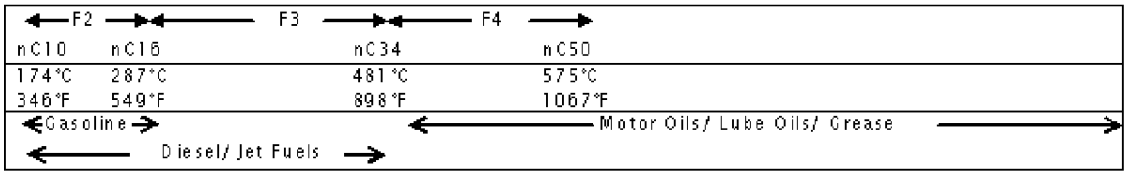
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-7
Client Sample ID: D4





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

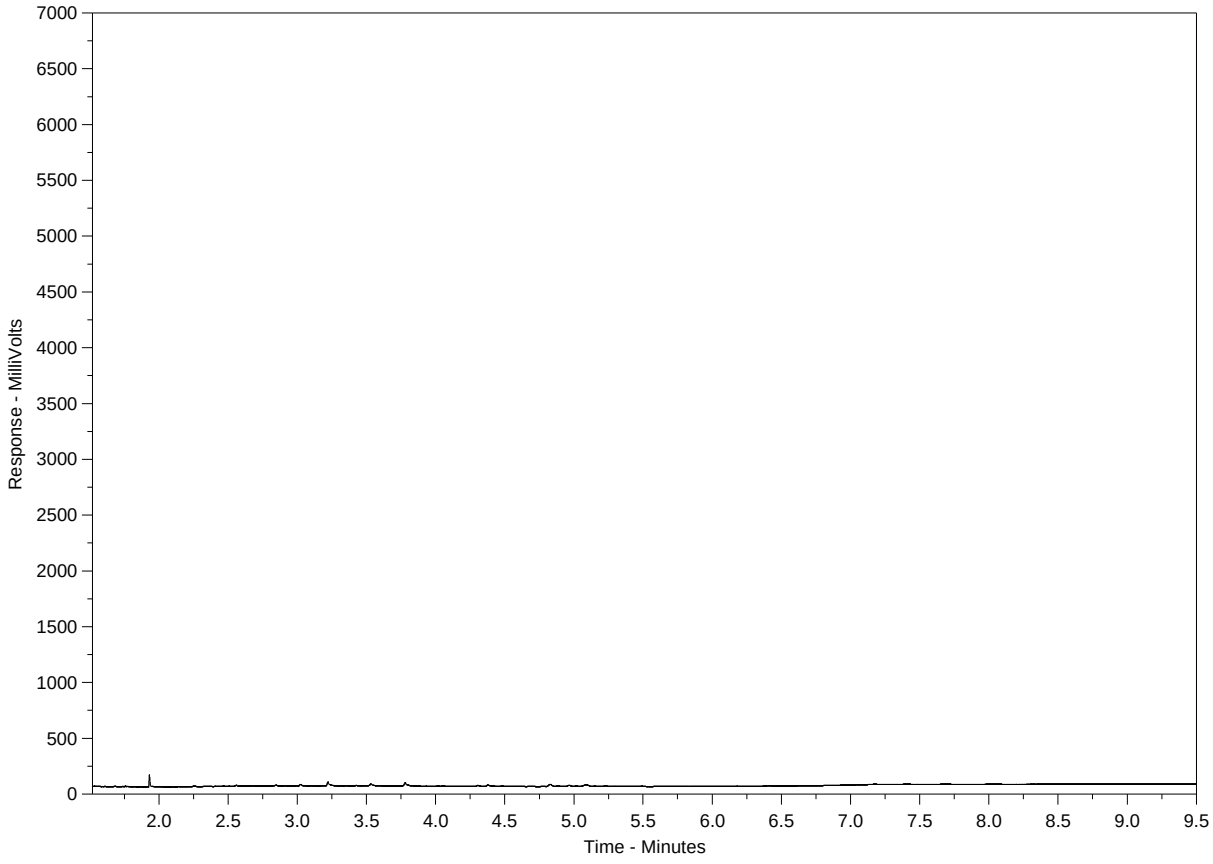
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

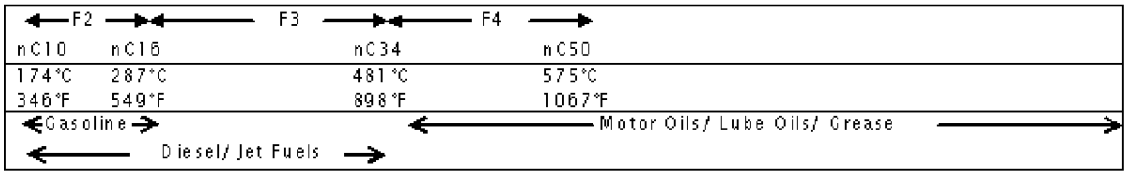
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-8
Client Sample ID: D10





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

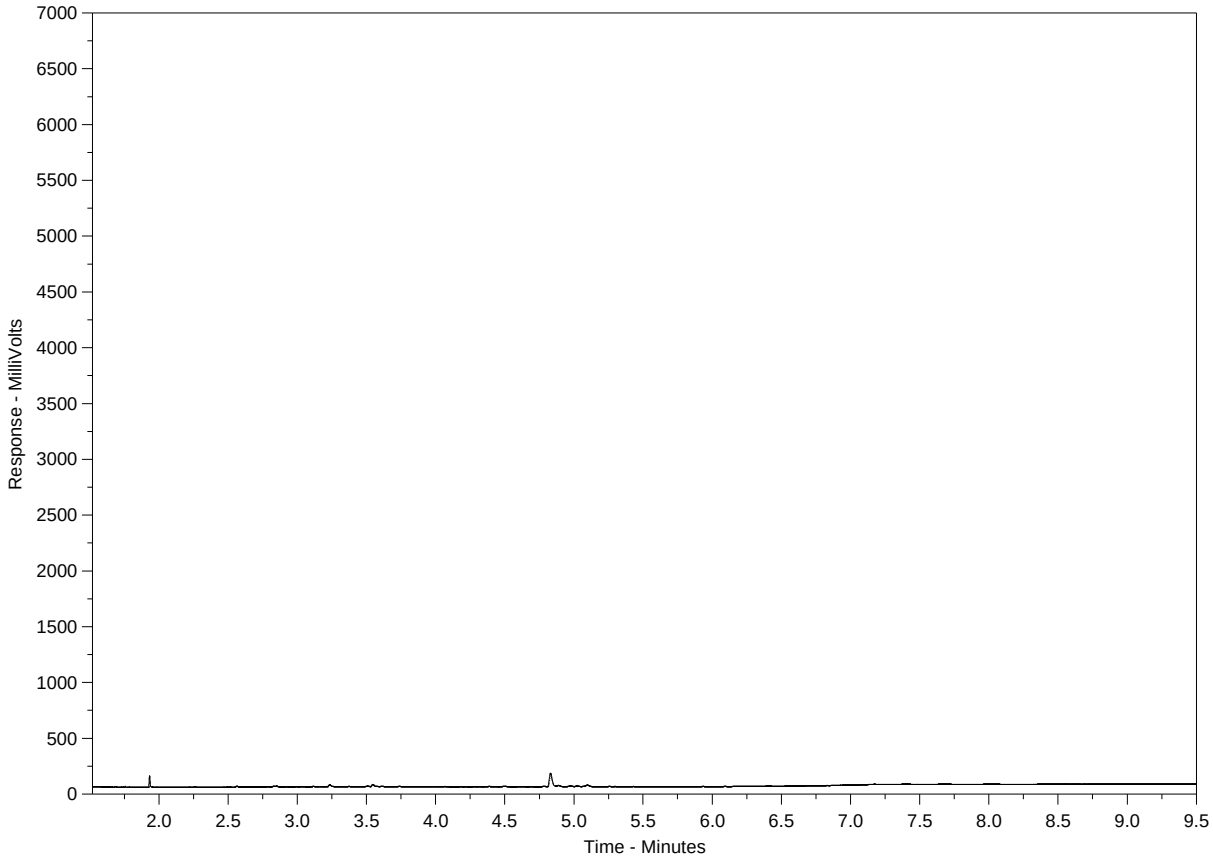
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

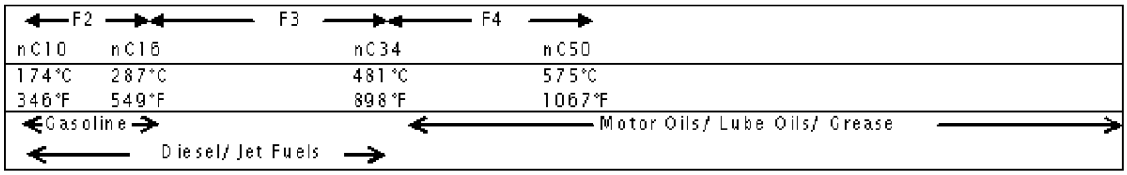
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-9
Client Sample ID: D12





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

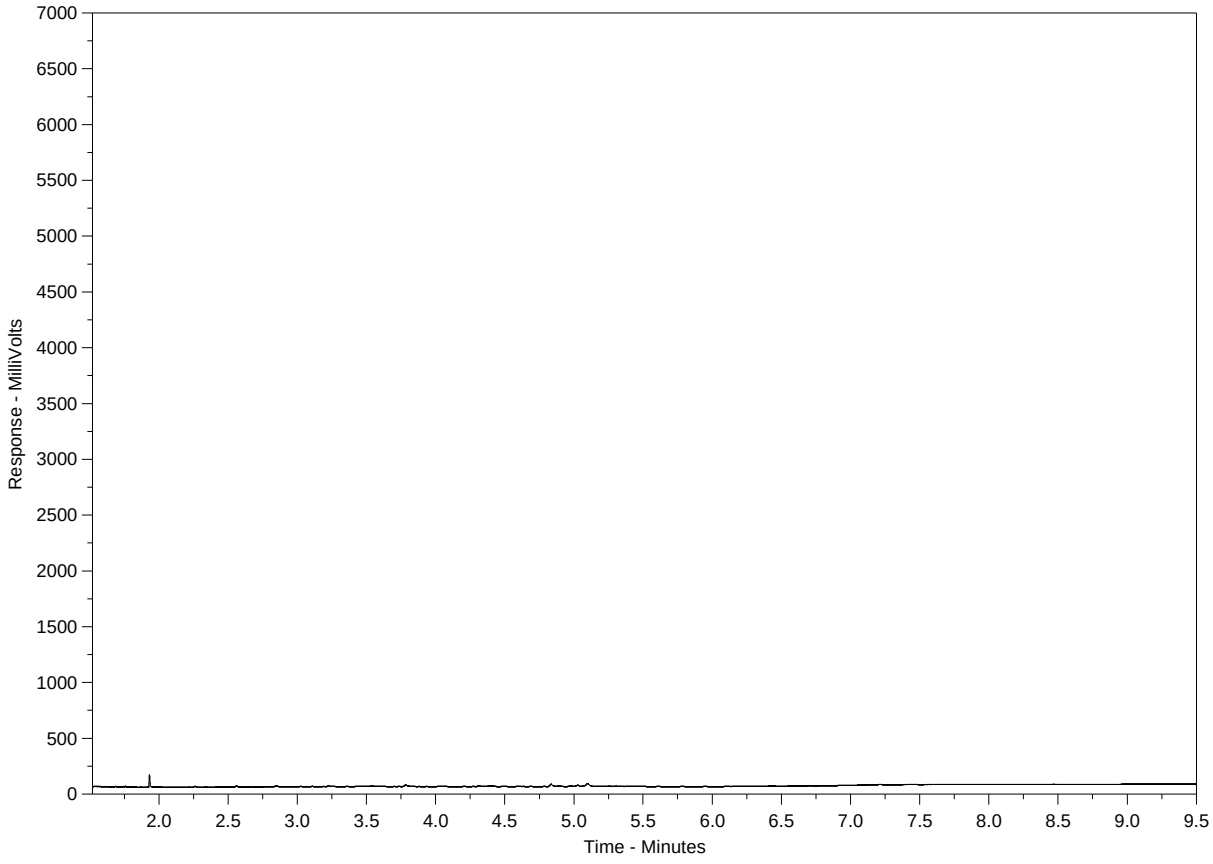
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

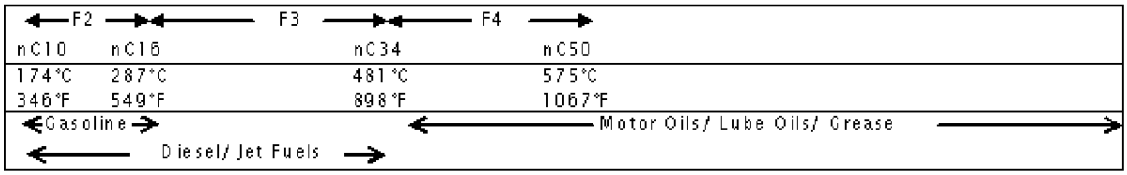
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-10
Client Sample ID: D6





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

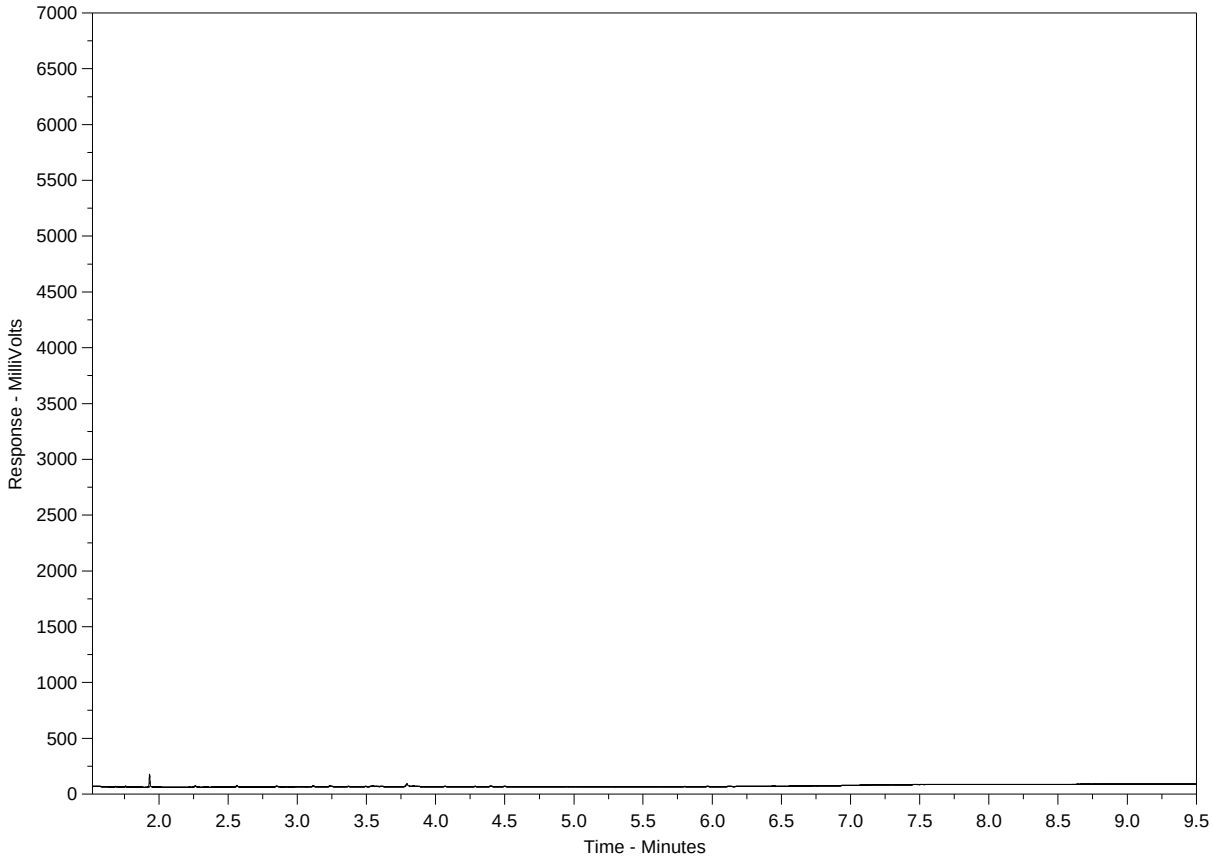
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

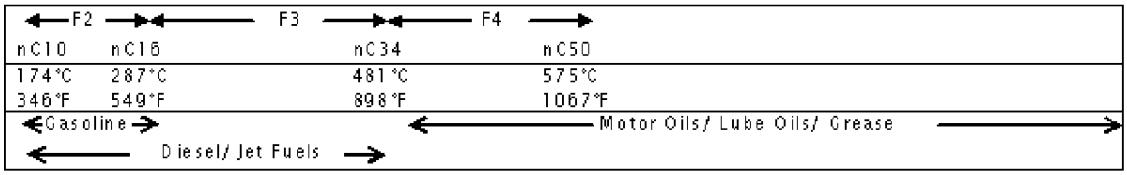
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-11
Client Sample ID: FB





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

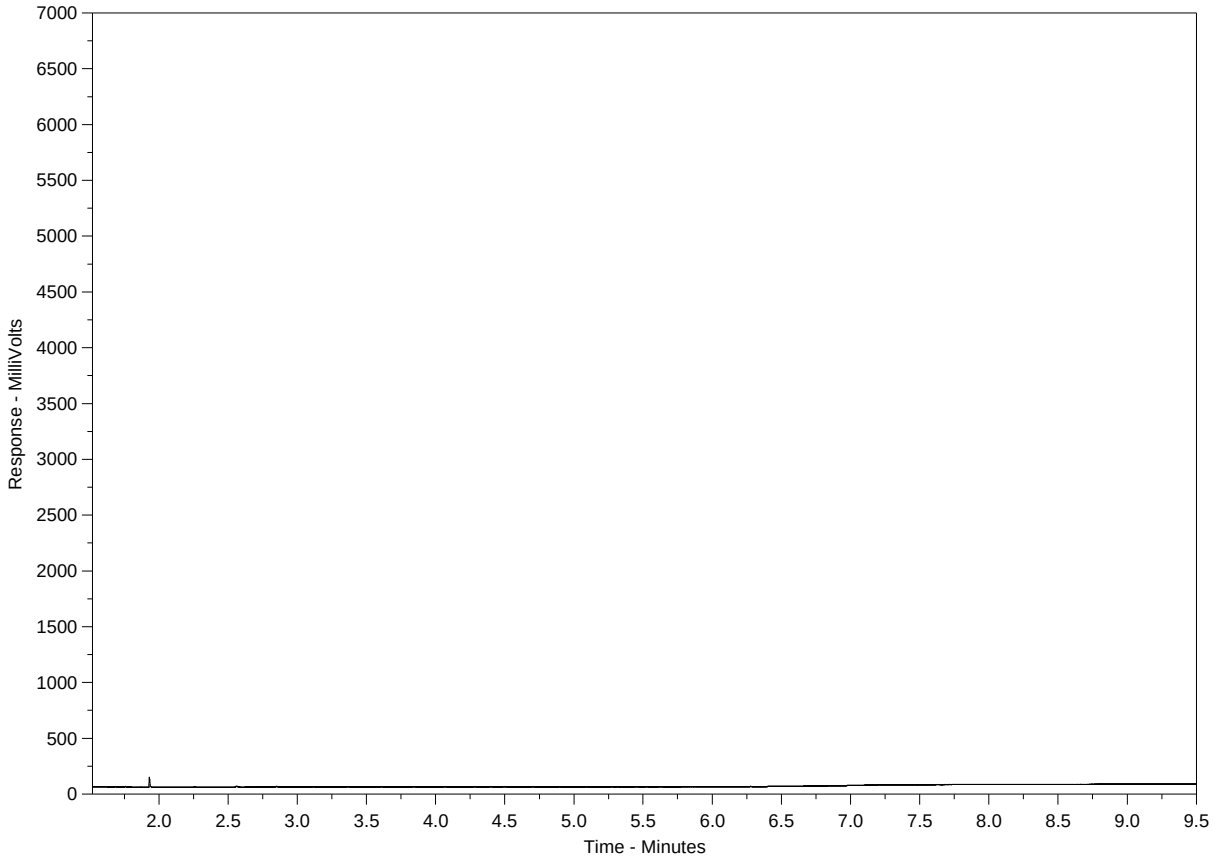
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

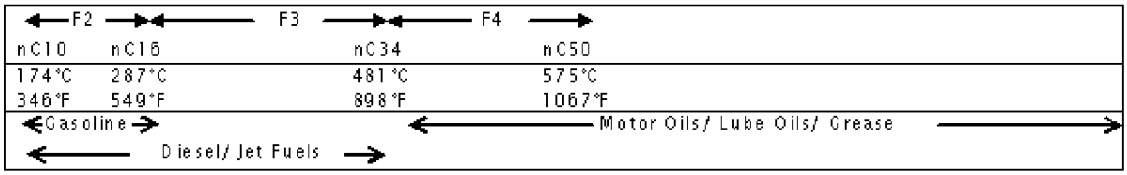
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2334482-12
Client Sample ID: BLANK





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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2334482-COFC

COC Number: 17 - 751525

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Dist	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	STANTEC	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	ANDREA KNEALE	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	204-928-7615	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	500-311 PORTAGE AVE	Email 1 or Fax andrea.kneale@stantec.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	WPG, MB	Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	R3B 2B9	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: BG, AR

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX, F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOT-KJ-WP+NO3-COL-WP	P-T-COL-WP+P-TD-COL-WP	P-TPART-CALC-WP	SOLIDS-TOTSUS-WP	TDS-WP	TC+EC-ØT97-WP	BTEX, F1, F2	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
						(P)		(P)			(F/P)	(SP)	(F)	(F)	(P)			(P)			
1	D9	21-Aug-19	1445	W	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	D8	"	1632	"																	
3	QC-02	"	—	"																	
4	D1	22-Aug-19	0755	"																	
5	D3	"	0935	"																	
6	D2	"	1035	"																	
7	D4	"	1200	"																	
8	D10	"	1310	"																	
9	D12	"	1500	"																	
10	D6	"	1525	"																	
11	FB	"	0940	"	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	no bacti	
12	Blank	"	—	"	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	NUTRIENTS - DISSOLVED & METALS - DISSOLVED FILTERED IN THE FIELD → TEST CHECKED, PLEASE DISREGARD
Are samples for human consumption/ use? ☐ YES ☐ NO	NOT ENOUGH DI FOR BACTERIA ON FIELD BLANK (FB) →

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☑ SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		6.0			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[illegible] Bowen	23-08-2019	08:10		AUG 23/19	8:09		AUG 23/19	8:09

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Stantec Consulting (Winnipeg)
ATTN: ANDREA KNEALE
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 09-OCT-19
Report Date: 30-OCT-19 12:37 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2362912

Project P.O. #: 111218270
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2362912-1 D9							
Sampled By: BE/ZW on 07-OCT-19 @ 13:10							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	203		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	6.00		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	176		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	190		1.0	mg/L		11-OCT-19	R4871591
Fluoride in Water by IC							
Fluoride (F)	0.176		0.040	mg/L		11-OCT-19	R4871591
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		11-OCT-19	R4871591
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		11-OCT-19	R4871591
Sulfate in Water by IC							
Sulfate (SO4)	75.1		0.60	mg/L		11-OCT-19	R4871591
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875691
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875691
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Surrogate: 1,4-Difluorobenzene	93.7		70-130	%		21-OCT-19	R4875691
Surrogate: 4-Bromofluorobenzene	91.1		70-130	%		21-OCT-19	R4875691
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		22-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		22-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		22-OCT-19	R4876241
Surrogate: 3,4-Dichlorotoluene	96.8		60-140	%		22-OCT-19	R4876241
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	94.1		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.011		0.010	mg/L		18-OCT-19	R4876155
Hardness (as CaCO3)	241		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	0.0228		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0057		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0171		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	606		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.12		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	9.3		2.0	mg/L		11-OCT-19	R4869806

* 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
L2362912-1 D9							
Sampled By: BE/ZW on 07-OCT-19 @ 13:10							
Matrix: W							
Total Coliform and E.coli by MPN QT97							
Total Coliforms	20	PEHR	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	1	PEHR	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0618		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	0.00014		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00209		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0408		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.100		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	40.5		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00015		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.058		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.000174		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0312		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	30.3		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00876		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00227		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00070		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	8.37		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00433		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	0.000058		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	4.34		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	127		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.255		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	31.0		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00259		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.00153		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00168		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881874
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00019		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00190		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0401		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.102		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-1 D9							
Sampled By: BE/ZW on 07-OCT-19 @ 13:10							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	47.0		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00043		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0314		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	29.9		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00026		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00267		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00051		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.08		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00389		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000076		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	3.68		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	127		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.302		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	26.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00175		0.000010	mg/L	24-OCT-19	28-OCT-19	R4888724
Vanadium (V)-Dissolved	0.00132		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-2 CH19-08							
Sampled By: BE/ZW on 07-OCT-19 @ 15:28							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	375		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	307		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	9.95		0.50	mg/L		11-OCT-19	R4871591
Fluoride in Water by IC							
Fluoride (F)	0.237		0.020	mg/L		11-OCT-19	R4871591
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871591

* 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
L2362912-2 CH19-08							
Sampled By: BE/ZW on 07-OCT-19 @ 15:28							
Matrix: W							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871591
Sulfate in Water by IC							
Sulfate (SO4)	147		0.30	mg/L		11-OCT-19	R4871591
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875691
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875691
Toluene	1.97		0.50	ug/L		21-OCT-19	R4875691
Surrogate: 1,4-Difluorobenzene	93.4		70-130	%		21-OCT-19	R4875691
Surrogate: 4-Bromofluorobenzene	90.6		70-130	%		21-OCT-19	R4875691
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		22-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		22-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		22-OCT-19	R4876241
Surrogate: 3,4-Dichlorotoluene	90.2		60-140	%		22-OCT-19	R4876241
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	89.2		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.132		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	381		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	0.191		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0074		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.184		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	561		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	843		3.8	mg/L		11-OCT-19	R4869806
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	2.13		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00119		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0406		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	0.00018		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	0.000057		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.443		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	0.0000266		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	184		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	0.000807		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00545		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	0.00164		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734

* 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
L2362912-2 CH19-08							
Sampled By: BE/ZW on 07-OCT-19 @ 15:28							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Copper (Cu)-Total	0.00829		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	2.94		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.00210		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0326		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	102		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.125		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00165		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00830		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	6.69		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	0.184		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.0108		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	9.93		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	0.000023		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	45.1		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.640		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	53.5		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	0.000079		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	0.00195		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	0.00012		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.0758		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	0.00041		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.00177		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00728		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	0.0180		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	0.00089		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881874
Aluminum (Al)-Dissolved	0.0737		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00043		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0270		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.423		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	75.1		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000037		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00025		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00028		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.247		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000055		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0309		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	46.9		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0306		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00180		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00293		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	6.62		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-2 CH19-08							
Sampled By: BE/ZW on 07-OCT-19 @ 15:28							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Rubidium (Rb)-Dissolved	0.00332		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	5.35		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	49.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.591		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	48.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	0.00283		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	0.00013		0.00010	mg/L	24-OCT-19	28-OCT-19	R4888724
Uranium (U)-Dissolved	0.00188		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0015		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-3 D8							
Sampled By: BE/ZW on 07-OCT-19 @ 15:56							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	288		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	4.32		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	243		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	28.8		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.167		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	0.329		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	170		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875691
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875691
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Surrogate: 1,4-Difluorobenzene	93.8		70-130	%		21-OCT-19	R4875691
Surrogate: 4-Bromofluorobenzene	91.3		70-130	%		21-OCT-19	R4875691
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		22-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		22-OCT-19	

* 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
L2362912-3 D8							
Sampled By: BE/ZW on 07-OCT-19 @ 15:56							
Matrix: W							
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		22-OCT-19	R4876241
Surrogate: 3,4-Dichlorotoluene	98.3		60-140	%		22-OCT-19	R4876241
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	93.8		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.021		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	417		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	0.0203		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0092		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0111		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	554		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.12		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	7.6		2.0	mg/L		11-OCT-19	R4869806
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	313	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.109		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00100		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0381		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.090		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	0.0000054		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	67.0		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00032		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	0.00012		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	0.00144		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.112		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.000073		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0201		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	60.3		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00570		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00186		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00093		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	6.59		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00264		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	0.000164		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	7.36		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	20.1		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.181		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734

* 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
L2362912-3 D8							
Sampled By: BE/ZW on 07-OCT-19 @ 15:56							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Sulfur (S)-Total	64.3		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00405		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.00498		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00131		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	0.00027		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881874
Aluminum (Al)-Dissolved	0.0186		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00094		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0383		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.097		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	0.0000062		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	67.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00121		0.00020	mg/L	24-OCT-19	28-OCT-19	R4888724
Iron (Fe)-Dissolved	0.039		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000055		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0184		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	60.4		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00353		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00169		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00090		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	6.91		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00239		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000182		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	6.53		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	20.0		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.174		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	57.8		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	0.00091		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00588		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00095		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0030		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-3 D8							
Sampled By: BE/ZW on 07-OCT-19 @ 15:56							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-4 OW19-18							
Sampled By: BE/ZW on 07-OCT-19 @ 16:55							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	423		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	347		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.12		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.744		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	112		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875691
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875691
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875691
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875691
Surrogate: 1,4-Difluorobenzene	93.1		70-130	%		21-OCT-19	R4875691
Surrogate: 4-Bromofluorobenzene	90.6		70-130	%		21-OCT-19	R4875691
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		22-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		22-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		22-OCT-19	R4876241
Surrogate: 3,4-Dichlorotoluene	95.5		60-140	%		22-OCT-19	R4876241
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.136		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	383		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		18-OCT-19	R4873978

* 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
L2362912-4 OW19-18							
Sampled By: BE/ZW on 07-OCT-19 @ 16:55							
Matrix: W							
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	499		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	3.1		2.0	mg/L		11-OCT-19	R4869806
Total Coliform and E.coli by MPN QT97							
Total Coliforms	9	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0072		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00011		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0191		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.551		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	72.9		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	0.000022		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	0.00013		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	0.00081		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.020		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.000261		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0344		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	44.3		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.0290		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.000238		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	10.2		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00728		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	5.83		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	32.3		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.597		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	42.4		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00036		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.000637		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	0.159		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881874
Aluminum (Al)-Dissolved	0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-4 OW19-18							
Sampled By: BE/ZW on 07-OCT-19 @ 16:55							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0207		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.528		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	75.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000025		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00050		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.013		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000161		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0310		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	47.4		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0266		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.000480	RRV	0.000050	mg/L	24-OCT-19	28-OCT-19	R4888724
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	11.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00677		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	5.47		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	34.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.569		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	38.1		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00019		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.000765		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.128		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-5 BH19-12							
Sampled By: BE/ZW on 07-OCT-19 @ 18:20							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	397		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	325		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							

* 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
L2362912-5 BH19-12							
Sampled By: BE/ZW on 07-OCT-19 @ 18:20							
Matrix: W							
Chloride in Water by IC							
Chloride (Cl)	5.84		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.535		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	121		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875907
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875907
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875907
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875907
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875907
Surrogate: 1,4-Difluorobenzene	93.7		70-130	%		21-OCT-19	R4875907
Surrogate: 4-Bromofluorobenzene	89.7		70-130	%		21-OCT-19	R4875907
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875907
Surrogate: 3,4-Dichlorotoluene	85.9		60-140	%		21-OCT-19	R4875907
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	89.1		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.119		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	359		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0036		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	487		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		11-OCT-19	R4869806
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0259		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00011		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0199		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734

* 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
L2362912-5 BH19-12							
Sampled By: BE/ZW on 07-OCT-19 @ 18:20							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.545		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	73.8		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	0.000023		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00018		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	0.00078		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.069		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.000275		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0303		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	43.6		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00829		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00131		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	9.66		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00621		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	5.22		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	33.1		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.550		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	46.6		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00098		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.000501		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	0.0031		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881874
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0205		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.502		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	70.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000021		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00028		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.049		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0282		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-5 BH19-12							
Sampled By: BE/ZW on 07-OCT-19 @ 18:20							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	44.5		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00799		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00139		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.98		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00628		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	4.75		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	34.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.521		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	42.0		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.000560		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0023		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-6 QC-01							
Sampled By: BE/ZW on 07-OCT-19							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	202		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	2.40		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	170		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	193		1.0	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.140		0.040	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	74.8		0.60	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875305

* 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
L2362912-6 QC-01							
Sampled By: BE/ZW on 07-OCT-19							
Matrix: W							
BTEX by Headspace							
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875305
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Surrogate: 1,4-Difluorobenzene	94.8		70-130	%		21-OCT-19	R4875305
Surrogate: 4-Bromofluorobenzene	93.0		70-130	%		21-OCT-19	R4875305
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875305
Surrogate: 3,4-Dichlorotoluene	77.4		60-140	%		21-OCT-19	R4875305
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	99.2		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.013		0.010	mg/L		18-OCT-19	R4876155
Hardness (as CaCO3)	228		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	0.0217		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0036		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0181		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	598		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.00		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	9.3		2.0	mg/L		11-OCT-19	R4869806
Total Coliform and E.coli by MPN QT97							
Total Coliforms	12	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1	PEHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0773		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	0.00013		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00207		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0401		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.106		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	38.5		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00022		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	<0.00050		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.063		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	0.000184		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0296		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	31.1		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00859		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00225		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00069		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734

* 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
L2362912-6 QC-01							
Sampled By: BE/ZW on 07-OCT-19							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	8.66		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00400		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	0.000101		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	4.43		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	127		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.265		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	29.2		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00283		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.00155		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00177		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0019		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00021		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00190		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0438		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.114		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	39.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00140		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.026		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0305		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	31.2		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00043		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00230		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00056		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	8.95		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00392		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000070		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	3.91		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	28-OCT-19	R4888724
Sodium (Na)-Dissolved	127		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.263		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	26.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-6 QC-01							
Sampled By: BE/ZW on 07-OCT-19							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00180		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00130		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0036		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-7 D6							
Sampled By: BE/ZW on 08-OCT-19 @ 08:30							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	247		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	202		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	25.8		1.0	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.193		0.040	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	324		0.60	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.4		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	92.5		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		22-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		22-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		22-OCT-19	R4876241
Surrogate: 3,4-Dichlorotoluene	100.5		60-140	%		22-OCT-19	R4876241
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091

* 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
L2362912-7 D6							
Sampled By: BE/ZW on 08-OCT-19 @ 08:30							
Matrix: W							
F2-F4-O.Reg 153/04 (July 2011)							
Surrogate: 2-Bromobenzotrifluoride	91.2		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.022		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	545		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0150		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0093		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0057		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	610		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.18		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	2.5		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420	MBHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	186	MBHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0505		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00118		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0370		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.108		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	77.5		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00024		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	0.00012		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	0.00083		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.072		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0257		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	81.9		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00705		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00213		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00066		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	11.4		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	0.036		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00388		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	0.000112		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	6.84		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	18.9		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.245		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	123		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	0.00041		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00242		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734

* 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
L2362912-7 D6							
Sampled By: BE/ZW on 08-OCT-19 @ 08:30							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Uranium (U)-Total	0.00440		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00076		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	0.0056		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0021		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00022		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00112		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0380		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.104		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	78.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00092		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.020		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000057		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0268		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	84.9		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00448		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00210		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00059		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	12.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00382		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000141		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	6.15		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	19.4		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.241		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	115		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00532		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0027		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-8 D12							
Sampled By: BE/ZW on 08-OCT-19 @ 09:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	279		1.2	mg/L		15-OCT-19	

* 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
L2362912-8 D12							
Sampled By: BE/ZW on 08-OCT-19 @ 09:00							
Matrix: W							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	229		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	19.7		1.0	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.208		0.040	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	293		0.60	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.3		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	93.1		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	68.6		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	15-OCT-19	15-OCT-19	R4871091
F3 (C16-C34)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
F4 (C34-C50)	<250		250	ug/L	15-OCT-19	15-OCT-19	R4871091
Chrom. to baseline at nC50	YES				15-OCT-19	15-OCT-19	R4871091
Surrogate: 2-Bromobenzotrifluoride	87.8		60-140	%	15-OCT-19	15-OCT-19	R4871091
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.094		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	519		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0115		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0077		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	694		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.26		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420	MBHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	276	MBHT	1	MPN/100mL		09-OCT-19	R4866319

* 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
L2362912-8 D12							
Sampled By: BE/ZW on 08-OCT-19 @ 09:00							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0078		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Arsenic (As)-Total	0.00122		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Barium (Ba)-Total	0.0328		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Boron (B)-Total	0.143		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Calcium (Ca)-Total	69.0		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Chromium (Cr)-Total	0.00016		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Copper (Cu)-Total	0.00057		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Iron (Fe)-Total	0.024		0.010	mg/L	23-OCT-19	23-OCT-19	R4883734
Lead (Pb)-Total	<0.000050		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Lithium (Li)-Total	0.0250		0.0010	mg/L	23-OCT-19	23-OCT-19	R4883734
Magnesium (Mg)-Total	79.7		0.0050	mg/L	23-OCT-19	23-OCT-19	R4883734
Manganese (Mn)-Total	0.00655		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Molybdenum (Mo)-Total	0.00170		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Nickel (Ni)-Total	0.00057		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Potassium (K)-Total	10.7		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Phosphorus (P)-Total	<0.030		0.030	mg/L	23-OCT-19	23-OCT-19	R4883734
Rubidium (Rb)-Total	0.00342		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Selenium (Se)-Total	0.000088		0.000050	mg/L	23-OCT-19	23-OCT-19	R4883734
Silicon (Si)-Total	6.75		0.10	mg/L	23-OCT-19	23-OCT-19	R4883734
Silver (Ag)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Sodium (Na)-Total	16.4		0.050	mg/L	23-OCT-19	23-OCT-19	R4883734
Strontium (Sr)-Total	0.236		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Sulfur (S)-Total	108		0.50	mg/L	23-OCT-19	23-OCT-19	R4883734
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Thorium (Th)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Titanium (Ti)-Total	0.00032		0.00030	mg/L	23-OCT-19	23-OCT-19	R4883734
Tungsten (W)-Total	<0.00010		0.00010	mg/L	23-OCT-19	23-OCT-19	R4883734
Uranium (U)-Total	0.00339		0.000010	mg/L	23-OCT-19	23-OCT-19	R4883734
Vanadium (V)-Total	0.00063		0.00050	mg/L	23-OCT-19	23-OCT-19	R4883734
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	23-OCT-19	23-OCT-19	R4883734
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	23-OCT-19	23-OCT-19	R4883734
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0023		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00120		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0354		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.106		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	69.8		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-8 D12							
Sampled By: BE/ZW on 08-OCT-19 @ 09:00							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00099		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.018		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000054		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0260		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	83.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00516		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00161		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00059		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	11.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00364		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000077		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	6.38		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	16.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.230		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	105		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00384		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-9 OW19-05							
Sampled By: BE/ZW on 08-OCT-19 @ 12:47							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	268		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	220		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.8		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.477		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							

* 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
L2362912-9 OW19-05							
Sampled By: BE/ZW on 08-OCT-19 @ 12:47							
Matrix: W							
Sulfate in Water by IC							
Sulfate (SO4)	114		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.8		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.6		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	68.5		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	91.1		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.096		0.010	mg/L		18-OCT-19	R4876155
Hardness (as CaCO3)	259		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0260		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0061		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0199		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	390		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	245		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	MBHT	1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1	MBHT	1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.383		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00027		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00266		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0419		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.450		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	0.0000105		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	95.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000101		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00093		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00109		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00132		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	1.15		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-9 OW19-05							
Sampled By: BE/ZW on 08-OCT-19 @ 12:47							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Lead (Pb)-Total	0.000666		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0209		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	68.0		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0455		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00614		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00161		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	6.93		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00509		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000111		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.59		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	41.8		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.378		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	44.3		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	0.000011		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	0.00045		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.0113		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	0.00184		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.000449		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00225		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0043		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	0.00065		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0025		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00024		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00203		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0406		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.480		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	50.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000029		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00069		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.216		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0187		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	32.1		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0309		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00573		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	6.62		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00419		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-9 OW19-05							
Sampled By: BE/ZW on 08-OCT-19 @ 12:47							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Silicon (Si)-Dissolved	3.77		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	40.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.342		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	39.1		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	0.00201		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.000143		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0015		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-10 D1							
Sampled By: BE/ZW on 08-OCT-19 @ 14:30							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	199		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	2.16		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	167		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	192		1.0	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.137		0.040	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	71.0		0.60	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.1		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	92.1		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650

* 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
L2362912-10 D1							
Sampled By: BE/ZW on 08-OCT-19 @ 14:30							
Matrix: W							
F1-O.Reg 153/04 (July 2011)							
Surrogate: 3,4-Dichlorotoluene	70.3		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	93.6		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.067		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	227		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0235		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0077		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0158		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	598		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.05		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	9.6		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	59		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	4		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0370		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00018		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00192		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0387		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.108		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	37.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000012		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00019		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.038		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.000152		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0305		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	33.7		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.00557		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00199		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00063		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	8.48		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00388		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000122		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.43		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	133		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.263		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	25.8		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-10 D1							
Sampled By: BE/ZW on 08-OCT-19 @ 14:30							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00148		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00159		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00158		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0026		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00176		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0379		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.117		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	39.6		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00024		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0293		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	31.1		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00026		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00210		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00051		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.08		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00393		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000060		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	4.37		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	135		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.261		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	25.5		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00164		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00123		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0011		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-11 D2							
Sampled By: BE/ZW on 08-OCT-19 @ 15:40							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	343		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	1.56		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	284		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	46.0		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.211		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	79.4		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.7		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.9		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	68.8		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	94.0		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.090		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	386		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0557		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0456		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0102		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	480		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	1.14		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		15-OCT-19	R4871596

* 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
L2362912-11 D2							
Sampled By: BE/ZW on 08-OCT-19 @ 15:40							
Matrix: W							
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	42		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0284		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00012		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00125		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0397		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.110		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	57.8		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00031		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00185		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.062		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0422		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	60.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.00260		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00130		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00138		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	9.67		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	0.067		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00369		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000197		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	7.79		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	24.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.181		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	28.2		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	0.00012		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00150		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00589		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00157		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0053		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	0.00025		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0030		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00115		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0407		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.118		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-11 D2							
Sampled By: BE/ZW on 08-OCT-19 @ 15:40							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	64.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	0.00017		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00012		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00190		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.036		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0416		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	54.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00203		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00148		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00133		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	0.050		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.91		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00350		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000170		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	7.70		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	25.1		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.179		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	27.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	0.00032		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00639		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00124		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0055		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	0.00025		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-12 OW19-40							
Sampled By: BE/ZW on 08-OCT-19 @ 16:58							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	309		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	253		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	16.5		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.372		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134

* 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
L2362912-12 OW19-40							
Sampled By: BE/ZW on 08-OCT-19 @ 16:58							
Matrix: W							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	157		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.0		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.8		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	70.7		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	90.2		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.086		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	333		0.20	mg/L		30-OCT-19	
Phosphorus (P)-Total	0.0059		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	494		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	6.3		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	4		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0634		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00029		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0256		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.72		0.10	mg/L	24-OCT-19	28-OCT-19	R4889607
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	65.1		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000027		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00027		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-12 OW19-40							
Sampled By: BE/ZW on 08-OCT-19 @ 16:58							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Copper (Cu)-Total	0.00927		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.107		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.000931		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0420		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	50.7		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0166		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.000446		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	9.61		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00691		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.11		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	46.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.488		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	56.2		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00294		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00132		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0139		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0023		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00016		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0253		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.599		0.010	mg/L	24-OCT-19	28-OCT-19	R4888724
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	62.9		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00034		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.036		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000098		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0362		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	42.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0142		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.000408		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.78		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-12 OW19-40							
Sampled By: BE/ZW on 08-OCT-19 @ 16:58							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Rubidium (Rb)-Dissolved	0.00668		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	3.85		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	45.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.432		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	56.3		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00128		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0034		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-13 CH19-37							
Sampled By: BE/ZW on 08-OCT-19 @ 18:18							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	311		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	255		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	14.8		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.399		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	160		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875305
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875305
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Surrogate: 1,4-Difluorobenzene	95.4		70-130	%		21-OCT-19	R4875305
Surrogate: 4-Bromofluorobenzene	92.6		70-130	%		21-OCT-19	R4875305
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	

* 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
L2362912-13 CH19-37							
Sampled By: BE/ZW on 08-OCT-19 @ 18:18							
Matrix: W							
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875305
Surrogate: 3,4-Dichlorotoluene	75.7		60-140	%		21-OCT-19	R4875305
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	100.3		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.215		0.010	mg/L		18-OCT-19	R4876155
Hardness (as CaCO3)	326		0.20	mg/L		30-OCT-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	485		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	14		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0097		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00022		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0228		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.68		0.10	mg/L	24-OCT-19	28-OCT-19	R4889607
Cadmium (Cd)-Total	0.0000183		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	63.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00013		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00011		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.0310		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.050		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.00226		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0386		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	51.4		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.00721		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.000579		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00051		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	7.99		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00339		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.79		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	0.000017		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	42.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.485		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-13 CH19-37							
Sampled By: BE/ZW on 08-OCT-19 @ 18:18							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Sulfur (S)-Total	56.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	0.00036		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00038		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00222		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0271		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00012		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0236		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.602		0.010	mg/L	24-OCT-19	28-OCT-19	R4888724
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	58.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	28-OCT-19	R4888724
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.048		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000499		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0303		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	43.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.00683		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.000500		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	8.20		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00343		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	4.68		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	41.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.419		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	55.8		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00205		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0083		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2362912-13 CH19-37							
Sampled By: BE/ZW on 08-OCT-19 @ 18:18							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-14 OW19-23							
Sampled By: BE/ZW on 08-OCT-19 @ 19:19							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	278		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	228		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.1		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.776		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	131		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.5		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.3		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	66.3		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	92.9		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.173		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	285		0.20	mg/L		30-OCT-19	
Phosphorus (P)-Total	0.0048		0.0030	mg/L		18-OCT-19	R4873978

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2362912-14 OW19-23							
Sampled By: BE/ZW on 08-OCT-19 @ 19:19							
Matrix: W							
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	442		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	4.3		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	3		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	2		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0542		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00052		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0250		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.67		0.10	mg/L	24-OCT-19	28-OCT-19	R4889607
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	55.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000023		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00023		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00321		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.070		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.000512		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0352		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	38.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0167		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.000888		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	9.20		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00464		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.78		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	52.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.448		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	46.9		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00208		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00104		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0158		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2362912-14 OW19-23							
Sampled By: BE/ZW on 08-OCT-19 @ 19:19							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Arsenic (As)-Dissolved	0.00041		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0258		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.73		0.10	mg/L	24-OCT-19	28-OCT-19	R4888724
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	58.8		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000011		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.025		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000390		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0330		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	33.5		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0144		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.000966		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	9.01		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00456		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	4.70		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	51.4		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.455		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	46.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00111		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0116		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-15 QC-02							
Sampled By: BE/ZW on 08-OCT-19							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	260		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	214		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							

* 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
L2362912-15 QC-02							
Sampled By: BE/ZW on 08-OCT-19							
Matrix: W							
Chloride in Water by IC							
Chloride (Cl)	10.9		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.498		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	114		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875305
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875305
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Surrogate: 1,4-Difluorobenzene	94.9		70-130	%		21-OCT-19	R4875305
Surrogate: 4-Bromofluorobenzene	93.0		70-130	%		21-OCT-19	R4875305
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875305
Surrogate: 3,4-Dichlorotoluene	74.3		60-140	%		21-OCT-19	R4875305
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	94.6		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.133		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	262		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0218		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0072		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0146		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	401		20	mg/L		11-OCT-19	R4870011
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	251		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.382		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00026		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00257		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0420		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-15 QC-02							
Sampled By: BE/ZW on 08-OCT-19							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.502		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	0.0000074		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	73.9		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000085		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00077		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00080		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00145		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.952		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.000598		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0218		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	51.7		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0394		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00621		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00128		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	6.98		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00510		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000090		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	4.58		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	42.3		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.383		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	42.8		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	0.00034		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.0106		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	0.00185		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.000421		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00174		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0040		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	0.00069		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0021		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00025		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00207		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0408		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.467		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	50.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	0.000033		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00025		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.230		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000055		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0192		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-15 QC-02							
Sampled By: BE/ZW on 08-OCT-19							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	33.2		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0319		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00572		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	7.03		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00436		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	3.78		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	0.000017		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	41.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.348		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	38.5		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	0.00200		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.000140		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0024		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-16 FIELD BLANK							
Sampled By: BE/ZW on 09-OCT-19 @ 07:05							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1.5		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	1.2		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875305
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875305

* 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
L2362912-16 FIELD BLANK							
Sampled By: BE/ZW on 09-OCT-19 @ 07:05							
Matrix: W							
BTEX by Headspace							
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875305
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875305
Surrogate: 1,4-Difluorobenzene	95.0		70-130	%		21-OCT-19	R4875305
Surrogate: 4-Bromofluorobenzene	92.6		70-130	%		21-OCT-19	R4875305
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875305
Surrogate: 3,4-Dichlorotoluene	76.5		60-140	%		21-OCT-19	R4875305
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	90.3		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	<0.20		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	<4.0		4.0	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-16 FIELD BLANK							
Sampled By: BE/ZW on 09-OCT-19 @ 07:05							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	<0.10		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	<0.50		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-16 FIELD BLANK							
Sampled By: BE/ZW on 09-OCT-19 @ 07:05							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-17 TRIP							
Sampled By: BE/ZW							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.6		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.6		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	80.3		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159

* 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
L2362912-17 TRIP							
Sampled By: BE/ZW							
Matrix: W							
F2-F4-O.Reg 153/04 (July 2011)							
Surrogate: 2-Bromobenzotrifluoride	89.1		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.051		0.010	mg/L		18-OCT-19	R4876155
Hardness (as CaCO3)	<0.20		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	<0.0030		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	<4.0		4.0	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		16-OCT-19	R4872977
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	<0.10		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	<0.50		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-17 TRIP							
Sampled By: BE/ZW							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Uranium (U)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	LAB					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-18 D4							
Sampled By: BE/ZW on 09-OCT-19 @ 08:53							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	379		1.2	mg/L		15-OCT-19	

* 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
L2362912-18 D4							
Sampled By: BE/ZW on 09-OCT-19 @ 08:53							
Matrix: W							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	310		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.7		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.230		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	0.053		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	148		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50	OWP	0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50	OWP	0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40	OWP	0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30	OWP	0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50	OWP	0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	93.9		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.6		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25	OWP	25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	61.4		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	99.3		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.330		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	442		0.20	mg/L		29-OCT-19	
Phosphorus (P)-Total	0.423		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0217		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.402		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	595		20	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	9.93		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	1280		30	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	2420		1	MPN/100mL		09-OCT-19	R4866319

* 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
L2362912-18 D4							
Sampled By: BE/ZW on 09-OCT-19 @ 08:53							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	1.24	DLM	0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.0020	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0536	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.00050	DLM	0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.19	DLM	0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	<0.000050	DLM	0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	70.1	DLM	0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.00010	DLM	0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.0026	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	<0.0050	DLM	0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	1.36	DLM	0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.00085	DLM	0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.033	DLM	0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	81.5	DLM	0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0619	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00105	DLM	0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.0050	DLM	0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	13.0	DLM	0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.30	DLM	0.30	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.0071	DLM	0.0020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.00050	DLM	0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	9.8	DLM	1.0	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.00010	DLM	0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	21.8	DLM	0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.191	DLM	0.0020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	56.1	DLM	5.0	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.0020	DLM	0.0020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.00010	DLM	0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.0393	DLM	0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.0010	DLM	0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00390	DLM	0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.0050	DLM	0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	<0.030	DLM	0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.0020	DLM	0.0020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0092		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00015		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00143		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0394		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.076		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	65.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-18 D4							
Sampled By: BE/ZW on 09-OCT-19 @ 08:53							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	0.00026		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00055		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.220		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000069		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0354		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	67.8		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0165		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00204		0.000050	mg/L	24-OCT-19	28-OCT-19	R4888724
Nickel (Ni)-Dissolved	0.00068		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	13.2		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00536		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000123		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	7.73		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	21.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.196		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	52.7		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	28-OCT-19	R4888724
Titanium (Ti)-Dissolved	0.00055		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00413		0.000010	mg/L	24-OCT-19	28-OCT-19	R4888724
Vanadium (V)-Dissolved	0.00071		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0567		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-19 BH19-29							
Sampled By: BE/ZW on 09-OCT-19 @ 10:00							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	287		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	235		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.2		0.50	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.818		0.020	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							

* 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
L2362912-19 BH19-29							
Sampled By: BE/ZW on 09-OCT-19 @ 10:00							
Matrix: W							
Sulfate in Water by IC							
Sulfate (SO4)	142		0.30	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	1.11		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.2		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	90.1		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	69.5		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	92.9		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.196		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	311		0.20	mg/L		30-OCT-19	
Phosphorus (P)-Total	0.0033		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	<0.0030		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	458		20	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	<2.0		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	<1		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0052		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00209		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0231		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.63		0.10	mg/L	24-OCT-19	28-OCT-19	R4889607
Cadmium (Cd)-Total	0.0000052		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	59.1		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00023		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00646		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.130		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-19 BH19-29							
Sampled By: BE/ZW on 09-OCT-19 @ 10:00							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Lead (Pb)-Total	0.000991		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0296		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	40.6		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0136		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00108		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	7.84		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00359		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	5.27		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	43.9		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.486		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	50.7		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	0.000011		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00034		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.00111		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0082		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00194		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0232		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.61		0.10	mg/L	24-OCT-19	28-OCT-19	R4888724
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	63.4		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00024		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.125		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000326		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0278		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	37.0		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0134		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00103		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	8.51		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00373		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-19 BH19-29							
Sampled By: BE/ZW on 09-OCT-19 @ 10:00							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Silicon (Si)-Dissolved	5.06		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	44.0		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.465		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	50.4		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	0.000013		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.00120		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0056		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
L2362912-20 D11							
Sampled By: BE/ZW on 09-OCT-19 @ 10:25							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	249		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	204		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.2		2.5	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.24		0.10	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.10	DLM	0.10	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLM	0.050	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	660		1.5	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	94.2		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	91.1		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650

* 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
L2362912-20 D11							
Sampled By: BE/ZW on 09-OCT-19 @ 10:25							
Matrix: W							
F1-O.Reg 153/04 (July 2011)							
Surrogate: 3,4-Dichlorotoluene	69.8		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	16-OCT-19	R4873159
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	16-OCT-19	R4873159
Chrom. to baseline at nC50	YES				16-OCT-19	16-OCT-19	R4873159
Surrogate: 2-Bromobenzotrifluoride	95.5		60-140	%	16-OCT-19	16-OCT-19	R4873159
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.058		0.010	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	897		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.0577		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0140		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0438		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	1270		20	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	1.48		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	2.8		2.0	mg/L		15-OCT-19	R4871596
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	9		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.155		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00025		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00101		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.0741		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.125		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	0.0000069		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	155		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000014		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00050		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00021		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00258		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	0.175		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.000079		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0415		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	139		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.0345		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00599		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00152		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	15.6		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	0.039		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.00407		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000184		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	6.22		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	20.4		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.426		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	249		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807

* 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
L2362912-20 D11							
Sampled By: BE/ZW on 09-OCT-19 @ 10:25							
Matrix: W							
Total Metals in Water by CRC ICPMS							
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.00553		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.0117		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00111		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0050		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	0.00027		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0128		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00018		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00081		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0720		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.144		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cadmium (Cd)-Dissolved	0.0000071		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	159		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	0.00019		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00016		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00225		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.049		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0381		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	121		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.0242		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00558		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00130		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	15.6		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00375		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000080		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	5.64		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	18.9		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.406		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	238		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	0.00112		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.0114		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00061		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0046		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-21 D10							
Sampled By: BE/ZW on 09-OCT-19 @ 10:55							
Matrix: W							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	308		1.2	mg/L		15-OCT-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-OCT-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-OCT-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	252		1.0	mg/L		11-OCT-19	R4869123
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	18.0		2.5	mg/L		11-OCT-19	R4871134
Fluoride in Water by IC							
Fluoride (F)	0.31		0.10	mg/L		11-OCT-19	R4871134
Nitrate in Water by IC							
Nitrate (as N)	<0.10	DLM	0.10	mg/L		11-OCT-19	R4871134
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLM	0.050	mg/L		11-OCT-19	R4871134
Sulfate in Water by IC							
Sulfate (SO4)	1020		1.5	mg/L		11-OCT-19	R4871134
BTEX, F1-F4-O.Reg 153/04 (July 2011)							
BTEX by Headspace							
Benzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Ethylbenzene	<0.50		0.50	ug/L		21-OCT-19	R4875650
m+p-Xylenes	<0.40		0.40	ug/L		21-OCT-19	R4875650
o-Xylene	<0.30		0.30	ug/L		21-OCT-19	R4875650
Toluene	<0.50		0.50	ug/L		21-OCT-19	R4875650
Surrogate: 1,4-Difluorobenzene	93.7		70-130	%		21-OCT-19	R4875650
Surrogate: 4-Bromofluorobenzene	90.9		70-130	%		21-OCT-19	R4875650
F1-F4 Hydrocarbon Calculated Parameters							
F1-BTEX	<25		25	ug/L		21-OCT-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-OCT-19	
F1-O.Reg 153/04 (July 2011)							
F1 (C6-C10)	<25		25	ug/L		21-OCT-19	R4875650
Surrogate: 3,4-Dichlorotoluene	70.0		60-140	%		21-OCT-19	R4875650
F2-F4-O.Reg 153/04 (July 2011)							
F2 (C10-C16)	<100		100	ug/L	16-OCT-19	17-OCT-19	R4874278
F3 (C16-C34)	<250		250	ug/L	16-OCT-19	17-OCT-19	R4874278
F4 (C34-C50)	<250		250	ug/L	16-OCT-19	17-OCT-19	R4874278
Chrom. to baseline at nC50	YES				16-OCT-19	17-OCT-19	R4874278
Surrogate: 2-Bromobenzotrifluoride	97.1		60-140	%	16-OCT-19	17-OCT-19	R4874278
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.50		0.50	ug/L		21-OCT-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.64		0.10	mg/L		16-OCT-19	R4873241
Hardness (as CaCO3)	1280		0.20	mg/L		28-OCT-19	
Phosphorus (P)-Total	0.121		0.0030	mg/L		18-OCT-19	R4873978
Phosphorus (P)-Total Dissolved	0.0216		0.0030	mg/L		17-OCT-19	R4873658
Phosphorus (P)-Total Particulate	0.0989		0.0042	mg/L		18-OCT-19	
Total Dissolved Solids	1870		20	mg/L		15-OCT-19	R4874148
Total Kjeldahl Nitrogen	4.30		0.20	mg/L	15-OCT-19	16-OCT-19	R4871956
Total Suspended Solids	83.9		2.0	mg/L		15-OCT-19	R4871596

* 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
L2362912-21 D10							
Sampled By: BE/ZW on 09-OCT-19 @ 10:55							
Matrix: W							
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-OCT-19	R4866319
Escherichia Coli	1200		1	MPN/100mL		09-OCT-19	R4866319
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	1.36		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Antimony (Sb)-Total	0.00042		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Arsenic (As)-Total	0.00220		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Barium (Ba)-Total	0.111		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Boron (B)-Total	0.236		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cadmium (Cd)-Total	0.0000325		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Calcium (Ca)-Total	176		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Cesium (Cs)-Total	0.000165		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Chromium (Cr)-Total	0.00301		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Cobalt (Co)-Total	0.00103		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Copper (Cu)-Total	0.00283		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Iron (Fe)-Total	1.75		0.010	mg/L	24-OCT-19	24-OCT-19	R4883807
Lead (Pb)-Total	0.00101		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Lithium (Li)-Total	0.0665		0.0010	mg/L	24-OCT-19	24-OCT-19	R4883807
Magnesium (Mg)-Total	227		0.0050	mg/L	24-OCT-19	24-OCT-19	R4883807
Manganese (Mn)-Total	0.198		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Molybdenum (Mo)-Total	0.00677		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Nickel (Ni)-Total	0.00335		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Potassium (K)-Total	19.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Phosphorus (P)-Total	0.108		0.030	mg/L	24-OCT-19	24-OCT-19	R4883807
Rubidium (Rb)-Total	0.0101		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Selenium (Se)-Total	0.000393		0.000050	mg/L	24-OCT-19	24-OCT-19	R4883807
Silicon (Si)-Total	5.83		0.10	mg/L	24-OCT-19	24-OCT-19	R4883807
Silver (Ag)-Total	0.000012		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Sodium (Na)-Total	36.9		0.050	mg/L	24-OCT-19	24-OCT-19	R4883807
Strontium (Sr)-Total	0.669		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Sulfur (S)-Total	404		0.50	mg/L	24-OCT-19	24-OCT-19	R4883807
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Thallium (Tl)-Total	0.000023		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Thorium (Th)-Total	0.00030		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Titanium (Ti)-Total	0.0615		0.00030	mg/L	24-OCT-19	24-OCT-19	R4883807
Tungsten (W)-Total	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4883807
Uranium (U)-Total	0.0163		0.000010	mg/L	24-OCT-19	24-OCT-19	R4883807
Vanadium (V)-Total	0.00452		0.00050	mg/L	24-OCT-19	24-OCT-19	R4883807
Zinc (Zn)-Total	0.0081		0.0030	mg/L	24-OCT-19	24-OCT-19	R4883807
Zirconium (Zr)-Total	0.00071		0.00020	mg/L	24-OCT-19	24-OCT-19	R4883807
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					24-OCT-19	R4881889
Aluminum (Al)-Dissolved	0.0018		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Antimony (Sb)-Dissolved	0.00039		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Arsenic (As)-Dissolved	0.00179		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Barium (Ba)-Dissolved	0.0927		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Boron (B)-Dissolved	0.269		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526

* 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
L2362912-21 D10							
Sampled By: BE/ZW on 09-OCT-19 @ 10:55							
Matrix: W							
Dissolved Metals in Water by CRC ICPMS							
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Calcium (Ca)-Dissolved	192		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Chromium (Cr)-Dissolved	0.00013		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Cobalt (Co)-Dissolved	0.00025		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Copper (Cu)-Dissolved	0.00089		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Iron (Fe)-Dissolved	0.017		0.010	mg/L	24-OCT-19	24-OCT-19	R4887526
Lead (Pb)-Dissolved	0.000070		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Lithium (Li)-Dissolved	0.0624		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Magnesium (Mg)-Dissolved	194		0.0050	mg/L	24-OCT-19	24-OCT-19	R4887526
Manganese (Mn)-Dissolved	0.121		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Molybdenum (Mo)-Dissolved	0.00715		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Nickel (Ni)-Dissolved	0.00122		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	24-OCT-19	24-OCT-19	R4887526
Potassium (K)-Dissolved	19.7		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Rubidium (Rb)-Dissolved	0.00654		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Selenium (Se)-Dissolved	0.000248		0.000050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silicon (Si)-Dissolved	3.18		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sodium (Na)-Dissolved	34.5		0.050	mg/L	24-OCT-19	24-OCT-19	R4887526
Strontium (Sr)-Dissolved	0.667		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Sulfur (S)-Dissolved	377		0.50	mg/L	24-OCT-19	24-OCT-19	R4887526
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Tin (Sn)-Dissolved	0.00012		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Titanium (Ti)-Dissolved	0.00042		0.00030	mg/L	24-OCT-19	24-OCT-19	R4887526
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	24-OCT-19	24-OCT-19	R4887526
Uranium (U)-Dissolved	0.0186		0.000010	mg/L	24-OCT-19	24-OCT-19	R4887526
Vanadium (V)-Dissolved	0.00164		0.00050	mg/L	24-OCT-19	24-OCT-19	R4887526
Zinc (Zn)-Dissolved	0.0026		0.0010	mg/L	24-OCT-19	24-OCT-19	R4887526
Zirconium (Zr)-Dissolved	0.00022		0.00020	mg/L	24-OCT-19	24-OCT-19	R4887526

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTX-511-HS-WT	Water	BTEX by Headspace	SW846 8260 (511)

BTX is determined by analyzing by headspace-GC/MS.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT Water F1-O.Reg 153/04 (July 2011) E3398/CCME TIER 1-HS

Fraction F1 is determined by analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT Water F2-F4-O.Reg 153/04 (July 2011) EPA 3511/CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are 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, 2001.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HARDNESS-CALC-WP Water Hardness Calculated 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.

MET-D-CCMS-WP Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020B (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-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020B (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.

N-TOTKJ-WP Water Total Kjeldahl Nitrogen APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-TD-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 – 0.5°C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, 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-adjusted weight
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: L2362912 Report Date: 30-OCT-19

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: ANDREA KNEALE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R4869123								
WG3190844-4 LCS								
Alkalinity, Total (as CaCO3)			102.2		%		85-115	11-OCT-19
WG3190844-9 LCS								
Alkalinity, Total (as CaCO3)			103.9		%		85-115	11-OCT-19
WG3190844-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	11-OCT-19
WG3190844-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	11-OCT-19
BTX-511-HS-WT	**Water**							
Batch R4875305								
WG3195450-1 LCS								
Benzene			94.2		%		70-130	21-OCT-19
Ethylbenzene			97.9		%		70-130	21-OCT-19
m+p-Xylenes			97.0		%		70-130	21-OCT-19
o-Xylene			95.0		%		70-130	21-OCT-19
Toluene			97.8		%		70-130	21-OCT-19
WG3195450-2 MB								
Benzene			<0.50		ug/L		0.5	21-OCT-19
Ethylbenzene			<0.50		ug/L		0.5	21-OCT-19
m+p-Xylenes			<0.40		ug/L		0.4	21-OCT-19
o-Xylene			<0.30		ug/L		0.3	21-OCT-19
Toluene			<0.50		ug/L		0.5	21-OCT-19
Surrogate: 1,4-Difluorobenzene			95.5		%		70-130	21-OCT-19
Surrogate: 4-Bromofluorobenzene			92.9		%		70-130	21-OCT-19
Batch R4875650								
WG3195580-4 DUP		**L2362912-19**						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	21-OCT-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	21-OCT-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	21-OCT-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	21-OCT-19
Toluene		1.11	1.13		ug/L	1.8	30	21-OCT-19
WG3195580-1 LCS								
Benzene			94.5		%		70-130	21-OCT-19
Ethylbenzene			97.5		%		70-130	21-OCT-19
m+p-Xylenes			96.7		%		70-130	21-OCT-19
o-Xylene			94.7		%		70-130	21-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Water**							
Batch R4875650								
WG3195580-1 LCS								
Toluene			97.9		%		70-130	21-OCT-19
WG3195580-2 MB								
Benzene			<0.50		ug/L		0.5	21-OCT-19
Ethylbenzene			<0.50		ug/L		0.5	21-OCT-19
m+p-Xylenes			<0.40		ug/L		0.4	21-OCT-19
o-Xylene			<0.30		ug/L		0.3	21-OCT-19
Toluene			<0.50		ug/L		0.5	21-OCT-19
Surrogate: 1,4-Difluorobenzene			95.3		%		70-130	21-OCT-19
Surrogate: 4-Bromofluorobenzene			93.6		%		70-130	21-OCT-19
WG3195580-5 MS		**L2362912-19**						
Benzene			95.0		%		50-140	21-OCT-19
Ethylbenzene			93.8		%		50-140	21-OCT-19
m+p-Xylenes			93.6		%		50-140	21-OCT-19
o-Xylene			92.3		%		50-140	21-OCT-19
Toluene			96.0		%		50-140	21-OCT-19
Batch R4875691								
WG3186097-4 DUP		**L2362912-4**						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	21-OCT-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	21-OCT-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	21-OCT-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	21-OCT-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	21-OCT-19
WG3186097-1 LCS								
Benzene			96.2		%		70-130	21-OCT-19
Ethylbenzene			93.6		%		70-130	21-OCT-19
m+p-Xylenes			92.6		%		70-130	21-OCT-19
o-Xylene			92.5		%		70-130	21-OCT-19
Toluene			96.6		%		70-130	21-OCT-19
WG3186097-2 MB								
Benzene			<0.50		ug/L		0.5	21-OCT-19
Ethylbenzene			<0.50		ug/L		0.5	21-OCT-19
m+p-Xylenes			<0.40		ug/L		0.4	21-OCT-19
o-Xylene			<0.30		ug/L		0.3	21-OCT-19
Toluene			<0.50		ug/L		0.5	21-OCT-19
Surrogate: 1,4-Difluorobenzene			93.5		%		70-130	21-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Water**							
Batch R4875691								
WG3186097-2 MB								
Surrogate: 4-Bromofluorobenzene			89.8		%		70-130	21-OCT-19
WG3186097-5 MS		**L2362912-4**						
Benzene			96.2		%		50-140	21-OCT-19
Ethylbenzene			93.0		%		50-140	21-OCT-19
m+p-Xylenes			92.5		%		50-140	21-OCT-19
o-Xylene			92.6		%		50-140	21-OCT-19
Toluene			95.8		%		50-140	21-OCT-19
Batch R4875907								
WG3195974-1 LCS								
Benzene			98.5		%		70-130	21-OCT-19
Ethylbenzene			97.9		%		70-130	21-OCT-19
m+p-Xylenes			95.2		%		70-130	21-OCT-19
o-Xylene			97.2		%		70-130	21-OCT-19
Toluene			96.5		%		70-130	21-OCT-19
WG3195974-2 MB								
Benzene			<0.50		ug/L		0.5	21-OCT-19
Ethylbenzene			<0.50		ug/L		0.5	21-OCT-19
m+p-Xylenes			<0.40		ug/L		0.4	21-OCT-19
o-Xylene			<0.30		ug/L		0.3	21-OCT-19
Toluene			<0.50		ug/L		0.5	21-OCT-19
Surrogate: 1,4-Difluorobenzene			92.9		%		70-130	21-OCT-19
Surrogate: 4-Bromofluorobenzene			89.6		%		70-130	21-OCT-19
CL-IC-N-WP	**Water**							
Batch R4871134								
WG3188133-10 LCS								
Chloride (Cl)			98.0		%		90-110	11-OCT-19
WG3188133-6 LCS								
Chloride (Cl)			97.5		%		90-110	11-OCT-19
WG3188133-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-OCT-19
WG3188133-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-OCT-19
Batch R4871591								
WG3187983-10 LCS								
Chloride (Cl)			100.2		%		90-110	11-OCT-19
WG3187983-9 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R4871591								
WG3187983-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-OCT-19
F-IC-N-WP	**Water**							
Batch R4871134								
WG3188133-10 LCS								
Fluoride (F)			97.8		%		90-110	11-OCT-19
WG3188133-6 LCS								
Fluoride (F)			98.3		%		90-110	11-OCT-19
WG3188133-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-OCT-19
WG3188133-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-OCT-19
Batch R4871591								
WG3187983-10 LCS								
Fluoride (F)			98.3		%		90-110	11-OCT-19
WG3187983-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-OCT-19
F1-HS-511-WT	**Water**							
Batch R4875305								
WG3195450-1 LCS								
F1 (C6-C10)			91.1		%		80-120	21-OCT-19
WG3195450-2 MB								
F1 (C6-C10)			<25		ug/L		25	21-OCT-19
Surrogate: 3,4-Dichlorotoluene			84.7		%		60-140	21-OCT-19
Batch R4875650								
WG3195580-4 DUP		**L2362912-19**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	22-OCT-19
WG3195580-1 LCS								
F1 (C6-C10)			88.7		%		80-120	21-OCT-19
WG3195580-2 MB								
F1 (C6-C10)			<25		ug/L		25	21-OCT-19
Surrogate: 3,4-Dichlorotoluene			82.7		%		60-140	21-OCT-19
WG3195580-5 MS		**L2362912-19**						
F1 (C6-C10)			63.2		%		60-140	21-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R4875907								
WG3195974-1 LCS								
F1 (C6-C10)			96.1		%		80-120	21-OCT-19
WG3195974-2 MB								
F1 (C6-C10)			<25		ug/L		25	21-OCT-19
Surrogate: 3,4-Dichlorotoluene			92.5		%		60-140	21-OCT-19
Batch R4876241								
WG3196434-1 LCS								
F1 (C6-C10)			89.9		%		80-120	21-OCT-19
WG3196434-2 MB								
F1 (C6-C10)			<25		ug/L		25	21-OCT-19
Surrogate: 3,4-Dichlorotoluene			97.8		%		60-140	21-OCT-19
F2-F4-511-WT	**Water**							
Batch R4871091								
WG3190693-2 LCS								
F2 (C10-C16)			103.4		%		70-130	15-OCT-19
F3 (C16-C34)			112.3		%		70-130	15-OCT-19
F4 (C34-C50)			100.5		%		70-130	15-OCT-19
WG3190693-1 MB								
F2 (C10-C16)			<100		ug/L		100	15-OCT-19
F3 (C16-C34)			<250		ug/L		250	15-OCT-19
F4 (C34-C50)			<250		ug/L		250	15-OCT-19
Surrogate: 2-Bromobenzotrifluoride			87.1		%		60-140	15-OCT-19
Batch R4873159								
WG3191949-2 LCS								
F2 (C10-C16)			99.97		%		70-130	16-OCT-19
F3 (C16-C34)			110.8		%		70-130	16-OCT-19
F4 (C34-C50)			94.6		%		70-130	16-OCT-19
WG3191949-1 MB								
F2 (C10-C16)			<100		ug/L		100	16-OCT-19
F3 (C16-C34)			<250		ug/L		250	16-OCT-19
F4 (C34-C50)			<250		ug/L		250	16-OCT-19
Surrogate: 2-Bromobenzotrifluoride			93.0		%		60-140	16-OCT-19
Batch R4874278								
WG3191963-2 LCS								
F2 (C10-C16)			103.9		%		70-130	17-OCT-19
F3 (C16-C34)			112.0		%		70-130	17-OCT-19
F4 (C34-C50)			99.6		%		70-130	17-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Water**							
Batch	**R4874278**							
WG3191963-1	**MB**							
F2 (C10-C16)			<100		ug/L		100	17-OCT-19
F3 (C16-C34)			<250		ug/L		250	17-OCT-19
F4 (C34-C50)			<250		ug/L		250	17-OCT-19
Surrogate: 2-Bromobenzotrifluoride			88.5		%		60-140	17-OCT-19
MET-D-CCMS-WP	**Water**							
Batch	**R4887526**							
WG3200352-2	**LCS**							
Aluminum (Al)-Dissolved			108.7		%		80-120	24-OCT-19
Antimony (Sb)-Dissolved			102.4		%		80-120	24-OCT-19
Arsenic (As)-Dissolved			104.0		%		80-120	24-OCT-19
Barium (Ba)-Dissolved			102.9		%		80-120	24-OCT-19
Beryllium (Be)-Dissolved			108.6		%		80-120	24-OCT-19
Bismuth (Bi)-Dissolved			101.3		%		80-120	24-OCT-19
Boron (B)-Dissolved			106.9		%		80-120	24-OCT-19
Cadmium (Cd)-Dissolved			103.2		%		80-120	24-OCT-19
Calcium (Ca)-Dissolved			105.2		%		80-120	24-OCT-19
Cesium (Cs)-Dissolved			106.5		%		80-120	24-OCT-19
Chromium (Cr)-Dissolved			107.9		%		80-120	24-OCT-19
Cobalt (Co)-Dissolved			104.8		%		80-120	24-OCT-19
Copper (Cu)-Dissolved			103.3		%		80-120	24-OCT-19
Iron (Fe)-Dissolved			109.9		%		80-120	24-OCT-19
Lead (Pb)-Dissolved			105.0		%		80-120	24-OCT-19
Lithium (Li)-Dissolved			106.3		%		80-120	24-OCT-19
Magnesium (Mg)-Dissolved			109.4		%		80-120	24-OCT-19
Manganese (Mn)-Dissolved			106.9		%		80-120	24-OCT-19
Molybdenum (Mo)-Dissolved			99.0		%		80-120	24-OCT-19
Nickel (Ni)-Dissolved			104.5		%		80-120	24-OCT-19
Phosphorus (P)-Dissolved			107.4		%		80-120	24-OCT-19
Potassium (K)-Dissolved			110.0		%		80-120	24-OCT-19
Rubidium (Rb)-Dissolved			101.5		%		80-120	24-OCT-19
Selenium (Se)-Dissolved			108.0		%		80-120	24-OCT-19
Silicon (Si)-Dissolved			106.8		%		80-120	24-OCT-19
Silver (Ag)-Dissolved			104.4		%		80-120	24-OCT-19
Sodium (Na)-Dissolved			105.9		%		80-120	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4887526								
WG3200352-2 LCS								
Strontium (Sr)-Dissolved			103.4		%		80-120	24-OCT-19
Sulfur (S)-Dissolved			107.8		%		80-120	24-OCT-19
Tellurium (Te)-Dissolved			102.5		%		80-120	24-OCT-19
Thallium (Tl)-Dissolved			100.8		%		80-120	24-OCT-19
Thorium (Th)-Dissolved			102.8		%		80-120	24-OCT-19
Tin (Sn)-Dissolved			100.9		%		80-120	24-OCT-19
Titanium (Ti)-Dissolved			100.3		%		80-120	24-OCT-19
Tungsten (W)-Dissolved			101.6		%		80-120	24-OCT-19
Uranium (U)-Dissolved			105.4		%		80-120	24-OCT-19
Vanadium (V)-Dissolved			106.9		%		80-120	24-OCT-19
Zinc (Zn)-Dissolved			104.7		%		80-120	24-OCT-19
Zirconium (Zr)-Dissolved			97.6		%		80-120	24-OCT-19
WG3200362-2 LCS								
Aluminum (Al)-Dissolved			103.5		%		80-120	24-OCT-19
Antimony (Sb)-Dissolved			105.9		%		80-120	24-OCT-19
Arsenic (As)-Dissolved			106.3		%		80-120	24-OCT-19
Barium (Ba)-Dissolved			103.2		%		80-120	24-OCT-19
Beryllium (Be)-Dissolved			109.1		%		80-120	24-OCT-19
Bismuth (Bi)-Dissolved			111.6		%		80-120	24-OCT-19
Boron (B)-Dissolved			107.0		%		80-120	24-OCT-19
Cadmium (Cd)-Dissolved			104.2		%		80-120	24-OCT-19
Calcium (Ca)-Dissolved			105.7		%		80-120	24-OCT-19
Cesium (Cs)-Dissolved			108.9		%		80-120	24-OCT-19
Chromium (Cr)-Dissolved			102.6		%		80-120	24-OCT-19
Cobalt (Co)-Dissolved			102.3		%		80-120	24-OCT-19
Copper (Cu)-Dissolved			101.2		%		80-120	24-OCT-19
Iron (Fe)-Dissolved			106.2		%		80-120	24-OCT-19
Lead (Pb)-Dissolved			115.9		%		80-120	24-OCT-19
Lithium (Li)-Dissolved			102.6		%		80-120	24-OCT-19
Magnesium (Mg)-Dissolved			103.4		%		80-120	24-OCT-19
Manganese (Mn)-Dissolved			104.8		%		80-120	24-OCT-19
Molybdenum (Mo)-Dissolved			103.8		%		80-120	24-OCT-19
Nickel (Ni)-Dissolved			99.6		%		80-120	24-OCT-19
Phosphorus (P)-Dissolved			102.6		%		80-120	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4887526								
WG3200362-2 LCS								
Potassium (K)-Dissolved			106.7		%		80-120	24-OCT-19
Rubidium (Rb)-Dissolved			100.8		%		80-120	24-OCT-19
Selenium (Se)-Dissolved			104.4		%		80-120	24-OCT-19
Silicon (Si)-Dissolved			102.8		%		80-120	24-OCT-19
Silver (Ag)-Dissolved			108.2		%		80-120	24-OCT-19
Sodium (Na)-Dissolved			103.7		%		80-120	24-OCT-19
Strontium (Sr)-Dissolved			108.3		%		80-120	24-OCT-19
Sulfur (S)-Dissolved			87.3		%		80-120	24-OCT-19
Tellurium (Te)-Dissolved			105.9		%		80-120	24-OCT-19
Thallium (Tl)-Dissolved			112.4		%		80-120	24-OCT-19
Thorium (Th)-Dissolved			111.7		%		80-120	24-OCT-19
Tin (Sn)-Dissolved			104.6		%		80-120	24-OCT-19
Titanium (Ti)-Dissolved			98.2		%		80-120	24-OCT-19
Tungsten (W)-Dissolved			109.4		%		80-120	24-OCT-19
Uranium (U)-Dissolved			100.7		%		80-120	24-OCT-19
Vanadium (V)-Dissolved			104.2		%		80-120	24-OCT-19
Zinc (Zn)-Dissolved			103.2		%		80-120	24-OCT-19
Zirconium (Zr)-Dissolved			100.9		%		80-120	24-OCT-19
WG3200352-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	24-OCT-19
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	24-OCT-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	24-OCT-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4887526								
WG3200352-1 MB								
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	24-OCT-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	24-OCT-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	24-OCT-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	24-OCT-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	24-OCT-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	24-OCT-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
WG3200362-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	24-OCT-19
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	24-OCT-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R4887526								
WG3200362-1 MB								
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	24-OCT-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	24-OCT-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	24-OCT-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	24-OCT-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	24-OCT-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	24-OCT-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	24-OCT-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	24-OCT-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	24-OCT-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	24-OCT-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	24-OCT-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	24-OCT-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	24-OCT-19
MET-T-CCMS-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4883734								
WG3198801-2 LCS								
Aluminum (Al)-Total			109.9		%		80-120	23-OCT-19
Antimony (Sb)-Total			107.7		%		80-120	23-OCT-19
Arsenic (As)-Total			103.8		%		80-120	23-OCT-19
Barium (Ba)-Total			107.0		%		80-120	23-OCT-19
Beryllium (Be)-Total			107.7		%		80-120	23-OCT-19
Bismuth (Bi)-Total			101.6		%		80-120	23-OCT-19
Boron (B)-Total			114.9		%		80-120	23-OCT-19
Cadmium (Cd)-Total			104.1		%		80-120	23-OCT-19
Calcium (Ca)-Total			111.1		%		80-120	23-OCT-19
Cesium (Cs)-Total			106.1		%		80-120	23-OCT-19
Chromium (Cr)-Total			102.2		%		80-120	23-OCT-19
Cobalt (Co)-Total			102.1		%		80-120	23-OCT-19
Copper (Cu)-Total			102.4		%		80-120	23-OCT-19
Iron (Fe)-Total			102.6		%		80-120	23-OCT-19
Lead (Pb)-Total			103.1		%		80-120	23-OCT-19
Lithium (Li)-Total			104.0		%		80-120	23-OCT-19
Magnesium (Mg)-Total			104.2		%		80-120	23-OCT-19
Manganese (Mn)-Total			107.8		%		80-120	23-OCT-19
Molybdenum (Mo)-Total			106.9		%		80-120	23-OCT-19
Nickel (Ni)-Total			102.4		%		80-120	23-OCT-19
Potassium (K)-Total			106.9		%		80-120	23-OCT-19
Phosphorus (P)-Total			110.4		%		80-120	23-OCT-19
Rubidium (Rb)-Total			103.2		%		80-120	23-OCT-19
Selenium (Se)-Total			99.9		%		80-120	23-OCT-19
Silicon (Si)-Total			113.9		%		80-120	23-OCT-19
Silver (Ag)-Total			110.3		%		80-120	23-OCT-19
Sodium (Na)-Total			111.0		%		80-120	23-OCT-19
Strontium (Sr)-Total			109.0		%		80-120	23-OCT-19
Sulfur (S)-Total			116.5		%		80-120	23-OCT-19
Tellurium (Te)-Total			95.1		%		80-120	23-OCT-19
Thallium (Tl)-Total			104.5		%		80-120	23-OCT-19
Thorium (Th)-Total			95.6		%		80-120	23-OCT-19
Tin (Sn)-Total			105.1		%		80-120	23-OCT-19
Titanium (Ti)-Total			99.1		%		80-120	23-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4883734								
WG3198801-2 LCS								
Tungsten (W)-Total			105.3		%		80-120	23-OCT-19
Uranium (U)-Total			98.2		%		80-120	23-OCT-19
Vanadium (V)-Total			103.9		%		80-120	23-OCT-19
Zinc (Zn)-Total			102.9		%		80-120	23-OCT-19
Zirconium (Zr)-Total			101.3		%		80-120	23-OCT-19
WG3198801-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-OCT-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	23-OCT-19
Boron (B)-Total			<0.010		mg/L		0.01	23-OCT-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-OCT-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-OCT-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	23-OCT-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	23-OCT-19
Iron (Fe)-Total			<0.010		mg/L		0.01	23-OCT-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-OCT-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	23-OCT-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-OCT-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-OCT-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	23-OCT-19
Potassium (K)-Total			<0.050		mg/L		0.05	23-OCT-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	23-OCT-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	23-OCT-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-OCT-19
Silicon (Si)-Total			<0.10		mg/L		0.1	23-OCT-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-OCT-19
Sodium (Na)-Total			<0.050		mg/L		0.05	23-OCT-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	23-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4883734								
WG3198801-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	23-OCT-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	23-OCT-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-OCT-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-OCT-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	23-OCT-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-OCT-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-OCT-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-OCT-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	23-OCT-19
Batch R4883807								
WG3200181-2 LCS								
Aluminum (Al)-Total			104.9		%		80-120	24-OCT-19
Antimony (Sb)-Total			104.6		%		80-120	24-OCT-19
Arsenic (As)-Total			105.0		%		80-120	24-OCT-19
Barium (Ba)-Total			103.3		%		80-120	24-OCT-19
Beryllium (Be)-Total			104.2		%		80-120	24-OCT-19
Bismuth (Bi)-Total			100.8		%		80-120	24-OCT-19
Boron (B)-Total			105.0		%		80-120	24-OCT-19
Cadmium (Cd)-Total			102.3		%		80-120	24-OCT-19
Calcium (Ca)-Total			103.9		%		80-120	24-OCT-19
Cesium (Cs)-Total			111.5		%		80-120	24-OCT-19
Chromium (Cr)-Total			106.7		%		80-120	24-OCT-19
Cobalt (Co)-Total			104.4		%		80-120	24-OCT-19
Copper (Cu)-Total			105.5		%		80-120	24-OCT-19
Iron (Fe)-Total			97.5		%		80-120	24-OCT-19
Lead (Pb)-Total			99.9		%		80-120	24-OCT-19
Lithium (Li)-Total			105.6		%		80-120	24-OCT-19
Magnesium (Mg)-Total			115.8		%		80-120	24-OCT-19
Manganese (Mn)-Total			105.7		%		80-120	24-OCT-19
Molybdenum (Mo)-Total			107.5		%		80-120	24-OCT-19
Nickel (Ni)-Total			103.1		%		80-120	24-OCT-19
Potassium (K)-Total			108.3		%		80-120	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4883807								
WG3200181-2 LCS								
Phosphorus (P)-Total			104.0		%		80-120	24-OCT-19
Rubidium (Rb)-Total			107.7		%		80-120	24-OCT-19
Selenium (Se)-Total			102.1		%		80-120	24-OCT-19
Silicon (Si)-Total			101.0		%		80-120	24-OCT-19
Silver (Ag)-Total			104.8		%		80-120	24-OCT-19
Sodium (Na)-Total			107.6		%		80-120	24-OCT-19
Strontium (Sr)-Total			109.4		%		80-120	24-OCT-19
Sulfur (S)-Total			103.8		%		80-120	24-OCT-19
Tellurium (Te)-Total			93.0		%		80-120	24-OCT-19
Thallium (Tl)-Total			98.6		%		80-120	24-OCT-19
Thorium (Th)-Total			97.6		%		80-120	24-OCT-19
Tin (Sn)-Total			102.1		%		80-120	24-OCT-19
Titanium (Ti)-Total			101.4		%		80-120	24-OCT-19
Tungsten (W)-Total			102.4		%		80-120	24-OCT-19
Uranium (U)-Total			108.4		%		80-120	24-OCT-19
Vanadium (V)-Total			106.3		%		80-120	24-OCT-19
Zinc (Zn)-Total			105.1		%		80-120	24-OCT-19
Zirconium (Zr)-Total			101.5		%		80-120	24-OCT-19
WG3200181-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	24-OCT-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	24-OCT-19
Boron (B)-Total			<0.010		mg/L		0.01	24-OCT-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	24-OCT-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	24-OCT-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	24-OCT-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	24-OCT-19
Iron (Fe)-Total			<0.010		mg/L		0.01	24-OCT-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	24-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R4883807								
WG3200181-1 MB								
Lithium (Li)-Total			<0.0010		mg/L		0.001	24-OCT-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	24-OCT-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	24-OCT-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	24-OCT-19
Potassium (K)-Total			<0.050		mg/L		0.05	24-OCT-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	24-OCT-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	24-OCT-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	24-OCT-19
Silicon (Si)-Total			<0.10		mg/L		0.1	24-OCT-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	24-OCT-19
Sodium (Na)-Total			<0.050		mg/L		0.05	24-OCT-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	24-OCT-19
Sulfur (S)-Total			<0.50		mg/L		0.5	24-OCT-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	24-OCT-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	24-OCT-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	24-OCT-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	24-OCT-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	24-OCT-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	24-OCT-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	24-OCT-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	24-OCT-19
N-TOTKJ-WP	**Water**							
Batch R4871956								
WG3190696-7 DUP		**L2362912-9**						
Total Kjeldahl Nitrogen		<0.20	<0.20	RPD-NA	mg/L	N/A	20	16-OCT-19
WG3190696-2 LCS								
Total Kjeldahl Nitrogen			99.6		%		75-125	16-OCT-19
WG3190696-6 LCS								
Total Kjeldahl Nitrogen			96.1		%		75-125	16-OCT-19
WG3190696-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	16-OCT-19
WG3190696-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOTKJ-WP	**Water**							
Batch R4871956								
WG3190696-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	16-OCT-19
WG3190696-8 MS		**L2362912-9**						
Total Kjeldahl Nitrogen			104.6		%		70-130	16-OCT-19
NH3-COL-WP	**Water**							
Batch R4873241								
WG3193729-42 LCS								
Ammonia, Total (as N)			98.7		%		85-115	15-OCT-19
WG3193729-46 LCS								
Ammonia, Total (as N)			101.7		%		85-115	15-OCT-19
WG3193729-41 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	16-OCT-19
WG3193729-45 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	16-OCT-19
Batch R4876155								
WG3196889-2 LCS								
Ammonia, Total (as N)			99.0		%		85-115	18-OCT-19
WG3196889-6 LCS								
Ammonia, Total (as N)			99.2		%		85-115	18-OCT-19
WG3196889-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	18-OCT-19
WG3196889-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	18-OCT-19
NO2-IC-N-WP	**Water**							
Batch R4871134								
WG3188133-10 LCS								
Nitrite (as N)			100.1		%		90-110	11-OCT-19
WG3188133-6 LCS								
Nitrite (as N)			100.5		%		90-110	11-OCT-19
WG3188133-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	11-OCT-19
WG3188133-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	11-OCT-19
Batch R4871591								
WG3187983-10 LCS								
Nitrite (as N)			102.8		%		90-110	11-OCT-19
WG3187983-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	11-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-WP	**Water**							
Batch R4871134								
WG3188133-10 LCS								
Nitrate (as N)			99.9		%		90-110	11-OCT-19
WG3188133-6 LCS								
Nitrate (as N)			99.4		%		90-110	11-OCT-19
WG3188133-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	11-OCT-19
WG3188133-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	11-OCT-19
Batch R4871591								
WG3187983-10 LCS								
Nitrate (as N)			99.4		%		90-110	11-OCT-19
WG3187983-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	11-OCT-19
P-T-COL-WP	**Water**							
Batch R4873978								
WG3192662-7 DUP		**L2362912-20**						
Phosphorus (P)-Total		0.0577	0.0514		mg/L	12	20	18-OCT-19
WG3192662-2 LCS								
Phosphorus (P)-Total			100.7		%		80-120	18-OCT-19
WG3192662-6 LCS								
Phosphorus (P)-Total			99.6		%		80-120	18-OCT-19
WG3192662-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	18-OCT-19
WG3192662-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	18-OCT-19
WG3192662-4 MS		**L2362912-1**						
Phosphorus (P)-Total			103.5		%		70-130	18-OCT-19
WG3192662-8 MS		**L2362912-21**						
Phosphorus (P)-Total			96.3		%		70-130	18-OCT-19
P-TD-COL-WP	**Water**							
Batch R4873658								
WG3192676-3 DUP		**L2362912-1**						
Phosphorus (P)-Total	Dissolved	0.0057	0.0058		mg/L	1.0	20	17-OCT-19
WG3192676-7 DUP		**L2362912-21**						
Phosphorus (P)-Total	Dissolved	0.0216	0.0225		mg/L	4.2	20	17-OCT-19
WG3192676-2 LCS								
Phosphorus (P)-Total	Dissolved		99.8		%		80-120	17-OCT-19
WG3192676-6 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-WP	**Water**							
Batch R4873658								
WG3192676-6 LCS								
Phosphorus (P)-Total	Dissolved		100.7		%		80-120	17-OCT-19
WG3192676-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	17-OCT-19
WG3192676-5 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	17-OCT-19
WG3192676-4 MS		**L2362912-2**						
Phosphorus (P)-Total	Dissolved		99.5		%		70-130	17-OCT-19
SO4-IC-N-WP	**Water**							
Batch R4871134								
WG3188133-10 LCS								
Sulfate (SO4)			99.2		%		90-110	11-OCT-19
WG3188133-6 LCS								
Sulfate (SO4)			98.8		%		90-110	11-OCT-19
WG3188133-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	11-OCT-19
WG3188133-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	11-OCT-19
Batch R4871591								
WG3187983-10 LCS								
Sulfate (SO4)			100.5		%		90-110	11-OCT-19
WG3187983-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	11-OCT-19
SOLIDS-TOTSUS-WP	**Water**							
Batch R4869806								
WG3188647-19 DUP		**L2362912-5**						
Total Suspended Solids		<2.0	<2.0	RPD-NA	mg/L	N/A	20	11-OCT-19
WG3188647-14 LCS								
Total Suspended Solids			101.6		%		85-115	11-OCT-19
WG3188647-18 LCS								
Total Suspended Solids			101.5		%		85-115	11-OCT-19
WG3188647-13 MB								
Total Suspended Solids			<2.0		mg/L		2	11-OCT-19
WG3188647-17 MB								
Total Suspended Solids			<2.0		mg/L		2	11-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-WP	**Water**							
Batch R4871596								
WG3189007-10 LCS								
Total Suspended Solids			106.7		%		85-115	15-OCT-19
WG3189007-9 MB								
Total Suspended Solids			<2.0		mg/L		2	15-OCT-19
Batch R4872977								
WG3191288-2 LCS								
Total Suspended Solids			110.5		%		85-115	16-OCT-19
WG3191288-1 MB								
Total Suspended Solids			<2.0		mg/L		2	16-OCT-19
TC,EC-QT97-WP	**Water**							
Batch R4866319								
WG3187033-3 DUP		**L2362912-21**						
Total Coliforms		>2420	>2420		MPN/100mL	0.0	65	09-OCT-19
Escherichia Coli		1200	866		MPN/100mL	33	65	09-OCT-19
WG3187033-4 DUP		**L2362912-1**						
Total Coliforms		20	18		MPN/100mL	13	65	09-OCT-19
Escherichia Coli		1	<1	RPD-NA	MPN/100mL	N/A	65	09-OCT-19
WG3187033-1 MB								
Total Coliforms			<1		MPN/100mL		1	09-OCT-19
Escherichia Coli			<1		MPN/100mL		1	09-OCT-19
WG3187033-2 MB								
Total Coliforms			<1		MPN/100mL		1	09-OCT-19
Escherichia Coli			<1		MPN/100mL		1	09-OCT-19
TDS-WP	**Water**							
Batch R4870011								
WG3188652-7 DUP		**L2362912-15**						
Total Dissolved Solids		401	398		mg/L	0.6	20	11-OCT-19
WG3188652-2 LCS								
Total Dissolved Solids			100.7		%		85-115	11-OCT-19
WG3188652-6 LCS								
Total Dissolved Solids			99.5		%		85-115	11-OCT-19
WG3188652-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	11-OCT-19
WG3188652-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	11-OCT-19

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-WP	**Water**							
Batch R4874148								
WG3191111-2 LCS								
Total Dissolved Solids			103.9		%		85-115	15-OCT-19
WG3191111-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	15-OCT-19

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
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrate in Water by IC							
	1	07-OCT-19 13:10	11-OCT-19 10:00	3	4	days	EHTL
	2	07-OCT-19 15:28	11-OCT-19 10:00	3	4	days	EHTL
	3	07-OCT-19 15:56	11-OCT-19 10:30	3	4	days	EHT
	4	07-OCT-19 16:55	11-OCT-19 10:30	3	4	days	EHT
	5	07-OCT-19 18:20	11-OCT-19 10:30	3	4	days	EHT
	6	07-OCT-19	11-OCT-19 10:30	3	4	days	EHTL
Nitrite in Water by IC							
	1	07-OCT-19 13:10	11-OCT-19 10:00	3	4	days	EHTL
	2	07-OCT-19 15:28	11-OCT-19 10:00	3	4	days	EHTL
	3	07-OCT-19 15:56	11-OCT-19 10:30	3	4	days	EHT
	4	07-OCT-19 16:55	11-OCT-19 10:30	3	4	days	EHT
	5	07-OCT-19 18:20	11-OCT-19 10:30	3	4	days	EHT
	6	07-OCT-19	11-OCT-19 10:30	3	4	days	EHTL
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	07-OCT-19 13:10	09-OCT-19 18:55	30	54	hours	EHTR
	2	07-OCT-19 15:28	09-OCT-19 18:55	30	51	hours	EHTR
	3	07-OCT-19 15:56	09-OCT-19 18:55	30	51	hours	EHTR
	4	07-OCT-19 16:55	09-OCT-19 18:55	30	50	hours	EHTR
	5	07-OCT-19 18:20	09-OCT-19 18:55	30	48	hours	EHTR
	6	07-OCT-19	09-OCT-19 18:55	30	55	hours	EHTR
	7	08-OCT-19 08:30	09-OCT-19 18:55	30	34	hours	EHTR
	8	08-OCT-19 09:00	09-OCT-19 18:55	30	34	hours	EHTR
	15	08-OCT-19	09-OCT-19 18:55	30	31	hours	EHTL
Hydrocarbons							
F1-O.Reg 153/04 (July 2011)							
	1	07-OCT-19 13:10	22-OCT-19 09:40	14	15	days	EHT
	2	07-OCT-19 15:28	22-OCT-19 09:31	14	15	days	EHT
	3	07-OCT-19 15:56	22-OCT-19 09:40	14	15	days	EHT
	4	07-OCT-19 16:55	22-OCT-19 09:31	14	15	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 L2362912 were received on 09-OCT-19 15:08.

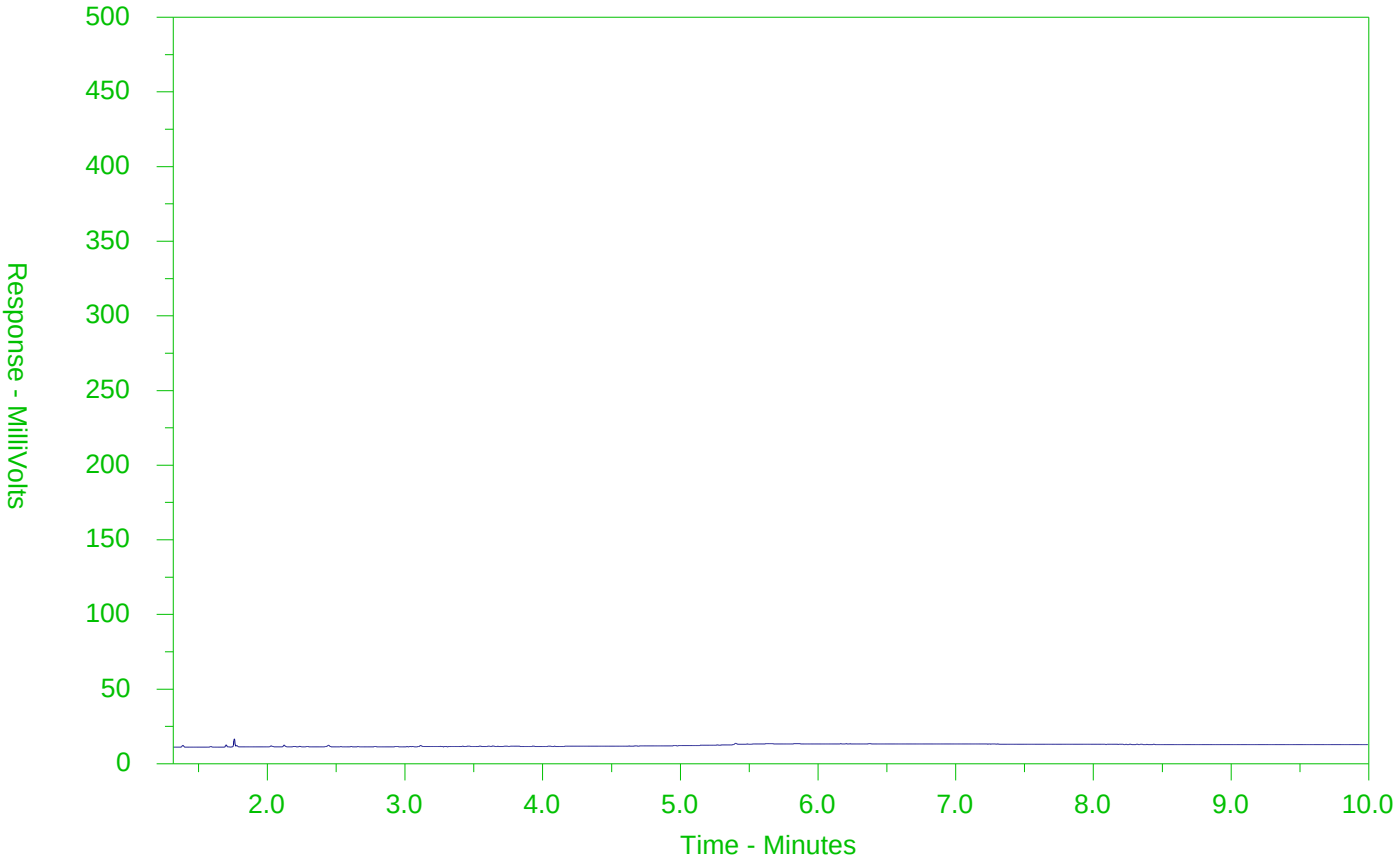
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2362912-1
Client Sample ID: D9



←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.

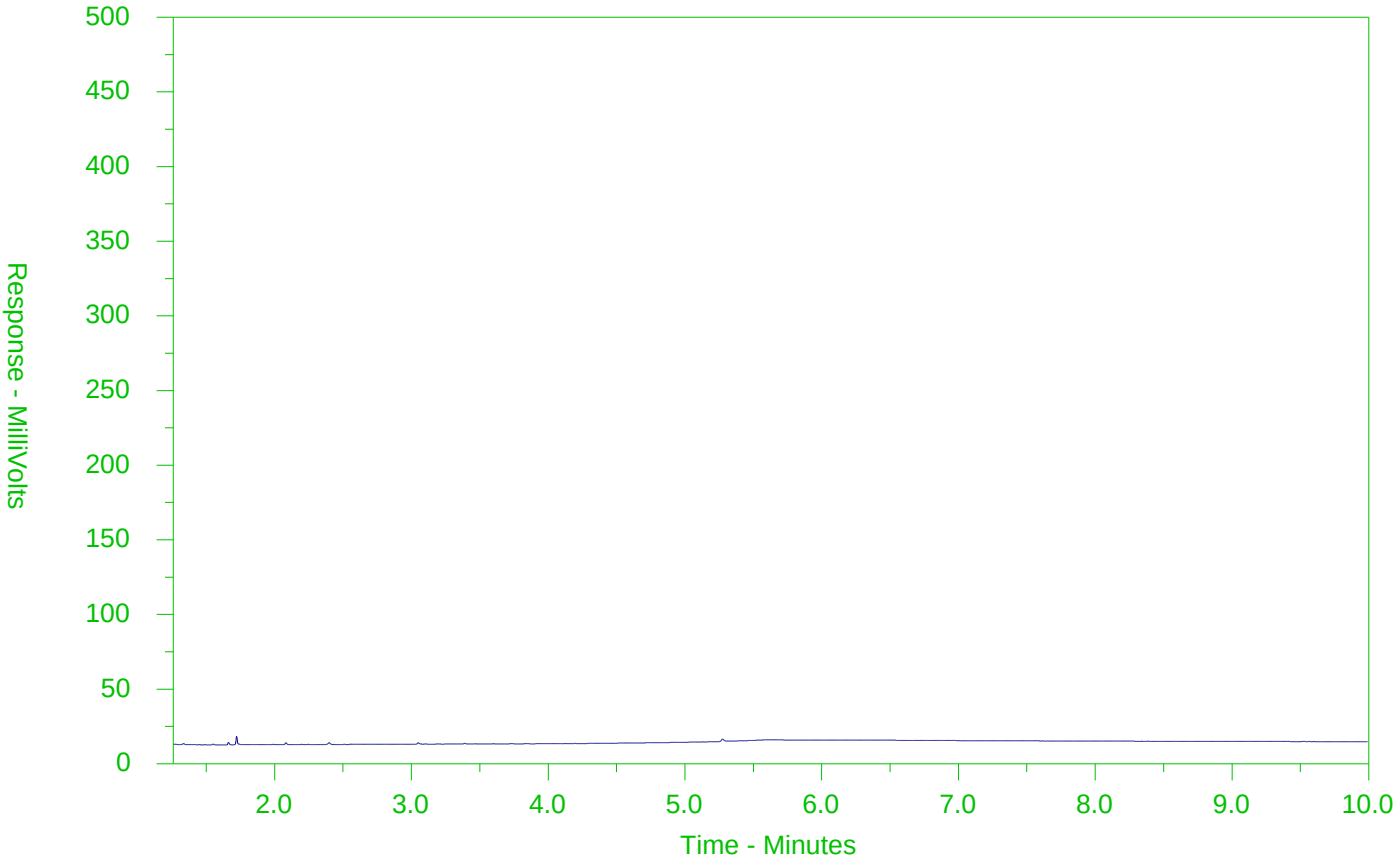
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-2
Client Sample ID: CH19-08



←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.

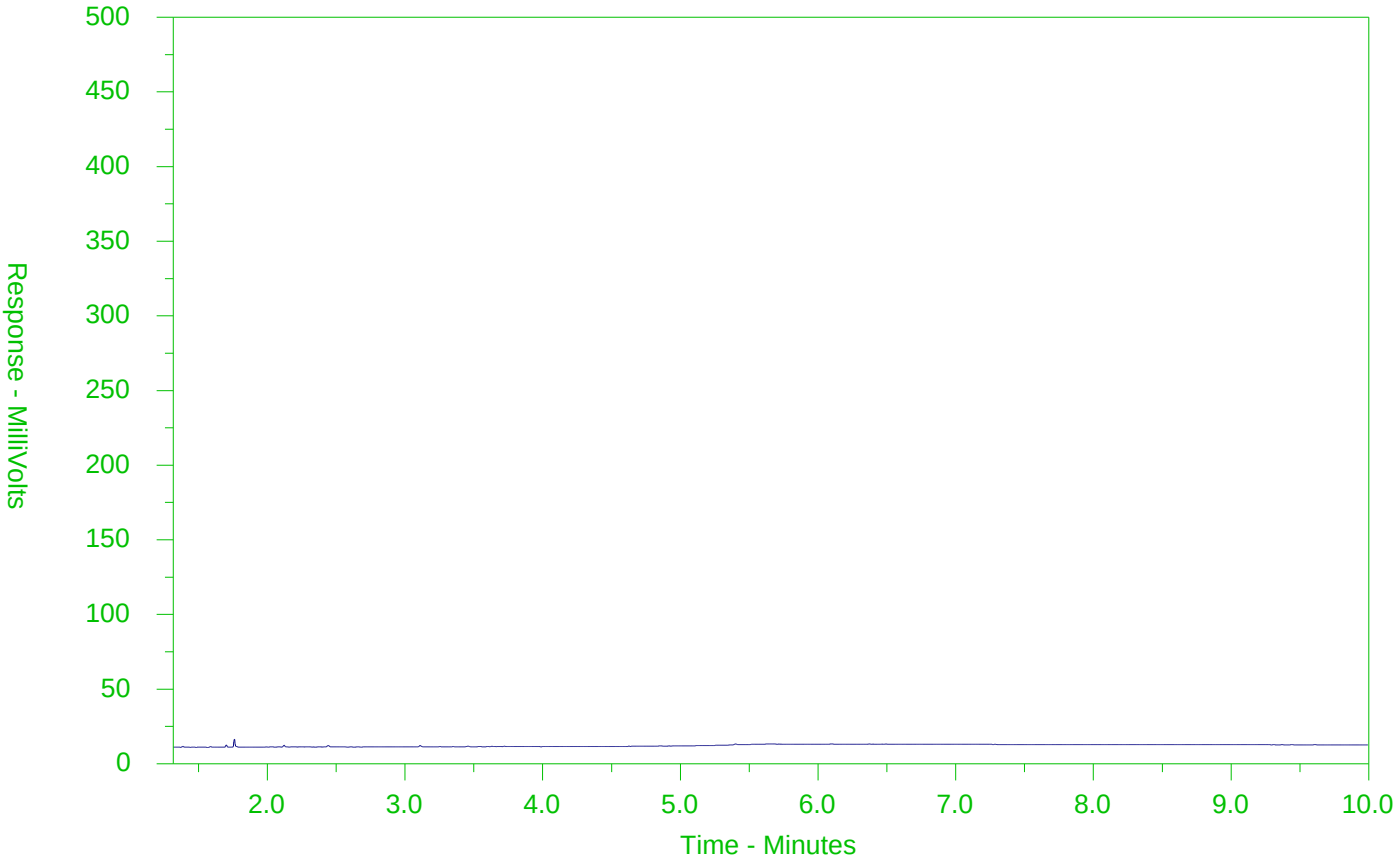
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-3
Client Sample ID: D8



←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.

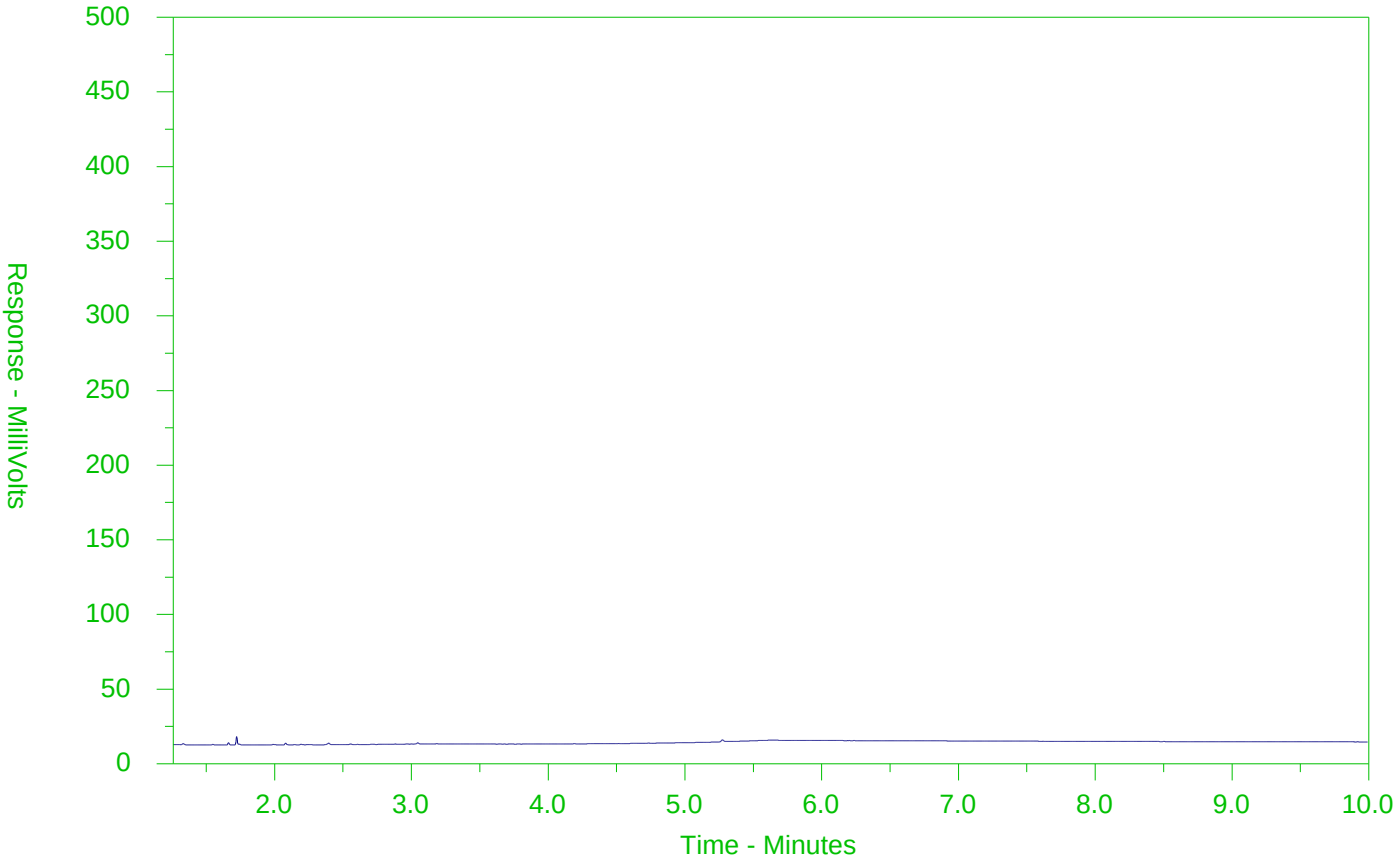
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-4
Client Sample ID: OW19-18



←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.

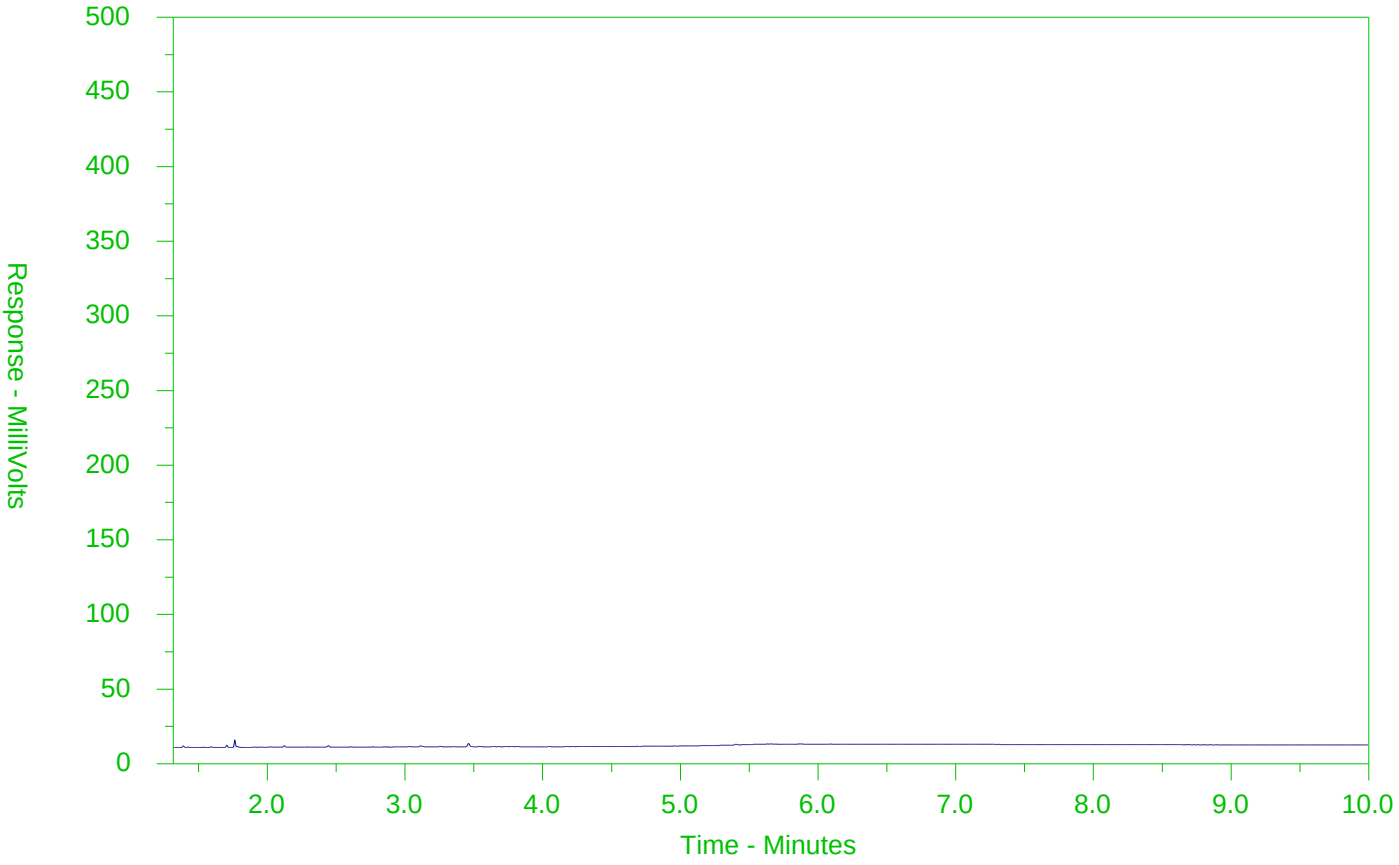
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-5
Client Sample ID: BH19-12



←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.

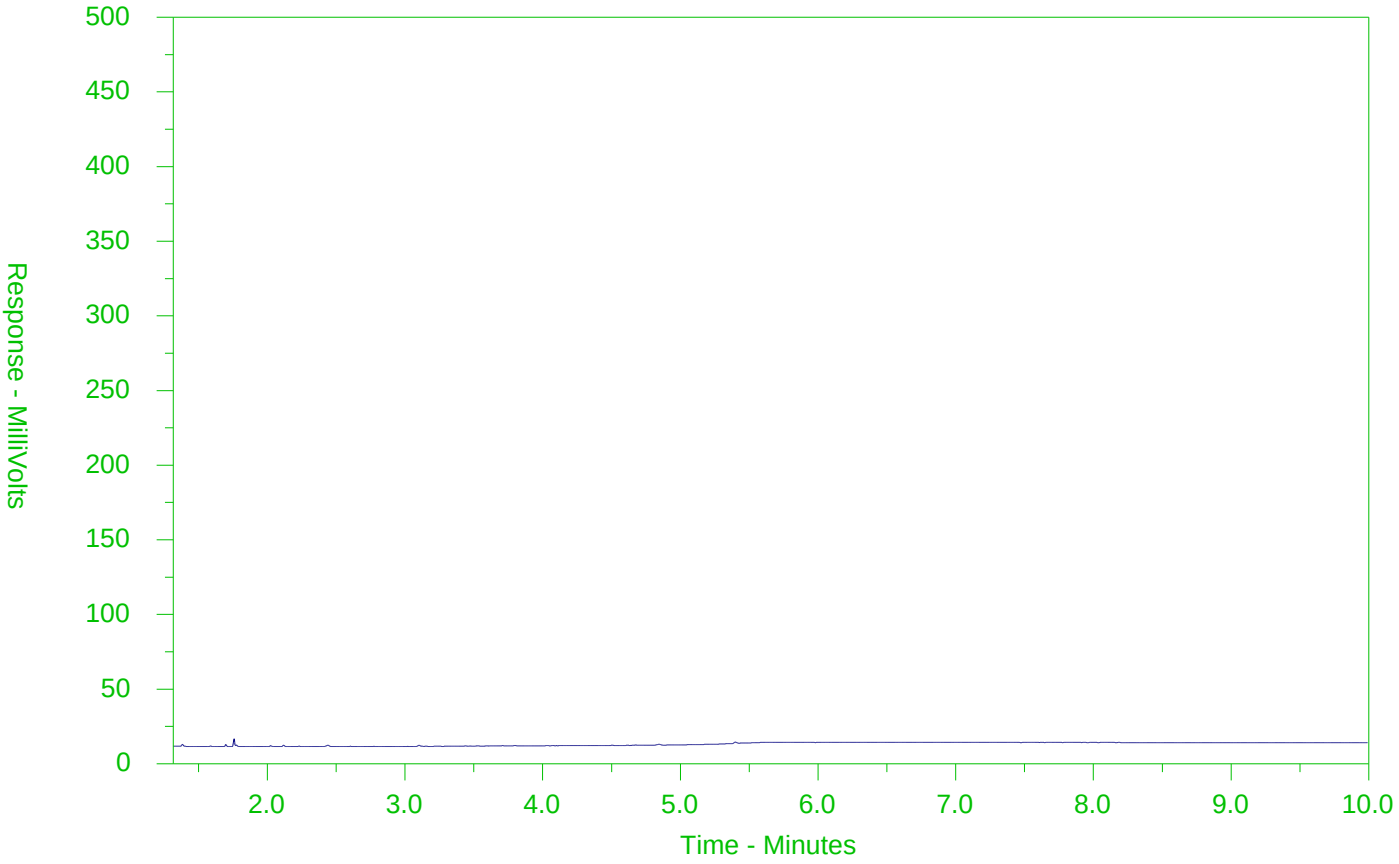
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-6
Client Sample ID: QC-01



←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.

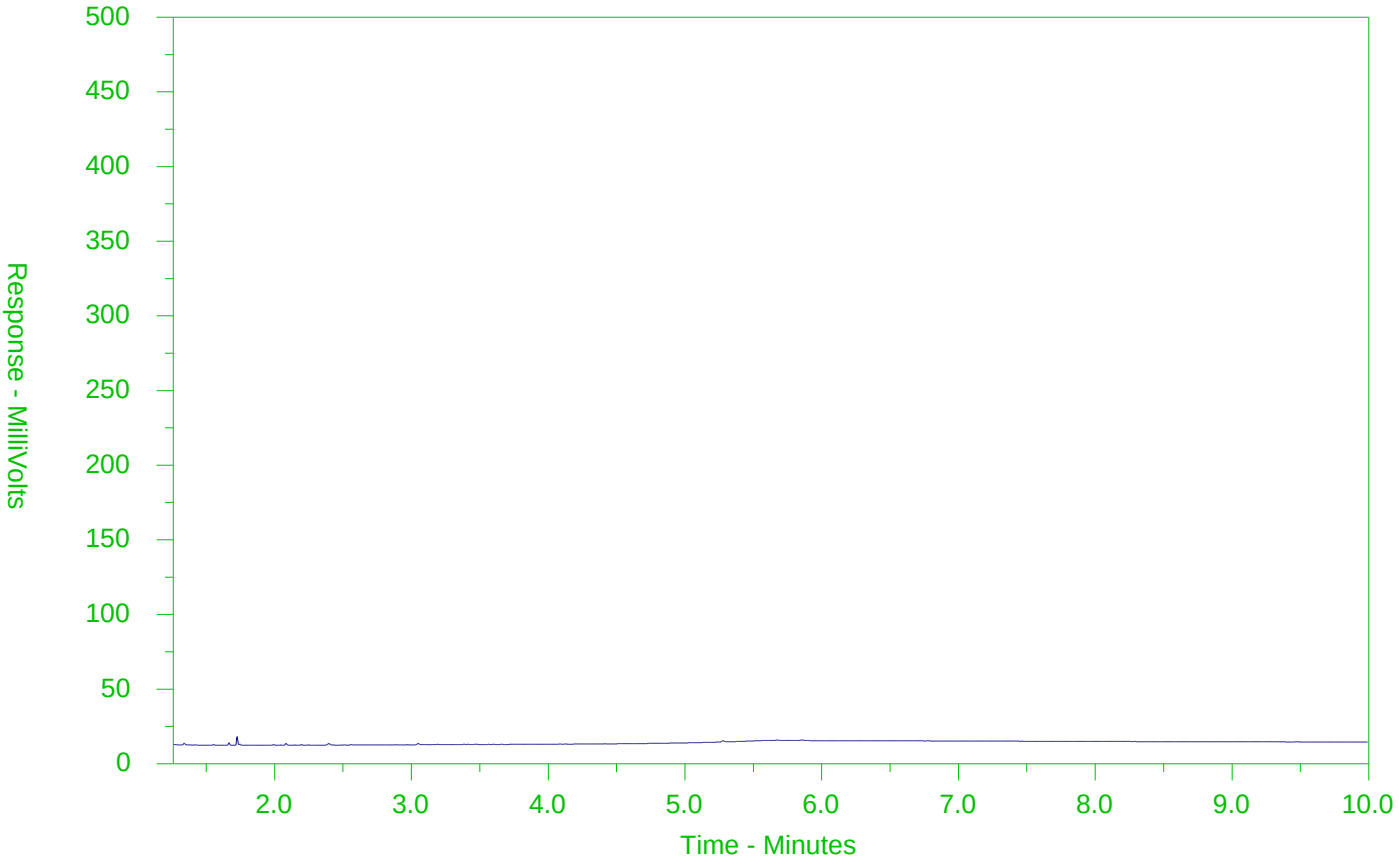
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-7
Client Sample ID: D6



←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.

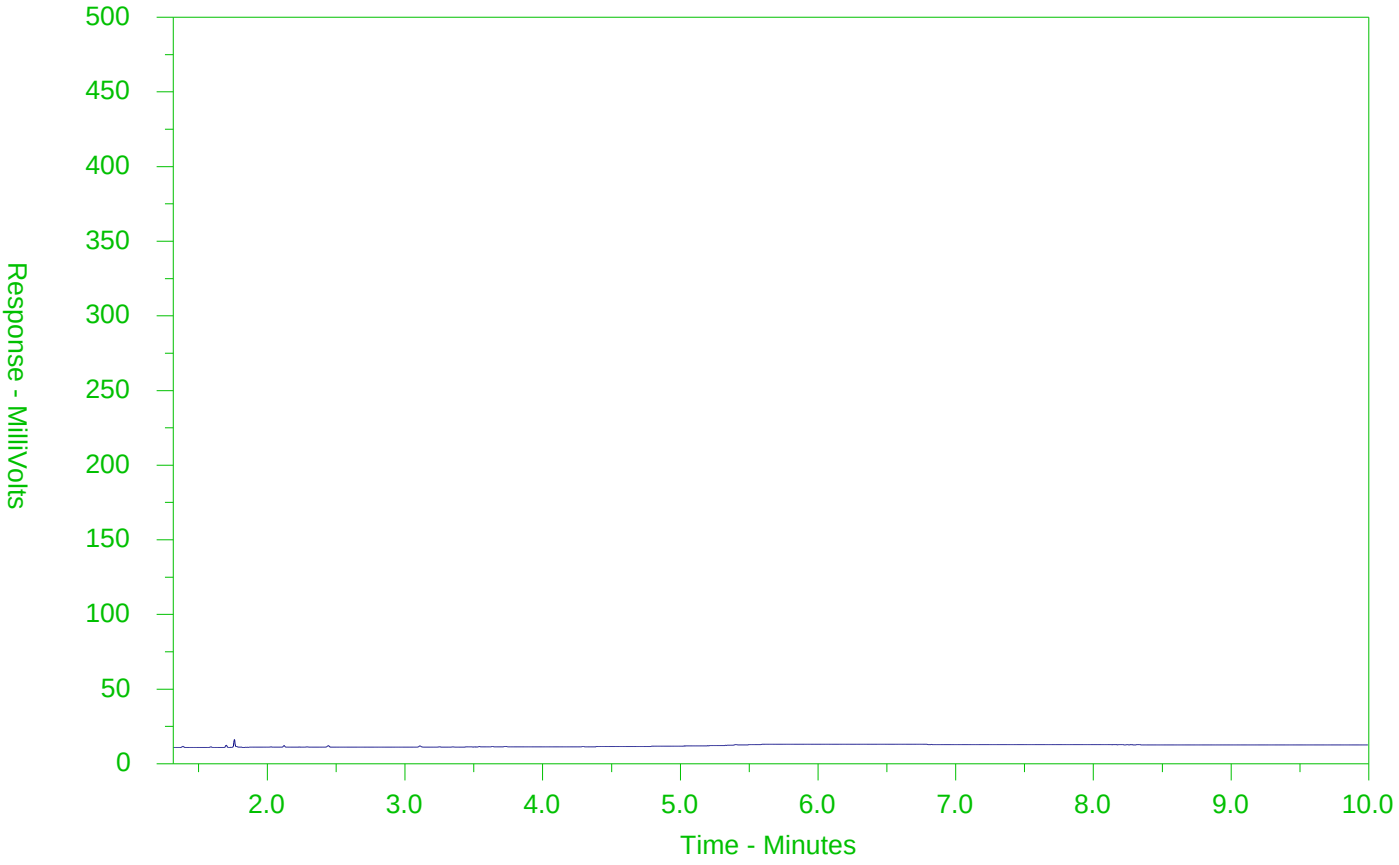
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-8
Client Sample ID: D12



←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.

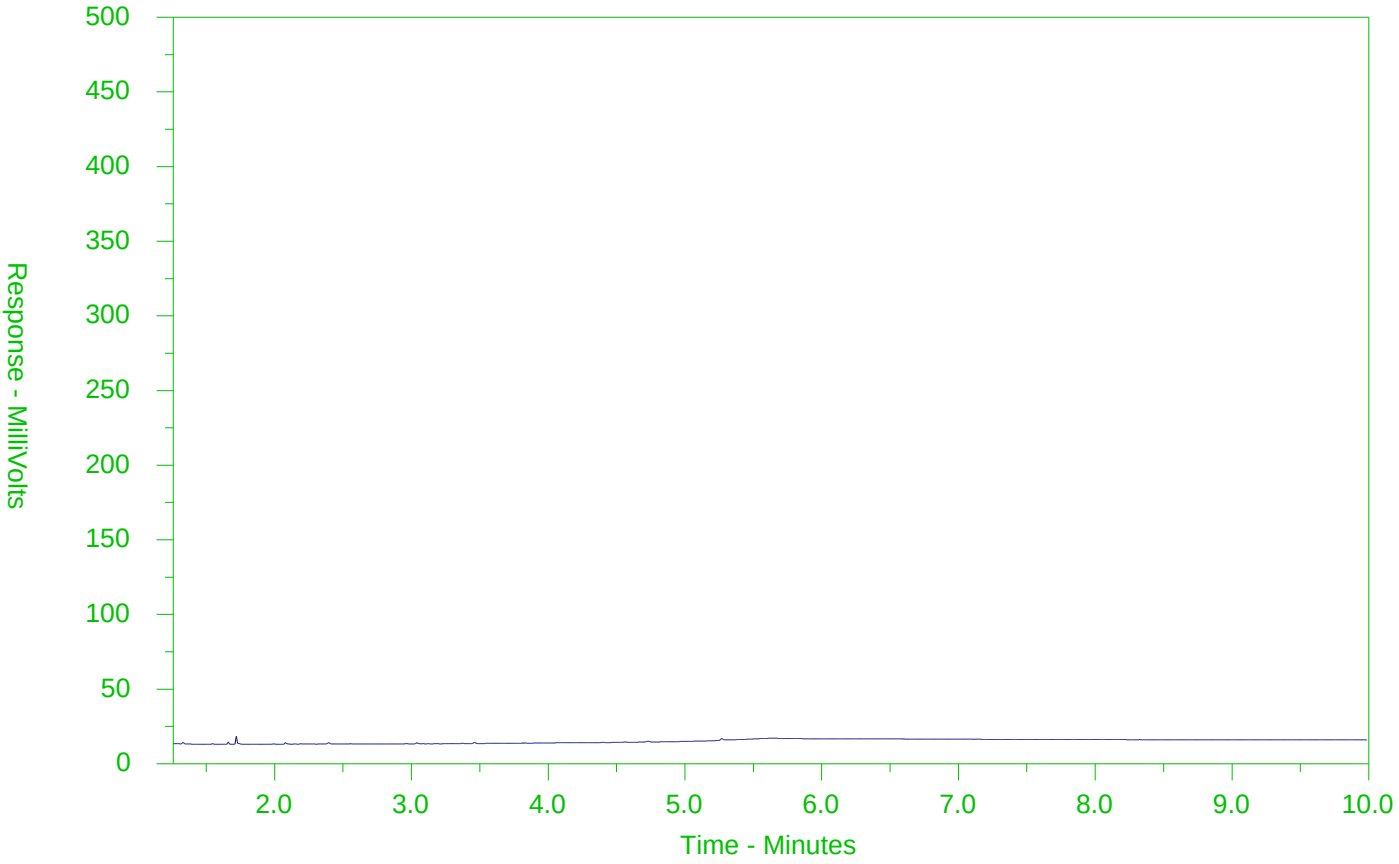
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-9
Client Sample ID: OW19-05



←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.

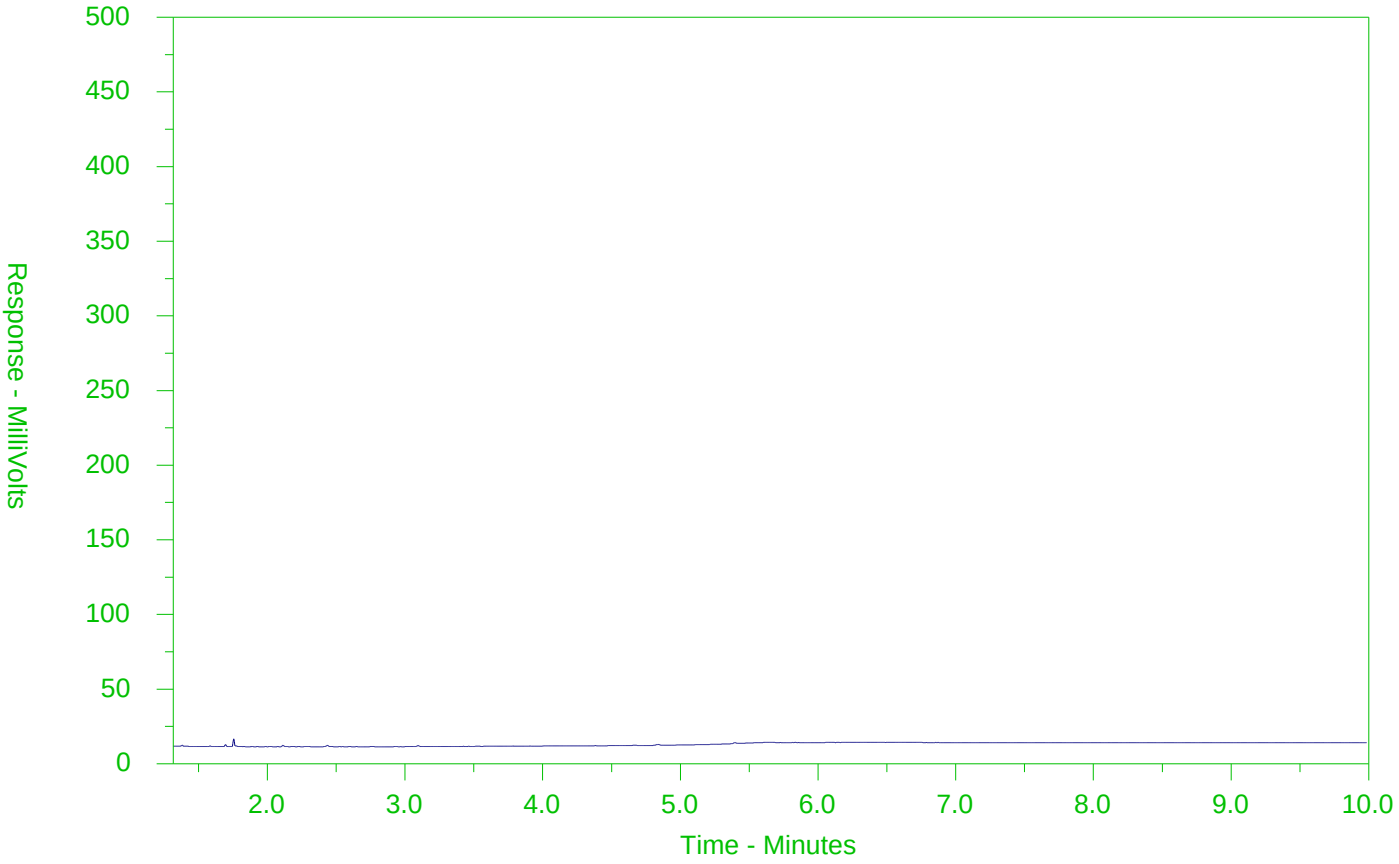
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-10
Client Sample ID: D1



←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.

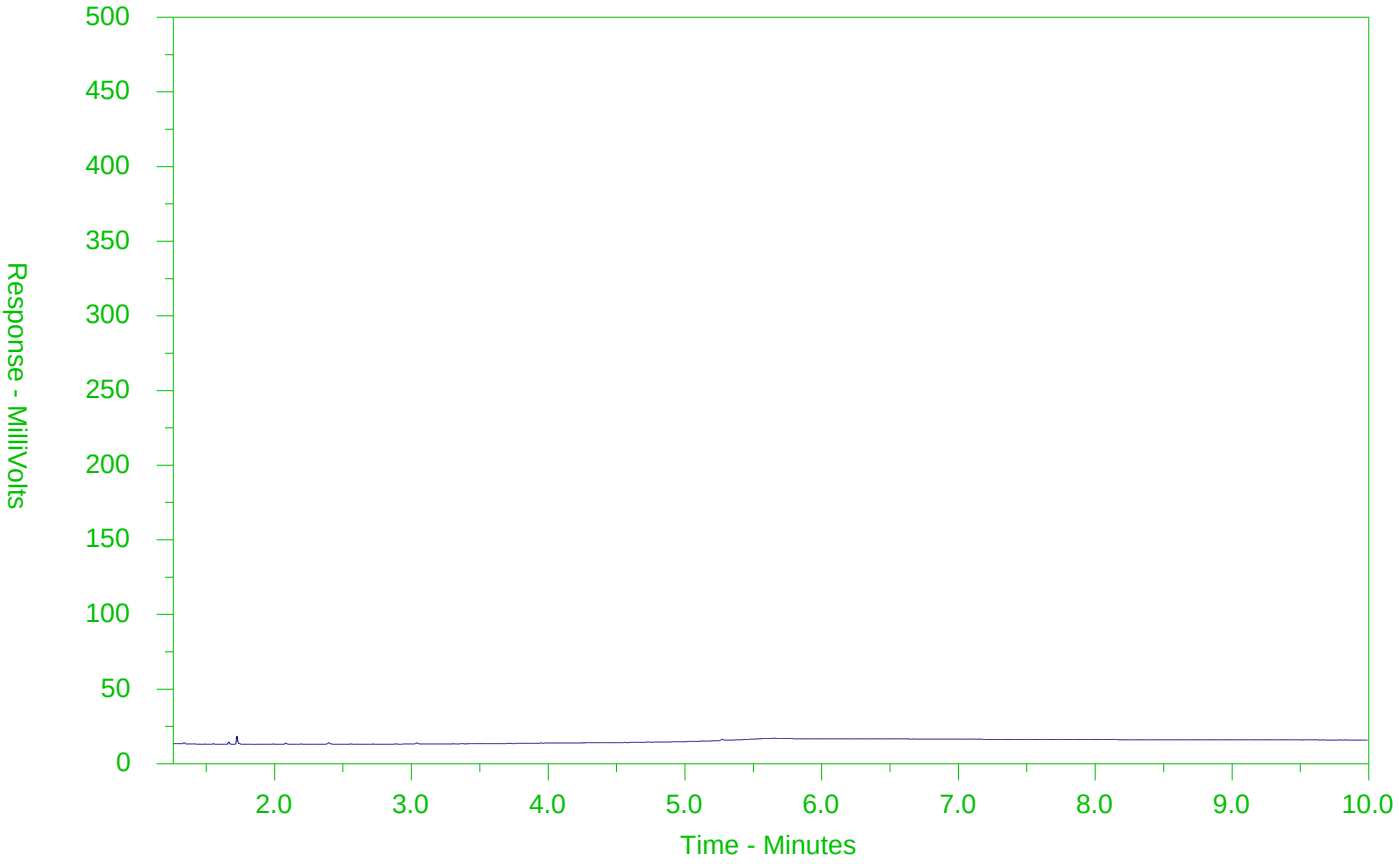
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-11
Client Sample ID: D2



←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.

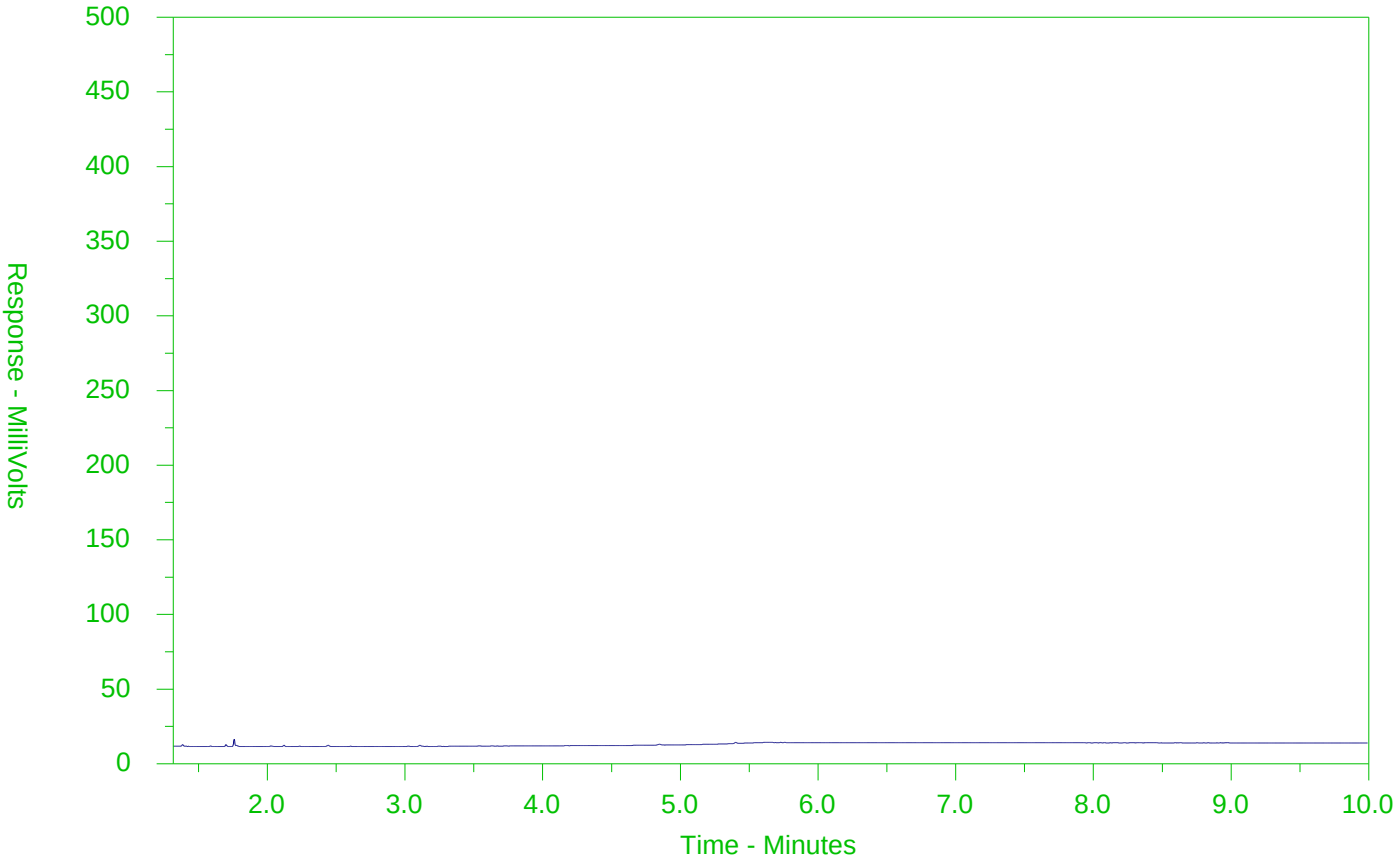
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-12
Client Sample ID: OW19-40



←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.

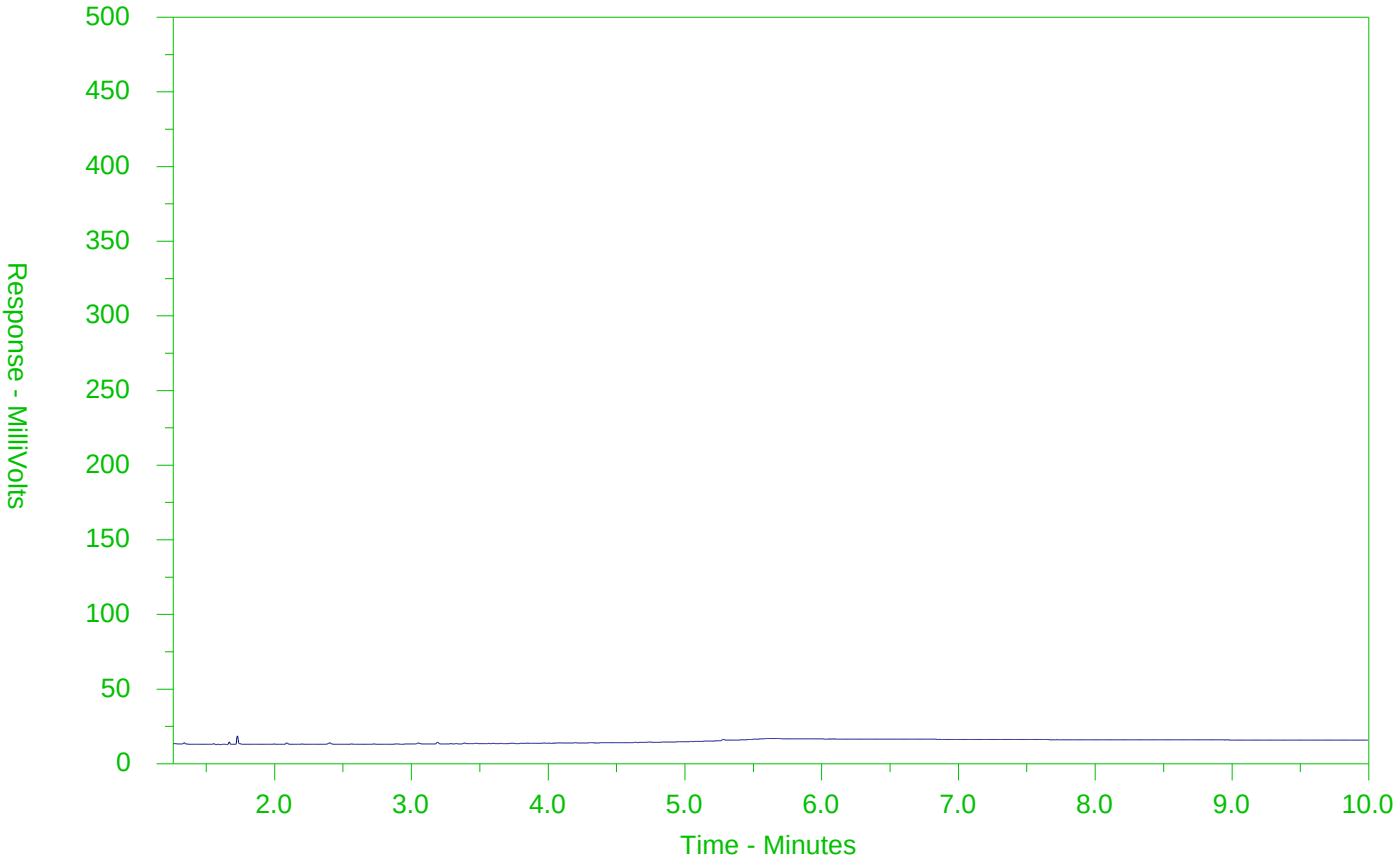
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-13
Client Sample ID: CH19-37



←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.

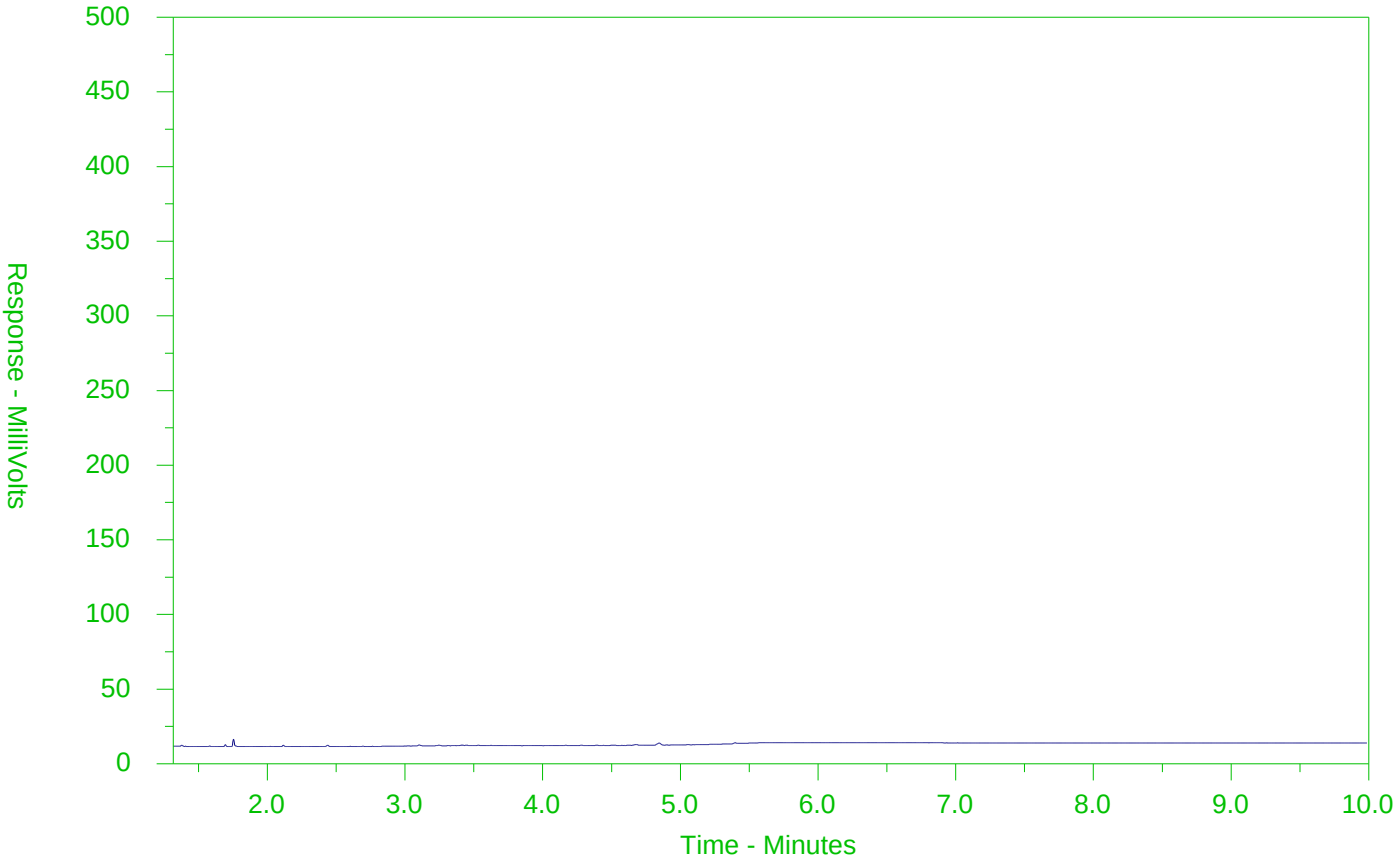
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-14
Client Sample ID: OW19-23



←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.

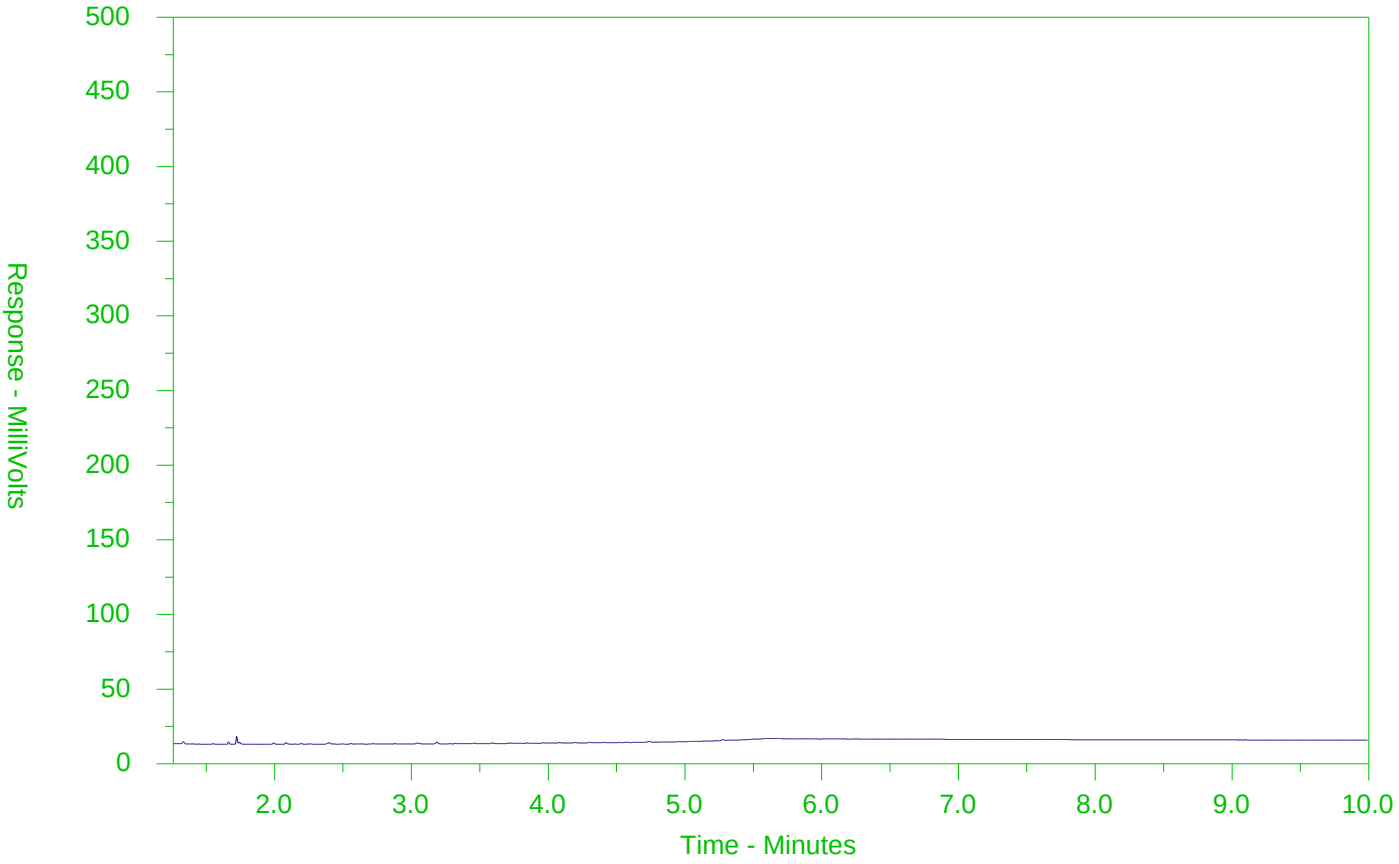
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-15
Client Sample ID: QC-02



←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.

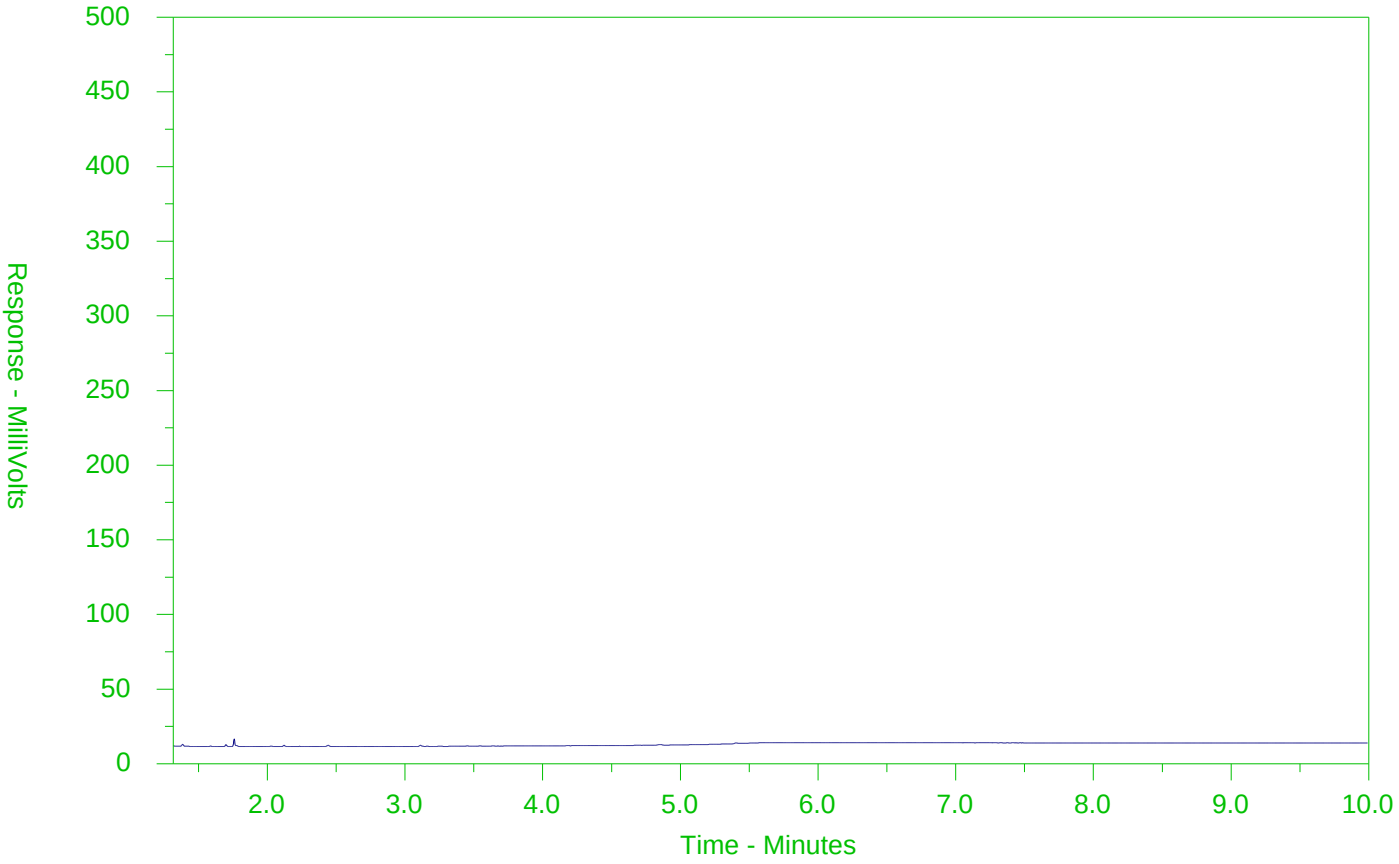
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-16
Client Sample ID: FIELD BLANK



←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.

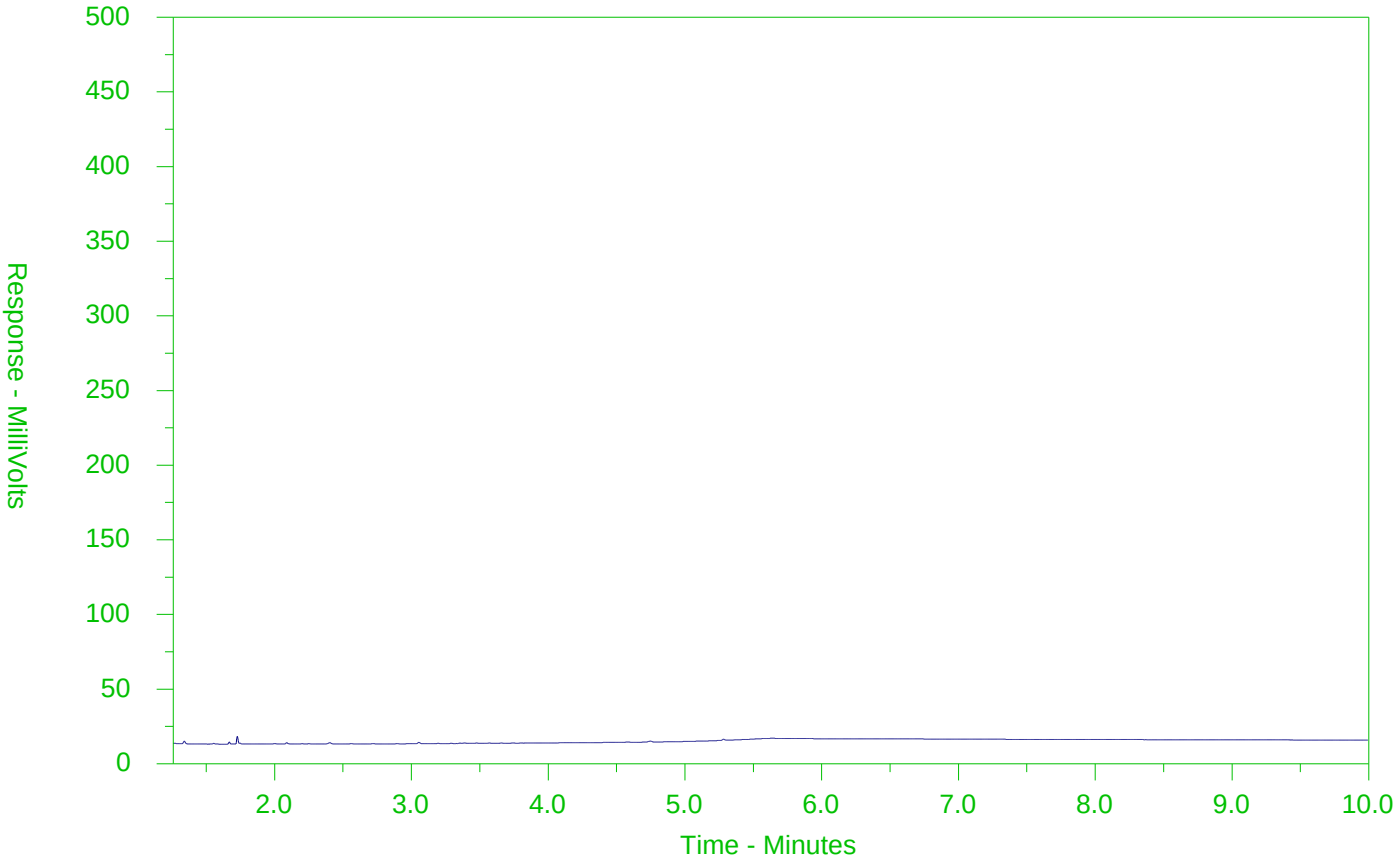
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-17
Client Sample ID: TRIP



←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.

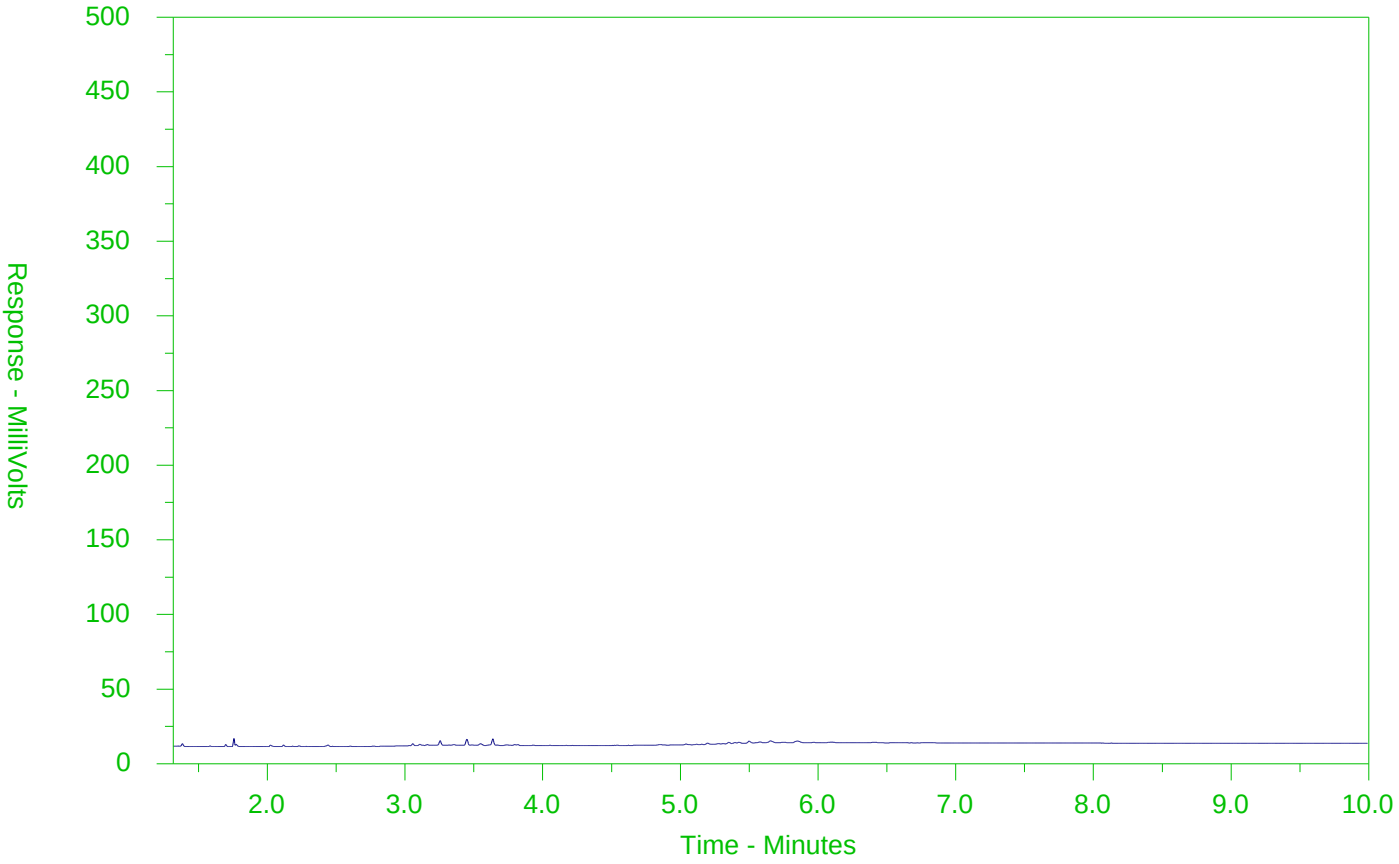
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-18
Client Sample ID: D4



←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.

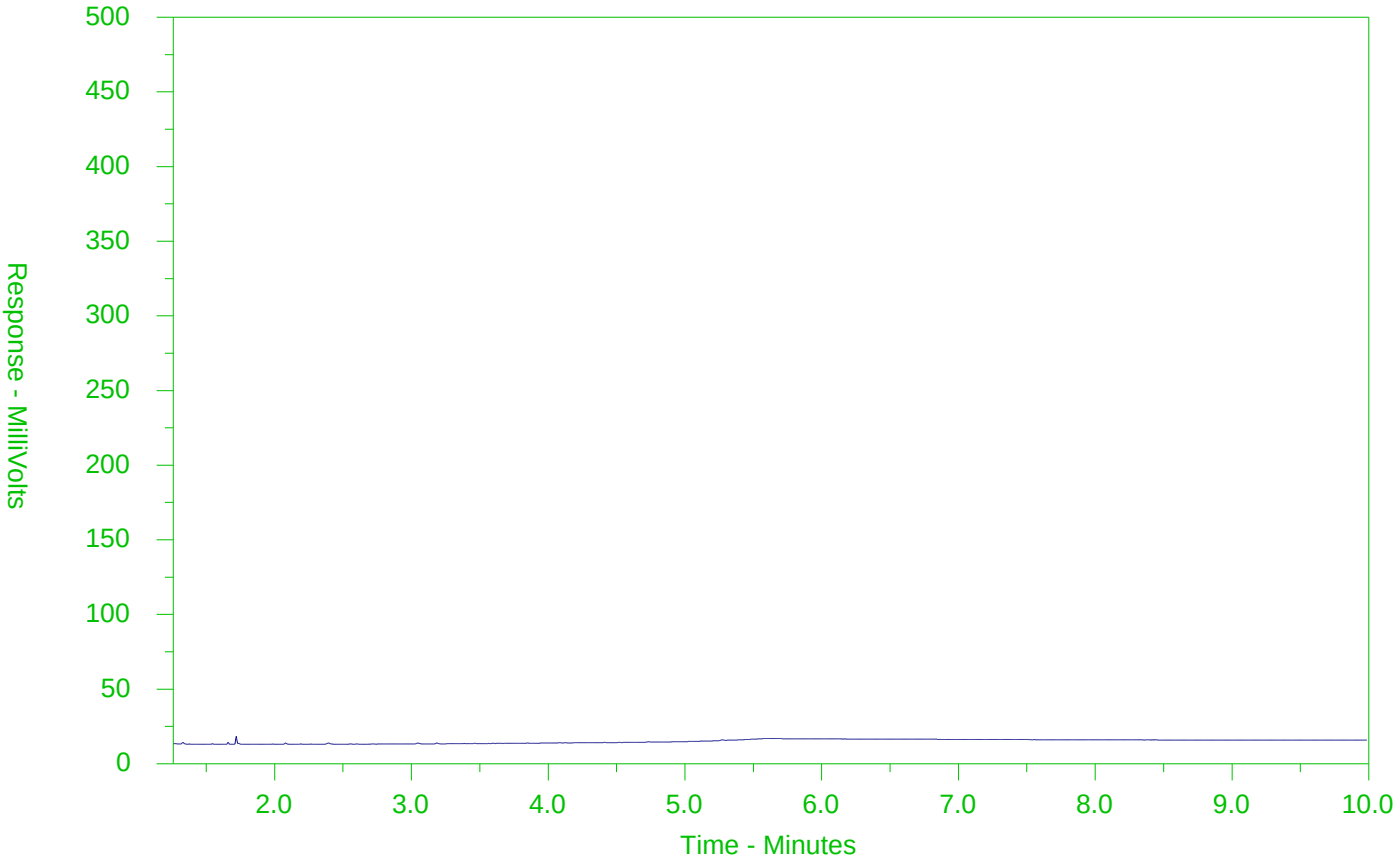
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-19
Client Sample ID: BH19-29



←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.

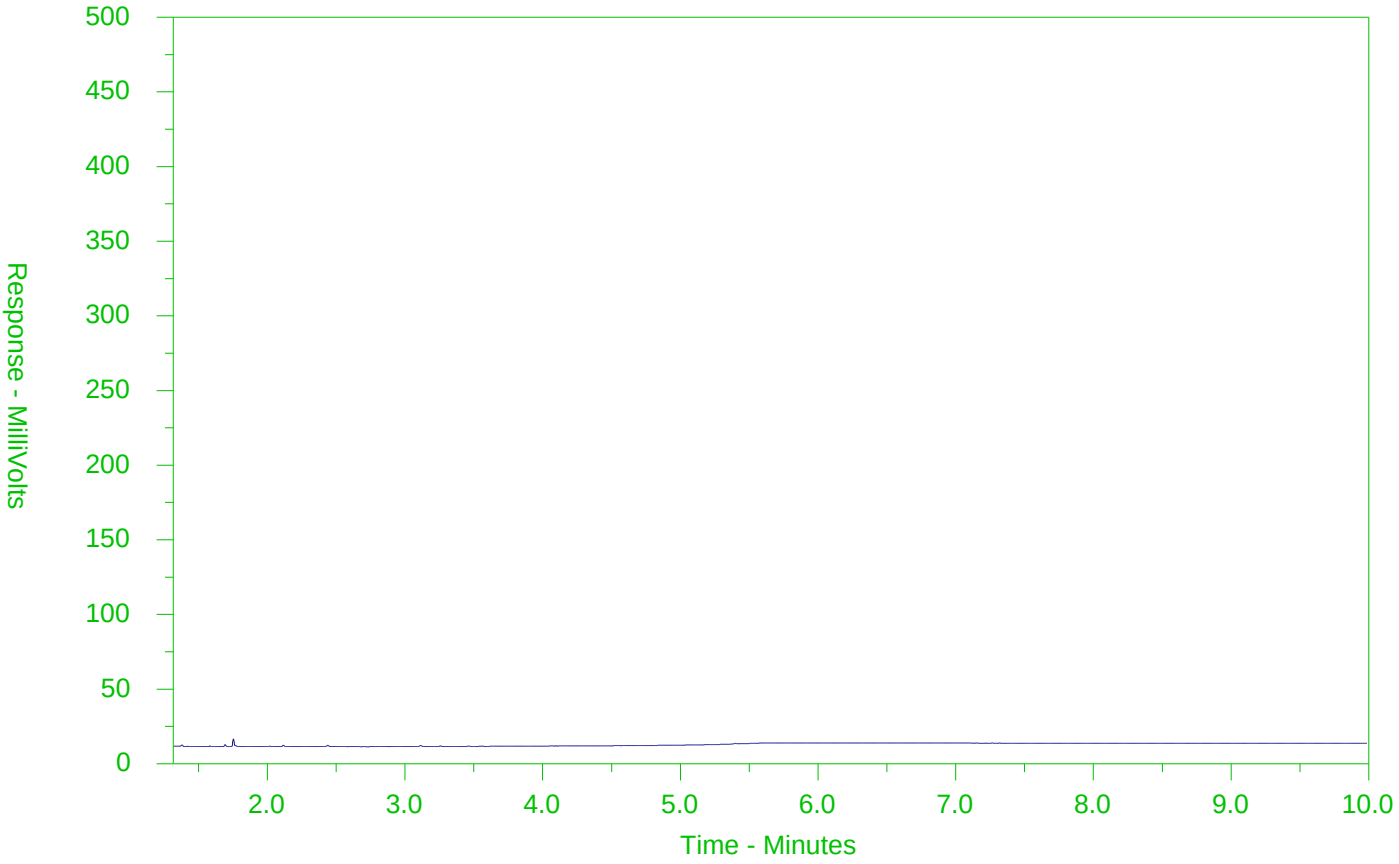
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-20
Client Sample ID: D11



←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.

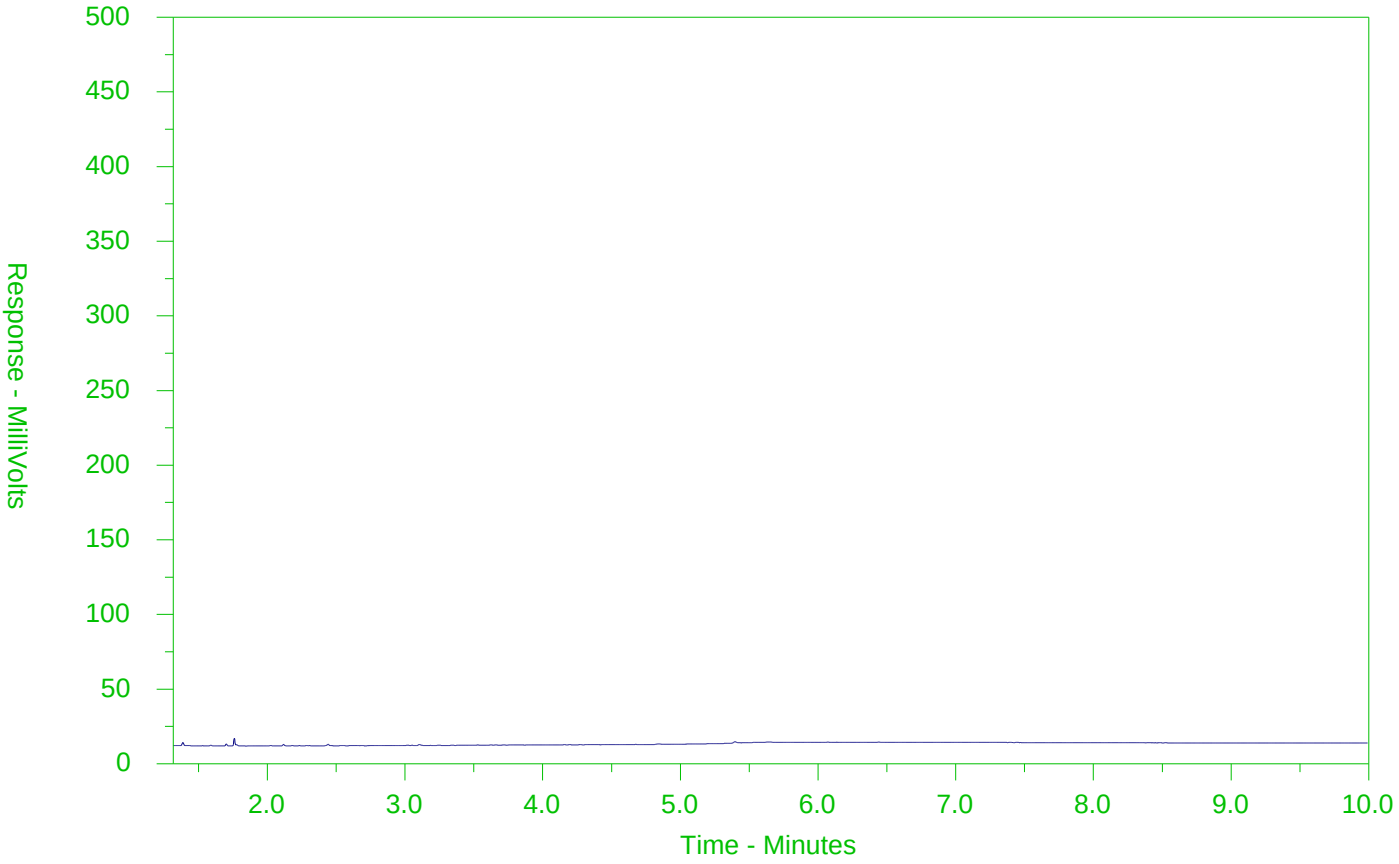
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the 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: L2362912-21
Client Sample ID: D10



←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 the 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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2362912-COFC

COC Number: 17 - 745750

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution
Company:	Stantec	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Contact:	Andrea Knecht	Quality Control (QC) Report with Report ☑ YES ☐ NO
Phone:	204-928-7615	☐ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Street:	500-311 Portage Ave	Email 1 or Fax andrea.knecht@stantec.com
City/Province:	Wpg. MB	Email 2
Postal Code:	R3B 3B9	Email 3
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: BE, ZW

Regular [R] ☑ - Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-TE-V-WP	BTX,ET-F4-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOTKD-WP,NH3-COL-WP	P-T-COL-WP,P-TD-COL-WP	P-PART-CALC-WP	SOLIDS-TOTSUS-WP	TDS-WP	TC+EC-DTGY-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
								(P)	(P)	(F/P)	(F)	(P)	(P)	(P)		(P)			
1	D9	07-10-19	1310	W	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	CH19-08		1528																
3	D8		1556																
4	DW19-18		1655																
5	BH19-18		1830																
6	QC-01		—																
7	D6	08-10-19	0830																
8	D12		0900																
9	DW19-05		1247																
10	D1		1430																
11	D2		1540																
12	DW19-17		~~1558~~ 1658																

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Nutrients - dissolved + metals dissolved filtered in field
Are samples for human consumption/ use? ☐ YES ☐ NO	no labels on most of Trip bottles, left as is.

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.6							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: AL	Date: Oct 9/19	Time: 3:08	Received by:	Date: OCT 09 2019	Time: 929

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2362912-COFC

COC Number: 17 - 745751

Page 2 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	
Company:	Stantec	Select Report Format:	PDF ☑ EXCEL ☑ EDD (DIGITAL) ☑
Contact:	Andrea Kwasle	Quality Control (QC) Report with Report	YES ☑ NO ☐
Phone:	204-928-7615	Compare Results to Criteria on Report - provide details below if box checked	☐
	Company address below will appear on the final report	Select Distribution:	EMAIL ☑ MAIL ☐ FAX ☐
Street:	500-311 Portage Ave	Email 1 or Fax	andrea.kwasle@stantec.com
City/Province:	Winnipeg, MB	Email 2	
Postal Code:	R3B 3B9	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution:	EMAIL ☐ MAIL ☐ FAX ☐
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q74061	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: BS, ZW

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

Emergency: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK-SPEC-WP	ANIONS-TC-N-WP	BTX-F1-F4-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	N-TOTKD-WP+NH3-COL-WP	P-T-COL-WP+P-TD-COL-WP	P-TDMET-CALC-WP	SOLIDS-TDTSUS-WP	TDS-WP	TC+EC-DT97-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
								(P)	(P)		(F/P)	(F)	(P)	(P)	(P)		(P)		
13	CH19-37	08-10-19	1818	W	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
14	DUP19-33	"	1919	"															
15	QC-02	"	—	"															
16	Field Blank	09-10-19	0705	"															
17	Trip	"	—	"															
18	DU4	"	0853	"															
19	BH19-39	"	1000	"															
20	DU1	"	1035	"															
21	DUD	"	1055	"															

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	-no labels on most of Trip bottles, leftas is -nutrients dissolved + metals dissolved filtered in field
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐ | Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ | Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.6							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: AR	Date: Oct 9 19	Time: 3:08	Received by:	Date: OCT 09 2019	Time: 329

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Appendix D PREDESIGN GROUNDWATER MONITORING

Table D-1 Summary of Station Information for 2019 Vibrating Wire Transducer Manual Groundwater Level Readings

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW #1403291	15-RD-03A (KGS)	177+30	6/19/2015	5697489.00	530991.00	251.86	10.36	241.50	#N/A	#N/A	#N/A	#N/A	Sand
VW #1404249	15-RD-10A (KGS)	183+90	6/18/2015	5698130.00	531200.00	248.87	7.62	241.25	#N/A	#N/A	#N/A	#N/A	Clay
VW #1602923	TH-GD-06 (KGS)	176+50	10/24/2016	5697400.98	531025.08	251.92	10.67	241.25	#N/A	#N/A	#N/A	#N/A	Till
VW #1602924	TH-GD-05 (KGS)	Outside of ROW	10/17/2016	5693350.95	530617.18	248.66	6.71	241.95	#N/A	#N/A	#N/A	#N/A	Till
VW #1602931	TH-ED-03 (KGS)	Outside of ROW	10/18/2016	5693404.42	529670.69	252.22	6.10	246.12	#N/A	#N/A	#N/A	#N/A	Till
VW #1602932	TH-ED-01P (KGS)	123+10	10/20/2016	5692376.38	530502.82	249.43	6.10	243.34	#N/A	#N/A	#N/A	#N/A	Till
VW #1602935	TH-GD-02 (KGS)	Outside of ROW	10/30/2016	5683632.07	531290.40	248.63	6.91	241.72	#N/A	#N/A	#N/A	#N/A	Till
VW #1602937	TH-GD-07 (KGS)	Outside of ROW	10/26/2016	5699453.66	531900.65	252.05	12.19	239.85	#N/A	#N/A	#N/A	#N/A	Till
VW #1602938	TH-GD-08 (KGS)	Outside of ROW	10/28/2016	5701521.62	532917.21	246.81	7.32	239.49	#N/A	#N/A	#N/A	#N/A	Till
VW #1602939	TH-ED-01P (KGS)	123+10	10/20/2016	5692376.38	530502.82	249.43	10.67	238.76	#N/A	#N/A	#N/A	#N/A	Till
VW #1602940	TH-GD-08 (KGS)	Outside of ROW	10/28/2016	5701521.62	532917.21	246.81	11.58	235.22	#N/A	#N/A	#N/A	#N/A	Sand
VW19-01	CH19-01	250+00	5/14/2019	5703759.11	533816.34	246.16	13.41	232.75	12.83	13.74	233.33	232.42	Bedrock
VW19-02	CH19-02	148+80	5/14/2019	5694628.16	531086.36	250.01	15.72	234.29	14.81	16.03	235.20	233.98	Bedrock
VW19-03	CH19-03	160+00	5/15/2019	5695756.50	531159.91	248.45	21.26	227.19	21.03	21.56	227.42	226.88	Bedrock
VW19-04	CH19-04	245+00	5/16/2019	5703393.95	533474.01	246.52	15.85	230.67	#N/A	#N/A	#N/A	#N/A	Sand
VW19-05A	OW19-05A	169+00	5/17/2019	5696655.87	531016.51	250.48	25.91	224.58	#N/A	#N/A	#N/A	#N/A	Till
VW19-05B	OW19-05A	169+00	5/17/2019	5696655.87	531016.51	250.48	28.04	222.44	#N/A	#N/A	#N/A	#N/A	Till
VW19-05C	OW19-05	169+00	5/23/2019	5696654.93	531018.72	250.47	33.68	216.79	27.43	34.14	223.04	216.33	Bedrock
VW19-07A	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	21.95	228.80	#N/A	#N/A	#N/A	#N/A	Till
VW19-07B	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	24.08	226.66	#N/A	#N/A	#N/A	#N/A	Till
VW19-07C	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	34.29	216.45	30.18	34.75	220.57	216.00	Bedrock
VW19-08	CH19-08	240+00	5/17/2019	5703019.54	533153.04	247.01	16.23	230.78	14.02	16.54	232.99	230.48	Bedrock
VW19-09	CH19-09	235+00	5/21/2019	5702645.48	532817.70	247.44	9.14	238.29	8.84	9.45	238.60	237.99	Bedrock
VW19-10	CH19-10	230+00	5/23/2019	5702322.64	532401.12	246.86	11.89	234.97	11.58	12.19	235.27	234.67	Bedrock
VW19-11	CH19-11	210+00	5/25/2019	5700332.25	532342.88	248.02	19.81	228.21	15.24	20.12	232.78	227.90	Bedrock
VW19-12A	BH19-12	198+10	5/26/2019	5699188.67	532052.84	249.47	6.10	243.38	#N/A	#N/A	#N/A	#N/A	Till
VW19-12B	BH19-12	198+10	5/26/2019	5699188.67	532052.84	249.47	29.11	220.36	25.91	29.26	223.57	220.21	Bedrock
VW19-13A	BH19-13	198+50	5/28/2019	5699275.58	532011.44	249.58	9.14	240.43	#N/A	#N/A	#N/A	#N/A	Till
VW19-13B	BH19-13	198+50	5/28/2019	5699275.58	532011.44	249.58	20.27	229.31	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-14A(2)	BH19-14A	199+00	9/14/2019	5699341.81	532017.03	249.88	5.94	243.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-14B	BH19-14	199+00	5/29/2019	5699339.43	532018.05	249.79	18.75	231.05	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-15A	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	12.19	237.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-15B	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	18.29	231.30	#N/A	#N/A	#N/A	#N/A	Sand
VW19-15C	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	29.41	220.17	23.47	29.57	226.12	220.02	Bedrock
VW19-16A	OW19-16A	221+60	5/26/2019	5701488.40	532342.19	248.79	4.62	244.17	#N/A	#N/A	#N/A	#N/A	Till
VW19-16B	OW19-16A	221+60	5/26/2019	5701488.40	532342.19	248.79	6.07	242.72	#N/A	#N/A	#N/A	#N/A	Till
VW19-16C	OW19-16	221+60	5/26/2019	5701488.07	532343.62	248.79	13.74	235.04	9.45	14.17	239.34	234.61	Bedrock
VW19-18A	OW19-18A	221+60	5/29/2019	5701488.31	532304.66	248.96	4.57	244.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-18B	OW19-18A	221+60	5/29/2019	5701488.31	532304.66	248.96	6.35	242.61	#N/A	#N/A	#N/A	#N/A	Till
VW19-18C	OW19-18	221+60	5/29/2019	5701488.29	532303.52	248.92	13.72	235.21	7.92	14.17	241.00	234.75	Bedrock
VW19-19A	BH19-19A	221+60	5/28/2019	5701487.82	532247.07	248.79	5.64	243.15	#N/A	#N/A	#N/A	#N/A	Till

Table D-1 Summary of Station Information for 2019 Vibrating Wire Transducer Manual Groundwater Level Readings

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW19-19B	BH19-19	221+60	5/27/2019	5701487.44	532245.43	248.81	9.60	239.21	8.23	10.97	240.58	237.84	Bedrock
VW19-20	BH19-20	221+80	5/30/2019	5701514.58	532271.00	248.91	13.36	235.55	12.50	13.82	236.41	235.09	Bedrock
VW19-21	CH19-21	180+00	6/4/2019	5697754.72	531145.81	248.97	33.68	215.28	32.46	33.99	216.50	214.98	Bedrock
VW19-23A	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	14.02	234.68	#N/A	#N/A	#N/A	#N/A	Till
VW19-23B	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	16.15	232.55	#N/A	#N/A	#N/A	#N/A	Sand
VW19-23C	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	22.71	225.99	17.07	23.16	231.63	225.54	Bedrock
VW19-24A	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	16.21	232.97	#N/A	#N/A	#N/A	#N/A	Till
VW19-24B	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	18.34	230.83	#N/A	#N/A	#N/A	#N/A	Till
VW19-24C	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	23.62	225.55	19.25	24.08	229.92	225.09	Bedrock
VW19-25A	BH19-25	34+80	6/6/2019	5683628.85	530730.99	248.65	12.19	236.46	#N/A	#N/A	#N/A	#N/A	Till
VW19-25B	BH19-25	34+80	6/6/2019	5683628.85	530730.99	248.65	22.25	226.40	14.02	22.86	234.63	225.79	Bedrock
VW19-26A	BH19-26	34+80	6/9/2019	5683629.30	530756.10	248.43	6.10	242.34	#N/A	#N/A	#N/A	#N/A	Till
VW19-26B	BH19-26	34+80	6/9/2019	5683629.30	530756.10	248.43	24.08	224.35	11.89	24.38	236.54	224.05	Bedrock
VW19-27A	BH19-27	34+80	6/12/2019	5683629.75	530812.09	248.03	15.54	232.49	#N/A	#N/A	#N/A	#N/A	Till
VW19-27B	BH19-27	34+80	6/12/2019	5683629.75	530812.09	248.03	21.49	226.54	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-28A	BH19-28	133+10	6/13/2019	5693379.97	530371.38	248.59	6.10	242.49	5.49	14.33	243.10	234.26	Till
VW19-28B	BH19-28	133+10	6/13/2019	5693379.97	530371.38	248.59	24.23	224.36	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-29A(2)	BH19-29A	133+40	9/6/2019	5693404.53	530338.39	248.63	9.60	239.02	#N/A	#N/A	#N/A	#N/A	Till
VW19-29B	BH19-29	133+40	6/7/2019	5693404.53	530338.39	248.63	23.93	224.70	17.98	24.38	230.64	224.24	Bedrock
VW19-30A	BH19-30	133+40	6/9/2019	5693404.88	530413.04	248.62	15.24	233.38	#N/A	#N/A	#N/A	#N/A	Sand
VW19-30B	BH19-30	133+40	6/9/2019	5693404.88	530413.04	248.62	27.64	220.98	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-31A	BH19-31	133+10	6/10/2019	5693379.56	530446.46	248.61	12.19	236.42	#N/A	#N/A	#N/A	#N/A	Till
VW19-31B	BH19-31	133+10	6/10/2019	5693379.56	530446.46	248.61	21.34	227.27	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-32A	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	4.57	244.64	#N/A	#N/A	#N/A	#N/A	Till
VW19-32B	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	12.19	237.02	#N/A	#N/A	#N/A	#N/A	Till
VW19-32C	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	22.56	226.66	22.25	22.86	226.97	226.36	Bedrock
VW19-33A	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	6.10	242.53	#N/A	#N/A	#N/A	#N/A	Till
VW19-33B	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	16.76	231.86	#N/A	#N/A	#N/A	#N/A	Sand
VW19-33C	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	28.27	220.35	27.97	28.58	220.66	220.05	Bedrock
VW19-34	CH19-34	99+10	9/16/2019	5690010.47	530621.89	249.17	19.99	229.18	19.69	20.29	229.48	228.87	Bedrock
VW19-35A	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	6.06	242.69	#N/A	#N/A	#N/A	#N/A	Till
VW19-35B	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	14.29	234.46	#N/A	#N/A	#N/A	#N/A	Till
VW19-35C	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	22.52	226.23	21.49	22.82	227.26	225.93	Bedrock
VW19-36A	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	11.47	237.26	#N/A	#N/A	#N/A	#N/A	Till
VW19-36B	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	18.58	230.15	#N/A	#N/A	#N/A	#N/A	Sand
VW19-36C	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	23.81	224.92	23.01	24.38	225.72	224.34	Bedrock
VW19-37	CH19-37	60+00	9/9/2019	5686125.84	530835.47	248.34	19.35	228.98	18.29	20.12	230.05	228.22	Bedrock
VW19-38	CH19-38	50+00	9/7/2019	5685153.57	530717.15	249.19	24.38	224.81	23.16	24.69	226.03	224.50	Bedrock
VW19-40A	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	6.50	241.41	#N/A	#N/A	#N/A	#N/A	Till
VW19-40B	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	13.51	234.40	#N/A	#N/A	#N/A	#N/A	Till
VW19-40B(2)	OW19-40A	30+10	9/8/2019	5683157.91	530821.98	247.95	13.88	234.07	#N/A	#N/A	#N/A	#N/A	Till

Table D-1 Summary of Station Information for 2019 Vibrating Wire Transducer Manual Groundwater Level Readings

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW19-40C	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	17.63	230.28	#N/A	#N/A	#N/A	#N/A	Till
VW19-40D	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	22.66	225.25	18.90	24.23	229.01	223.68	Bedrock
VW19-41A	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	7.98	239.87	#N/A	#N/A	#N/A	#N/A	Till
VW19-41B	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	15.90	231.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-41B(2)	OW19-41A	30+50	9/7/2019	5683202.87	530821.74	247.87	16.05	231.81	#N/A	#N/A	#N/A	#N/A	Till
VW19-41C	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	18.03	229.81	#N/A	#N/A	#N/A	#N/A	Till
VW19-41D	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	22.61	225.24	19.20	25.91	228.64	221.94	Bedrock
VW19-42	CH19-42	25+00	9/7/2019	5682655.04	530751.23	248.91	7.92	240.98	#N/A	#N/A	#N/A	#N/A	Till
VW19-43A	CH19-43	20+00	9/4/2019	5682272.41	530433.18	249.26	12.50	236.77	#N/A	#N/A	#N/A	#N/A	Till
VW19-43B	CH19-43	20+00	9/4/2019	5682272.41	530433.18	249.26	21.34	227.93	21.03	21.72	228.23	227.55	Bedrock
VW19-44A	CH19-44	15+00	9/6/2019	5681816.07	530205.80	247.96	4.57	243.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-44B	CH19-44	15+00	9/6/2019	5681816.07	530205.80	247.96	11.13	236.83	#N/A	#N/A	#N/A	#N/A	Till
VW19-45	CH19-45	12+90	9/5/2019	5681675.64	530040.73	248.15	16.81	231.33	16.51	17.15	231.64	231.00	Bedrock
VW19-46A	BH19-46	34+50	9/9/2019	5683589.79	530787.55	248.09	8.15	239.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-46B	BH19-46	34+50	9/9/2019	5683589.79	530787.55	248.09	18.62	229.48	#N/A	#N/A	#N/A	#N/A	Bedrock

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	2.13	248.29	2.55	248.71	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	3.44	253.45	4.00	254.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	5.25	253.70	5.54	253.99	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	1.35	247.86	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	2.39	252.87	Cannot be Measured	Cannot be Measured	2.49	252.97	Cannot be Measured	Cannot be Measured
VW19-05B	OW19-05A	Till	3.84	254.32	Cannot be Measured	Cannot be Measured	3.58	254.06	Cannot be Measured	Cannot be Measured
VW19-05C	OW19-05	Bedrock	3.30	253.78	3.68	254.16	3.08	253.55	3.46	253.93
VW19-07A	OW19-07	Till	2.88	253.63	Cannot be Measured	Cannot be Measured	2.60	253.35	Cannot be Measured	Cannot be Measured
VW19-07B	OW19-07	Till	3.25	253.99	Cannot be Measured	Cannot be Measured	3.04	253.78	Cannot be Measured	Cannot be Measured
VW19-07C	OW19-07	Bedrock	4.06	254.81	3.46	254.20	3.82	254.56	3.21	253.96
VW19-08	CH19-08	Bedrock	3.03	250.05	3.56	250.57	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	3.63	251.06	3.53	250.97	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	5.50	252.36	4.91	251.77	Not Measured	Not Measured	Not Measured	Not Measured
VW19-11	CH19-11	Bedrock	5.18	253.20	5.21	253.23	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	0.95	250.43	Cannot be Measured	Cannot be Measured	0.97	250.44	Cannot be Measured	Cannot be Measured
VW19-12B	BH19-12	Bedrock	3.76	253.23	4.28	253.75	3.53	253.00	4.05	253.52
VW19-13A	BH19-13	Till	3.24	252.82	Cannot be Measured	Cannot be Measured	3.11	252.68	Cannot be Measured	Cannot be Measured
VW19-13B	BH19-13	Bedrock	3.47	253.05	Cannot be Measured	Cannot be Measured	3.29	252.87	Cannot be Measured	Cannot be Measured
VW19-14A(2)	BH19-14A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-14B	BH19-14	Bedrock	3.10	252.90	Cannot be Measured	Cannot be Measured	2.93	252.72	Cannot be Measured	Cannot be Measured
VW19-15A	BH19-15	Till	2.69	252.27	Cannot be Measured	Cannot be Measured	2.67	252.25	Cannot be Measured	Cannot be Measured
VW19-15B	BH19-15	Sand	3.52	253.10	Cannot be Measured	Cannot be Measured	3.32	252.90	Cannot be Measured	Cannot be Measured
VW19-15C	BH19-15	Bedrock	3.66	253.25	Cannot be Measured	Cannot be Measured	3.41	253.00	Cannot be Measured	Cannot be Measured
VW19-16A	OW19-16A	Till	-0.74	248.05	Cannot be Measured	Cannot be Measured	-1.48	247.31	Cannot be Measured	Cannot be Measured
VW19-16B	OW19-16A	Till	-0.77	248.02	Cannot be Measured	Cannot be Measured	-1.50	247.29	Cannot be Measured	Cannot be Measured
VW19-16C	OW19-16	Bedrock	3.07	251.86	3.54	252.33	2.97	251.76	3.44	252.23
VW19-18A	OW19-18A	Till	-0.73	248.23	Cannot be Measured	Cannot be Measured	-1.20	247.76	Cannot be Measured	Cannot be Measured
VW19-18B	OW19-18A	Till	0.03	248.99	Cannot be Measured	Cannot be Measured	-0.36	248.60	Cannot be Measured	Cannot be Measured
VW19-18C	OW19-18	Bedrock	3.10	252.02	3.38	252.31	2.93	251.85	3.21	252.13
VW19-19A	BH19-19A	Till	-0.48	248.31	Cannot be Measured	Cannot be Measured	-1.04	247.75	Cannot be Measured	Cannot be Measured
VW19-19B	BH19-19	Bedrock	3.44	252.25	Cannot be Measured	Cannot be Measured	3.21	252.02	Cannot be Measured	Cannot be Measured
VW19-20	BH19-20	Bedrock	3.14	252.04	Cannot be Measured	Cannot be Measured	2.68	251.58	Cannot be Measured	Cannot be Measured
VW19-21	CH19-21	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	3.82	252.52	Cannot be Measured	Cannot be Measured	3.83	252.53	Cannot be Measured	Cannot be Measured
VW19-23B	OW19-23	Sand	3.82	252.53	Cannot be Measured	Cannot be Measured	3.85	252.55	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	5.27	253.97	4.37	253.07	5.25	253.95	4.35	253.05
VW19-24A	OW19-24	Till	3.42	252.59	Cannot be Measured	Cannot be Measured	3.45	252.62	Cannot be Measured	Cannot be Measured
VW19-24B	OW19-24	Till	3.48	252.65	Cannot be Measured	Cannot be Measured	3.50	252.67	Cannot be Measured	Cannot be Measured
VW19-24C	OW19-24	Bedrock	3.47	252.64	3.85	253.02	3.37	252.55	3.75	252.93
VW19-25A	BH19-25	Till	1.20	249.85	Cannot be Measured	Cannot be Measured	1.54	250.19	Cannot be Measured	Cannot be Measured
VW19-25B	BH19-25	Bedrock	2.24	250.89	Cannot be Measured	Cannot be Measured	2.25	250.89	Cannot be Measured	Cannot be Measured
VW19-26A	BH19-26	Till	Not Measured	Not Measured	Not Measured	Not Measured	1.42	249.85	Cannot be Measured	Cannot be Measured
VW19-26B	BH19-26	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.78	251.22	2.93	251.36
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.99	251.02	Cannot be Measured	Cannot be Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.73	250.76	Cannot be Measured	Cannot be Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	3.51	252.10	Cannot be Measured	Cannot be Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	4.88	253.47	Cannot be Measured	Cannot be Measured
VW19-29A(2)	BH19-29A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-29B	BH19-29	Bedrock	5.08	253.70	5.39	254.02	4.98	253.60	5.29	253.92
VW19-30A	BH19-30	Sand	4.99	253.61	Cannot be Measured	Cannot be Measured	4.94	253.56	Cannot be Measured	Cannot be Measured
VW19-30B	BH19-30	Bedrock	9.98	258.60	Cannot be Measured	Cannot be Measured	9.86	258.48	Cannot be Measured	Cannot be Measured
VW19-31A	BH19-31	Till	4.84	253.45	Cannot be Measured	Cannot be Measured	4.80	253.41	Cannot be Measured	Cannot be Measured
VW19-31B	BH19-31	Bedrock	4.92	253.53	Cannot be Measured	Cannot be Measured	4.86	253.47	Cannot be Measured	Cannot be Measured
VW19-32A	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32B	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32C	CH19-32	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33A	CH19-33	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33B	CH19-33	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33C	CH19-33	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-34	CH19-34	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35A	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35B	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35C	CH19-35	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36A	CH19-36	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36B	CH19-36	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36C	CH19-36	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-37	CH19-37	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-38	CH19-38	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40A	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40B	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40B(2)	OW19-40A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40C	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40D	OW19-40	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41A	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41B	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41B(2)	OW19-41A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41C	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41D	OW19-41	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-42	CH19-42	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-43A	CH19-43	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-43B	CH19-43	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-44B	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-45	CH19-45	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-46A	BH19-46	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-46B	BH19-46	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	-2.10	249.76	Cannot be Measured	Cannot be Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	-0.41	248.46	Cannot be Measured	Cannot be Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.39	250.53	Cannot be Measured	Cannot be Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.01	250.67	Cannot be Measured	Cannot be Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-2.32	247.11	Cannot be Measured	Cannot be Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-0.39	248.24	Cannot be Measured	Cannot be Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-2.17	247.26	Cannot be Measured	Cannot be Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	1.43	247.59	1.85	248.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	2.41	252.42	2.97	252.98	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	4.17	252.62	4.46	252.91	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	0.94	247.46	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	2.11	252.59	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05B	OW19-05A	Till	2.68	253.16	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05C	OW19-05	Bedrock	2.16	252.63	2.54	253.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07A	OW19-07	Till	1.99	252.74	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07B	OW19-07	Till	2.14	252.88	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07C	OW19-07	Bedrock	2.86	253.61	2.26	253.00	Not Measured	Not Measured	Not Measured	Not Measured
VW19-08	CH19-08	Bedrock	2.20	249.21	2.72	249.73	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	2.75	250.19	2.66	250.09	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	4.57	251.42	3.98	250.83	Not Measured	Not Measured	Not Measured	Not Measured
VW19-11	CH19-11	Bedrock	4.21	252.23	4.23	252.25	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	0.85	250.33	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12B	BH19-12	Bedrock	2.63	252.10	3.15	252.62	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13A	BH19-13	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-13B	BH19-13	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-14A(2)	BH19-14A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Measured	Not Measured	Not Measured	Not Measured
VW19-14B	BH19-14	Bedrock	2.04	251.83	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15A	BH19-15	Till	1.77	251.36	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15B	BH19-15	Sand	2.44	252.02	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15C	BH19-15	Bedrock	2.51	252.09	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16A	OW19-16A	Till	-1.21	247.58	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16B	OW19-16A	Till	-1.23	247.56	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16C	OW19-16	Bedrock	2.12	250.90	2.59	251.37	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18A	OW19-18A	Till	-1.79	247.17	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18B	OW19-18A	Till	-0.75	248.21	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18C	OW19-18	Bedrock	2.24	251.16	2.53	251.45	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19A	BH19-19A	Till	-2.18	246.61	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19B	BH19-19	Bedrock	2.62	251.43	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-20	BH19-20	Bedrock	2.18	251.08	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-21	CH19-21	Bedrock	3.50	252.46	4.08	253.04	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	3.12	251.82	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23B	OW19-23	Sand	3.11	251.81	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	1.80	250.50	0.90	249.60	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24A	OW19-24	Till	2.71	251.88	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24B	OW19-24	Till	2.75	251.92	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24C	OW19-24	Bedrock	2.72	251.90	3.10	252.28	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25A	BH19-25	Till	0.95	249.59	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25B	BH19-25	Bedrock	1.64	250.29	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26A	BH19-26	Till	0.88	249.32	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26B	BH19-26	Bedrock	2.16	250.59	2.30	250.74	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.29	250.32	Cannot be Measured	Cannot be Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.04	250.07	Cannot be Measured	Cannot be Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.16	247.43	Cannot be Measured	Cannot be Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	3.88	252.47	Cannot be Measured	Cannot be Measured
VW19-29A(2)	BH19-29A	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.70	249.33	Cannot be Measured	Cannot be Measured
VW19-29B	BH19-29	Bedrock	4.05	252.68	4.37	252.99	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30A	BH19-30	Sand	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-30B	BH19-30	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-31A	BH19-31	Till	Not Measured	Not Measured	Not Measured	Not Measured	3.82	252.43	Cannot be Measured	Cannot be Measured
VW19-31B	BH19-31	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	3.86	252.47	Cannot be Measured	Cannot be Measured
VW19-32A	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32B	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32C	CH19-32	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33A	CH19-33	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33B	CH19-33	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33C	CH19-33	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-34	CH19-34	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35A	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.45	251.20	Cannot be Measured	Cannot be Measured
VW19-35B	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.53	251.28	Cannot be Measured	Cannot be Measured
VW19-35C	CH19-35	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	3.22	251.97	Cannot be Measured	Cannot be Measured
VW19-36A	CH19-36	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.53	251.26	Cannot be Measured	Cannot be Measured
VW19-36B	CH19-36	Sand	Not Installed	Not Installed	Not Installed	Not Installed	2.27	251.00	Cannot be Measured	Cannot be Measured
VW19-36C	CH19-36	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.23	250.96	2.57	251.30
VW19-37	CH19-37	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	**13.42**	**261.76**	**2.92**	**251.26**
VW19-38	CH19-38	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	1.20	250.39	1.54	250.73
VW19-40A	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.48	247.43	Cannot be Measured	Cannot be Measured
VW19-40B	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.24	247.67	Cannot be Measured	Cannot be Measured
VW19-40B(2)	OW19-40A	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.49	247.45	Cannot be Measured	Cannot be Measured
VW19-40C	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.46	248.37	Cannot be Measured	Cannot be Measured
VW19-40D	OW19-40	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.59	250.50	2.60	250.51
VW19-41A	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.04	247.80	Cannot be Measured	Cannot be Measured
VW19-41B	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.93	248.77	Cannot be Measured	Cannot be Measured
VW19-41B(2)	OW19-41A	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.29	248.15	Cannot be Measured	Cannot be Measured
VW19-41C	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.33	250.17	Cannot be Measured	Cannot be Measured
VW19-41D	OW19-41	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.61	250.46	2.82	250.67
VW19-42	CH19-42	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.03	248.87	Cannot be Measured	Cannot be Measured
VW19-43A	CH19-43	Till	Not Installed	Not Installed	Not Installed	Not Installed	-2.55	246.71	Cannot be Measured	Cannot be Measured
VW19-43B	CH19-43	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	0.95	250.22	1.33	250.59

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	-1.50	246.46	Cannot be Measured	Cannot be Measured
VW19-44B	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	-1.47	246.49	Cannot be Measured	Cannot be Measured
VW19-45	CH19-45	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	1.87	250.02	1.46	249.60
VW19-46A	BH19-46	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.85	248.94	Cannot be Measured	Cannot be Measured
VW19-46B	BH19-46	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.62	250.72	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	1.49	253.54	Cannot be Measured	Cannot be Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05B	OW19-05A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05C	OW19-05	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07A	OW19-07	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07B	OW19-07	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07C	OW19-07	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-08	CH19-08	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-11	CH19-11	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12B	BH19-12	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13A	BH19-13	**Till**	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13B	BH19-13	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-14A(2)	BH19-14A	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.13	248.75	Cannot be Measured	Cannot be Measured
VW19-14B	BH19-14	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-15A	BH19-15	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15B	BH19-15	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15C	BH19-15	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16A	OW19-16A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16B	OW19-16A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16C	OW19-16	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18A	OW19-18A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18B	OW19-18A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18C	OW19-18	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19A	BH19-19A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19B	BH19-19	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-20	BH19-20	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-21	CH19-21	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23B	OW19-23	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24A	OW19-24	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24B	OW19-24	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24C	OW19-24	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25A	BH19-25	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25B	BH19-25	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26A	BH19-26	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26B	BH19-26	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-29A(2)	BH19-29A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-29B	BH19-29	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30A	BH19-30	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30B	BH19-30	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-31A	BH19-31	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-31B	BH19-31	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32A	CH19-32	Till	-0.88	248.34	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32B	CH19-32	Till	1.34	250.55	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32C	CH19-32	Bedrock	3.39	252.61	3.36	252.57	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33A	CH19-33	Till	-0.42	248.21	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33B	CH19-33	Sand	3.75	252.37	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33C	CH19-33	Bedrock	4.48	253.11	4.66	253.28	Not Measured	Not Measured	Not Measured	Not Measured
VW19-34	CH19-34	Bedrock	3.61	252.77	3.76	252.92	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35A	CH19-35	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35B	CH19-35	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35C	CH19-35	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-36A	CH19-36	Till	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36B	CH19-36	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36C	CH19-36	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-37	CH19-37	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-38	CH19-38	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40A	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40B	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40B(2)	OW19-40A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40C	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40D	OW19-40	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41A	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41B	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41B(2)	OW19-41A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41C	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41D	OW19-41	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-42	CH19-42	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-43A	CH19-43	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-43B	CH19-43	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-44B	CH19-44	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-45	CH19-45	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-46A	BH19-46	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-46B	BH19-46	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock
9.98: possible erroneous reading or malfunctioning VW

Table D-3 2019 Data from Continuously Logged Vibrating Wire Transducers

CH19-10			BH19-13					BH19-14 + 14A						
Date/Time	VW19-10		Date/Time	VW19-13A		VW19-13B		Date/Time	VW19-14A		VW19-14B		VW19-14A(2)	
	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/14/2019 12:00	6.133479123	252.9904791	6/29/2019 12:00	3.038360108	252.6163601	3.221349624	252.7993496	11/16/2019 12:00	3.10205693	252.8960569	3.726077506	253.5200775	-1.197766846	248.6842332
11/15/2019 12:00	6.191778387	253.0487784	6/30/2019 12:00	3.009185363	252.5871854	3.194690721	252.7726907	11/17/2019 12:00	3.169476614	252.9634766	3.783447493	253.5774475	-1.112132005	248.769868
11/16/2019 12:00	6.043713297	252.9007133	7/1/2019 12:00	3.010830919	252.5888309	3.194122255	252.7721223	11/18/2019 12:00	3.050643565	252.8446436	3.685442233	253.4794422	-1.202620554	248.6793794
11/17/2019 12:00	6.09205528	252.9490553	7/2/2019 12:00	2.98956412	252.5675641	3.173315085	252.7513151	11/19/2019 12:00	3.014347392	252.8083474	3.75194226	253.5459423	-1.050863793	248.8311362
11/18/2019 12:00	5.992977998	252.849978	7/3/2019 12:00	2.978296765	252.5562968	3.161887107	252.7398871	11/20/2019 12:00	2.922767668	252.7167677	3.815043749	253.6090437	-0.909472199	248.9725278
11/19/2019 12:00	6.054521915	252.9115219	7/4/2019 12:00	2.985513017	252.563513	3.168084465	252.7460845	11/21/2019 12:00	2.862901451	252.6569015	3.820779649	253.6147796	-0.816847531	249.0651525
11/20/2019 12:00	6.123168747	252.9801687	7/5/2019 12:00	3.046143462	252.6241435	3.224248313	252.8022483	11/22/2019 12:00	2.825874881	252.6198749	3.690804118	253.4848041	-1.109306133	248.7726939
11/21/2019 12:00	6.124492819	252.9814928	7/6/2019 12:00	3.045257569	252.6232576	3.224077803	252.8020778	11/23/2019 12:00	2.992541253	252.7865413	3.65336317	253.4473632	-1.280552685	248.6014473
11/22/2019 12:00	6.000228417	252.8572284	7/7/2019 12:00	2.968991172	252.5469912	3.153983724	252.7319837	11/24/2019 12:00	2.859150498	252.6531505	3.639909732	253.4339097	-1.281752869	248.6002471
11/23/2019 12:00	5.95443948	252.8114395	7/8/2019 12:00	2.898835629	252.4768356	3.088183674	252.6661837	11/25/2019 12:00	2.525491519	252.3194915	3.66474642	253.4587464	-1.217733895	248.6642661
11/24/2019 12:00	5.937454173	252.7944542	7/9/2019 12:00	2.9120077	252.4900077	3.097512119	252.6755121	11/26/2019 12:00	2.623441273	252.4174413	3.740562018	253.534562	-1.077532078	248.8044679
11/25/2019 12:00	5.967207994	252.824208	7/10/2019 12:00	2.946959694	252.5249597	3.125494366	252.7034944	11/27/2019 12:00	2.67580407	252.4698041	3.800092326	253.5940923	-0.915995773	248.9660042
11/26/2019 12:00	6.052061362	252.9090614	7/11/2019 12:00	2.856969937	252.4349699	3.037095629	252.6150956	11/28/2019 12:00	2.740107676	252.5341077	3.844474441	253.6384744	-0.749275153	249.1327248
11/27/2019 12:00	6.114909305	252.9719093	7/12/2019 12:00	2.889399277	252.4673993	3.065258542	252.6432585	11/29/2019 12:00	2.634268432	252.4282684	3.766613728	253.5606137	-0.739222858	249.1427771
11/28/2019 12:00	6.165873023	253.022873	7/13/2019 12:00	2.878379021	252.456379	3.051888854	252.6298889	11/30/2019 12:00	2.620776522	252.4147765	3.736047433	253.5300474	-0.810079718	249.0719203
11/29/2019 12:00	6.091974773	252.9489748	7/14/2019 12:00	2.830173341	252.4081733	3.004716711	252.5827167	12/1/2019 12:00	2.605823021	252.399823	3.736235542	253.5302355	-0.820614752	249.0613852

BH19-29 + 29A							BH19-30					BH19-31				
Date/Time	VW19-29A		VW19-29B		VW19-29A(2)		Date/Time	VW19-30A		VW19-30B		Date/Time	VW19-31A		VW19-31B	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/23/2019 12:00	5.743042898	254.3680429	5.743403055	254.3684031	2.270803883	250.8958039	6/29/2019 12:00	4.87465317	253.4936532	9.810812564	258.4298126	11/23/2019 12:00	5.589760561	254.1987606	5.597402961	254.206403
11/24/2019 12:00	5.734302815	254.3593028	5.733782698	254.3587827	2.250645916	250.8756459	6/30/2019 12:00	4.853958269	253.4729583	9.787435992	258.406436	11/24/2019 12:00	5.581625374	254.1906254	5.587275809	254.1962758
11/25/2019 12:00	5.768789076	254.3937891	5.766609653	254.3916097	2.279783762	250.9047838	7/1/2019 12:00	4.853257782	253.4722578	9.783843348	258.4028433	11/25/2019 12:00	5.617381425	254.2263814	5.620085849	254.2290858
11/26/2019 12:00	5.842313642	254.4673136	5.839633118	254.4646331	2.354059901	250.9790599	7/2/2019 12:00	4.833706644	253.4527066	9.762124508	258.3811245	11/26/2019 12:00	5.691848631	254.3008486	5.693516876	254.3025169
11/27/2019 12:00	5.895437305	254.5204373	5.892680743	254.5176807	2.415459013	251.040459	7/3/2019 12:00	4.823070381	253.4420704	9.750486008	258.369486	11/27/2019 12:00	5.745482669	254.3544827	5.746682894	254.3556829
11/28/2019 12:00	5.935662156	254.5606622	5.930998026	254.555998	2.465156345	251.0901563	7/4/2019 12:00	4.827656158	253.4466562	9.753489591	258.3724896	11/28/2019 12:00	5.783333753	254.3923338	5.785198839	254.3941988
11/29/2019 12:00	5.867987227	254.4929872	5.863666058	254.4886661	2.398739433	251.0237394	7/5/2019 12:00	4.879110201	253.4981102	9.804218223	258.4232182	11/29/2019 12:00	5.71484499	254.323845	5.716863155	254.3258632
11/30/2019 12:00	5.842565421	254.4675654	5.838972159	254.4639722	2.368588469	250.9935885	7/6/2019 12:00	4.864083169	253.4830832	9.79151111	258.4105111	11/30/2019 12:00	5.691727527	254.3007275	5.691964856	254.3009649
12/1/2019 12:00	5.844375721	254.4693757	5.840894943	254.4658949	2.363874889	250.9888749	7/7/2019 12:00	4.801986942	253.4209869	9.730210005	258.34921	12/1/2019 12:00	5.693972655	254.3029727	5.694191664	254.3031917
12/2/2019 12:00	5.753137298	254.3781373	5.750738167	254.3757382	2.256267123	250.8812671	7/8/2019 12:00	4.727823631	253.3468236	9.657018485	258.2760185	12/2/2019 12:00	5.601902765	254.2109028	5.603208954	254.212209
12/3/2019 12:00	5.727153535	254.3521535	5.724943456	254.3499435	2.210516842	250.8355168	7/9/2019 12:00	4.748980065	253.3679801	9.67585689	258.2948569	12/3/2019 12:00	5.576162118	254.1851621	5.576337888	254.1853379
12/4/2019 12:00	5.787699723	254.4126997	5.784282759	254.4092828	2.262469623	250.8874696	7/10/2019 12:00	4.775740427	253.3947404	9.7007559	258.3197559	12/4/2019 12:00	5.637412407	254.2464124	5.636623771	254.2456238
12/5/2019 12:00	5.848232408	254.4732324	5.844139585	254.4691396	2.325644961	250.950645	7/11/2019 12:00	4.684482891	253.3034829	9.611601907	258.2306019	12/5/2019 12:00	5.698402161	254.3074022	5.696350969	254.305351
12/6/2019 12:00	5.816590218	254.4415902	5.813432866	254.4384329	2.292509845	250.9175098	7/12/2019 12:00	4.714440179	253.3334402	9.637908945	258.2569089	12/6/2019 12:00	5.666544048	254.275544	5.665781057	254.2747811
12/7/2019 12:00	5.718334238	254.3433342	5.717065874	254.3420659	2.195716501	250.8207165	7/13/2019 12:00	4.700099588	253.3190996	9.62293069	258.2419307	12/7/2019 12:00	5.568451453	254.1774515	5.569248163	254.1782482
12/8/2019 12:00	5.838000262	254.4630003	5.833744466	254.4587445	2.304589071	250.9295891	7/14/2019 12:00	4.652097545	253.2710975	9.575246511	258.1942465	12/8/2019 12:00	5.688632853	254.2976329	5.685554203	254.2945542

Table D-3 2019 Data from Continuously Logged Vibrating Wire Transducers

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/15/2019 12:00	4.026652341	252.7546523	3.71466003	252.44266	3.598910119	252.3269101	11/23/2019 12:00	0.015264577	247.8592646	1.150520756	248.9945208	3.477827417	251.3218274	3.667279274	251.5112793
11/16/2019 12:00	3.857171249	252.5851712	3.548048709	252.2760487	3.462187632	252.1901876	11/24/2019 12:00	-0.005276038	247.838724	1.130366172	248.9743662	3.464522305	251.3085223	3.649986925	251.4939869
11/17/2019 12:00	3.941623121	252.6696231	3.628394343	252.3563943	3.518443271	252.2464433	11/25/2019 12:00	0.027625916	247.8716259	1.171356415	249.0153564	3.502098031	251.346098	3.687163006	251.531163
11/18/2019 12:00	3.843071983	252.571072	3.525523122	252.2535231	3.436471397	252.1644714	11/26/2019 12:00	0.119518392	247.9635184	1.264646253	249.1086463	3.565945956	251.409946	3.746798364	251.5907984
11/19/2019 12:00	3.944068622	252.6720686	3.621570579	252.3495706	3.512016883	252.2400169	11/27/2019 12:00	0.201297035	248.045297	1.341308047	249.185308	3.637830076	251.4818301	3.817005094	251.6610051
11/20/2019 12:00	4.031893641	252.7598936	3.719385557	252.4473856	3.586763199	252.3147632	11/28/2019 12:00	0.271202222	248.1152022	1.398699821	249.2426998	3.68974556	251.5337456	3.867436829	251.7114368
11/21/2019 12:00	4.031035688	252.7590357	3.733346519	252.4613465	3.589370731	252.3173707	11/29/2019 12:00	0.200157064	248.0441571	1.312435327	249.1564353	3.630692295	251.4746923	3.809231566	251.6532316
11/22/2019 12:00	3.889571716	252.6175717	3.59620724	252.3242072	3.479053691	252.2070537	11/30/2019 12:00	0.145873834	247.9898738	1.261437149	249.1054371	3.600720707	251.4447207	3.779054933	251.6230549
11/23/2019 12:00	3.853552975	252.581553	3.549177592	252.2771776	3.443155473	252.1711555	12/1/2019 12:00	0.134470485	247.9784705	1.253789716	249.0977897	3.611184215	251.4551842	3.788557774	251.6325578
11/24/2019 12:00	3.849372129	252.5773721	3.541113965	252.269114	3.440672849	252.1686728	12/2/2019 12:00	0.0288937	247.8728937	1.131937619	248.9759376	3.51616769	251.3601677	3.694251351	251.5382514
11/25/2019 12:00	3.903942221	252.6319422	3.595723578	252.3237236	3.482426688	252.2104267	12/3/2019 12:00	-0.031398787	247.8126012	1.080483399	248.9244834	3.48077283	251.3247728	3.658518067	251.5025181
11/26/2019 12:00	4.011472902	252.7394729	3.712673118	252.4406731	3.569844993	252.297845	12/4/2019 12:00	0.011968084	247.8559681	1.144098838	248.9880988	3.540322898	251.3843229	3.715687229	251.5596872
11/27/2019 12:00	4.084676032	252.812676	3.797014345	252.5250143	3.637952022	252.365952	12/5/2019 12:00	0.079851636	247.9238516	1.219304353	249.0633044	3.603663644	251.4476636	3.77652074	251.6205207
11/28/2019 12:00	4.130579615	252.8585796	3.853198942	252.5811989	3.688552272	252.4165523	12/6/2019 12:00	0.072056716	247.9160567	1.197107661	249.0411077	3.579518905	251.4235189	3.751752504	251.5957525
11/29/2019 12:00	4.026059454	252.7540595	3.750823898	252.4788239	3.59819295	252.326193	12/7/2019 12:00	-0.048139518	247.7958605	1.079868328	248.9238683	3.506133653	251.3501337	3.679670895	251.5236709
11/30/2019 12:00	3.983611138	252.7116111	3.697342147	252.4253421	3.575679136	252.3036791	12/8/2019 12:00	0.017293159	247.8612932	1.177709152	249.0217092	3.603391152	251.4473912	3.774389681	251.6183897
10/4/2020 12:00	2.903806342	251.6318063	2.653535205	251.3815352	2.60174158	251.3297416									
10/5/2020 12:00	2.841733376	251.5697334	2.580539098	251.3085391	2.549707011	251.277707									
10/6/2020 12:00	2.826326237	251.5543262	2.568586199	251.2965862	2.536199585	251.2641996									
10/7/2020 12:00	2.935178449	251.6631784	2.674832988	251.402833	2.61588336	251.3438834									
10/8/2020 12:00	2.91562938	251.6436294	2.664941223	251.3929412	2.613195878	251.3411959									
10/9/2020 12:00	2.834231985	251.562232	2.574211203	251.3022112	2.559884841	251.2878848									
10/10/2020 12:00	2.917936198	251.6459362	2.66383732	251.3918373	2.628872222	251.3568722									
10/11/2020 12:00	2.72426153	251.4522615	2.475474555	251.2034746	2.467428522	251.1954285									
10/12/2020 12:00	2.797850337	251.5258503	2.53926808	251.2672681	2.514687782	251.2426878									

Table D-4 Summary of 2019 Standpipe Sites and Water Level Measurements

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit	Monitoring Events			
														2019/Sep/16		2019/Nov/14	
														Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
SP11-101	BH-D101	43+50	7/11/2011	5684505.01	530628.74	249.25	7.62	241.63	4.11	7.62	245.14	241.63	Till	Not Measured	Not Measured	-0.87	248.38
SP11-106	BH-D106	84+20	7/12/2011	5682844.41	530474.73	249.92	10.36	239.55	7.01	10.36	242.91	239.55	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP11-107	BH-D107	115+00	7/12/2011	5691570.35	530533.12	249.81	7.62	242.19	3.66	7.62	246.15	242.19	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP16-01P	TH-ED-01P	123+10	10/20/2016	5692376.38	530502.82	249.43	27.43	222.00	25.60	27.43	223.83	222.00	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured
PW16-01	TH-ED-01W	123+10	10/20/2016	5692378.37	530495.27	249.49	0.00	249.49	#N/A	#N/A	#N/A	#N/A	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured
SP16-01PP1	TH-ED-01PP1	123+10	10/25/2016	5692378.65	530536.08	248.72	1.22	247.50	0.15	1.22	248.56	247.50	Till	No Water	No Water	Not Measured	Not Measured
SP16-01PP2	TH-ED-01PP2	123+10	10/25/2016	5692380.13	530549.75	248.46	1.22	247.24	0.15	1.22	248.30	247.24	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP15-02	15-RD-02	133+50	6/11/2015	5693417.00	530519.00	248.65	14.94	233.71	14.02	14.94	234.63	233.71	Till	Damaged	Damaged	Not Measured	Not Measured
SP15-02A	15-RD-02A	133+50	6/12/2015	5693419.00	530519.00	248.63	7.62	241.01	6.71	7.62	241.92	241.01	Clay	-1.31	247.32	Not Measured	Not Measured
SP16-06	TH-GD-06	176+50	10/24/2016	5697400.98	531025.08	251.92	15.32	236.60	13.49	15.32	238.43	236.60	Till	-0.64	251.28	Not Measured	Not Measured
SP15-03A	15-RD-03	177+30	6/12/2015	5697485.00	530996.00	251.84	7.62	244.22	6.71	7.62	245.13	244.22	Till	-2.73	249.11	Not Measured	Not Measured
SP15-03B	15-RD-03	177+30	6/12/2015	5697485.00	530996.00	251.84	14.94	236.90	14.02	14.94	237.82	236.90	Till	-1.47	250.37	Not Measured	Not Measured
SP15-10A	15-RD-10A	183+90	6/18/2015	5698130.00	531200.00	248.87	18.29	230.58	17.37	18.29	231.50	230.58	Till	-0.75	248.12	Not Measured	Not Measured
SP16-02	TH-GD-02	Outside of ROW	10/30/2016	5683632.07	531290.40	248.63	22.78	225.84	20.27	22.78	228.36	225.84	Bedrock	2.22	250.85	Not Measured	Not Measured
SP16-05	TH-GD-05	Outside of ROW	10/17/2016	5693350.95	530617.18	248.66	16.92	231.74	15.70	16.92	232.96	231.74	Till	Not Accessible	Not Accessible	Not Accessible	Not Accessible
SP16-07	TH-GD-07	Outside of ROW	10/26/2016	5699453.66	531900.65	252.05	19.35	232.69	17.53	19.35	234.52	232.69	Bedrock	Not Measured	Not Measured	Frozen	Frozen
SP16-08	TH-GD-08	Outside of ROW	10/28/2016	5701521.62	532917.21	246.81	17.07	229.74	15.24	17.07	231.57	229.74	Till	Not Accessible	Not Accessible	Not Accessible	Not Accessible
SP16-03	TH-ED-03	Outside of ROW	10/18/2016	5693404.42	529670.69	252.22	13.41	238.81	11.58	13.41	240.64	238.81	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP11-109	BH-D109	Outside of ROW	7/13/2011	5682844.41	530474.73	249.72	12.19	237.52	8.84	12.19	240.88	237.52	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP15-01A	15-RD-01	Outside of ROW	6/8/2015	5683639.00	531292.00	248.30	10.36	237.94	9.45	10.36	238.85	237.94	Clay	-1.23	247.07	Not Measured	Not Measured
SP15-01B	15-RD-01	Outside of ROW	6/8/2015	5683639.00	531292.00	248.30	20.42	227.88	19.51	20.42	228.79	227.88	Till	2.31	250.61	Not Measured	Not Measured
SP11-9	BH-D9	Outside of ROW	7/12/2011	5693949.15	530788.56	249.50	12.19	237.30	9.14	12.19	240.35	237.30	Till	Not Measured	Not Measured	Not Measured	Not Measured
SP15-04A	15-RD-04	Outside of ROW	6/13/2015	5699450.00	531894.00	251.76	7.62	244.14	6.71	7.62	245.05	244.14	Clay	Not Measured	Not Measured	Not Measured	Not Measured
SP15-04B	15-RD-04	Outside of ROW	6/13/2015	5699450.00	531894.00	251.76	14.48	237.28	13.56	14.48	238.20	237.28	Till	Damaged	Damaged	Damaged	Damaged
PW15-01	15-RD-PW1	Outside of ROW	7/30/2015	5699447.00	531897.00	251.76	23.16	228.60	16.00	16.76	235.76	235.00	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured
SP15-05A	15-RD-05	Outside of ROW	6/14/2015	5701483.00	532787.00	247.09	7.62	239.47	6.71	7.62	240.38	239.47	Clay	Not Measured	Not Measured	Not Measured	Not Measured
SP15-05B	15-RD-05	Outside of ROW	6/14/2015	5701483.00	532787.00	247.09	11.89	235.20	10.97	11.89	236.12	235.20	Clay	Not Accessible	Not Accessible	Not Accessible	Not Accessible

Lake Manitoba Outlet Channel 2020 Surface Water and Groundwater Monitoring Report

FINAL REPORT

June 16, 2021

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Limitations and Sign-off

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Executive Summary

The Lake Manitoba Lake St. Martin Outlet Channels Project is proposed to be developed by Manitoba Infrastructure (MI) as a permanent flood control management system for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region. This will be accomplished through construction of a new outlet channel from Lake Manitoba to Lake St. Martin and a new outlet channel from Lake St. Martin to Lake Winnipeg in the Manitoba Interlake region. These new channels will facilitate better management and control of floodwater on these lakes by providing additional capacity to move floodwater from Lake Manitoba through Lake St. Martin into Lake Winnipeg. The Project will reduce or completely avoid overland inundation flooding during high water events in Manitoba such as the 2011 flood.

The Lake Manitoba Outlet Channel (LMOC) will join Watchorn Bay on Lake Manitoba to Lake St. Martin near the outlet of Birch Creek. Associated components of the LMOC include a water control structure, three road bridges, and the realignment and/or new construction of PR 239 and affected municipal roads. The LMOC will work in parallel with the existing Fairford River Water Control Structure and will carry water directly into Lake St. Martin during periods when the water level on Lake Manitoba is above the top of its target operating range (812.5 ftasl).

Stantec Consulting Ltd. (Stantec), as part of the Hatch team, was retained by Manitoba Infrastructure in 2019 to complete groundwater and surface water monitoring that will form part of annual monitoring during the open water season, prior to, during, and following construction of the LMOC.

Lakes and watercourses identified from previous studies and selected by Stantec as integral to understanding surface water quality conditions in the LMOC area were sampled, and the results were compared to the Canadian Water Quality Guidelines for Freshwater Aquatic Life and the Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life to identify guideline exceedances.

Groundwater wells identified by Stantec and Trek Geotechnical Inc. as integral to understanding groundwater conditions in the LMOC area were sampled, and groundwater quality results were referenced to the Canadian Water Quality Guidelines for Freshwater Aquatic Life, the Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life, and compared to Guidelines for Canadian Drinking Water Quality to identify guideline exceedances. Groundwater levels were also manually recorded for hydrogeological investigation of the site, with data loggers installed in selected wells for long term groundwater level monitoring.

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Abbreviations

CDWQ	Canadian Drinking Water Quality
CWQG-FAL	Canadian Water Quality Guideline – Freshwater Aquatic Life
DQO	data quality objective
ftasl	Feet above sea level
LMOC	Lake Manitoba Outlet Channel
masl	Metres above sea level
MI	Manitoba Infrastructure
MSOG-FAL	Manitoba Standards, Objectives, and Guidelines – Freshwater Aquatic Life
RPD	relative percent difference
QA/QC	quality assurance/quality control

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

The Lake Manitoba Lake/St. Martin Outlet Channels Project (the Project) is proposed by Manitoba Infrastructure (MI) as a permanent flood control management system for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region. This will be accomplished through construction of a new outlet channel from Lake Manitoba to Lake St. Martin and a new outlet channel from Lake St. Martin to Lake Winnipeg in the Manitoba Interlake region. These new channels will facilitate management and control of floodwater on these lakes by providing additional capacity to move floodwater from Lake Manitoba through Lake St. Martin into Lake Winnipeg. The Project will reduce or completely avoid overland inundation flooding during high water events in Manitoba such as the 2011 flood.

The proposed Lake Manitoba Outlet Channel (LMOC) is approximately 24.1 km long and will join Watchorn Bay on Lake Manitoba to Lake St. Martin near the outlet of Birch Creek. The LMOC is situated on privately held and leased Crown lands adjacent to numerous marshes and small lakes (Appendix A, Map 1-1). Associated components of the LMOC include a water control structure, three road bridges, and the realignment and/or new construction of PR 239 and affected municipal roads. The LMOC channel will work in parallel with the existing Fairford River Water Control Structure to regulate water levels on Lake Manitoba within the desired range (812.5 to 810.5 ftasl) as established by Manitoba Infrastructure's Operating Guidelines (Manitoba Infrastructure 2019). The LMOC will carry water directly into Lake St. Martin during periods when the water level on Lake Manitoba is above the top of its target operating range (812.5 ftasl).

As described by KGS (2017a), the surficial geology in the LMOC region typically consists of calcareous loamy till that is moderately to excessively stony. There are few areas of bedrock present at or near the surface, particularly in proximity to the LMOC alignment. Topography in the area is relatively flat, and the terrestrial environment is diverse, including agricultural areas, grasslands, forested areas, small lakes and larger regions of wetlands. Overland flow in the LMOC region generally travels toward the wetlands and small lakes that include Goodison Lake, Reed Lake, Water Lake, and Clear Lake (Appendix A, Map 1-1). These lakes and wetlands discharge into Birch Creek, which flows northward toward Lake St. Martin. Only a relatively small area near the LMOC inlet drains toward Lake Manitoba into Watchorn Creek.

The Preliminary Design of the LMOC is being undertaken by the design team lead by Hatch Ltd. (Hatch). The team is supported by Trek Geotechnical Inc. (Trek), Stantec Consulting Ltd. (Stantec), Dillon Consulting Ltd. (Dillon) and J.D. Mollard and Associates (2010) Ltd. (Mollard) and is collectively referred to as the Hatch Team. Stantec, as part of the Hatch Ltd. team, was retained by MI in 2019 to complete a groundwater and surface water monitoring program that will form part of annual monitoring during the open water seasons, prior to, during, and following construction of the LMOC. The following report provides an overview of previous water quality monitoring in the study area, describes Stantec's 2020 monitoring program, and outlines plans for future monitoring work.

1.2 OBJECTIVES

The objectives of the water quality and water level monitoring report are to:

- Summarize previous work on water quality in the LMOC area.
- Describe the methods and results of the 2020 surface water and groundwater field program.
- Identify planned/recommended future water quality and water level data collection efforts related to the Project in the LMOC area.

2.0 PREVIOUS WORK

Between 2015 and 2017, KGS Group was retained by MI to explore two potential route options for the LMOC (KGS 2017a, 2017b). The studies conducted for the options analysis built on previous work following the 2011 flood and included groundwater, surface water, and geotechnical investigations. In 2017 one LMOC route (termed “Route D”) was selected for preliminary engineering and groundwater and surface water investigations were continued in the LMOC area between 2017 and 2018 (KGS 2018). Predesign surface water and groundwater monitoring in the LMOC area was conducted by Stantec in 2019 (Stantec 2020).

2.1 SURFACE WATER QUALITY

A description of previous work relating to surface water quality in the LMOC area and predesign surface water monitoring completed in 2019 is described in the Lake Manitoba Outlet Channel 2019 Surface Water and Groundwater Monitoring Report (Stantec 2020).

2.2 GROUNDWATER QUALITY

A description of previous work relating to groundwater quality in the LMOC area and predesign groundwater monitoring completed in 2019 is described in the Lake Manitoba Outlet Channel 2019 Surface Water and Groundwater Monitoring Report (Stantec 2020).

2.3 GROUNDWATER LEVEL

2.3.1 Long-term Monitoring Data

To determine the groundwater flow along the LMOC Route D, transducers (Heron™ DipperLog64) were deployed in wells TH-ED-01W and TH-GD-07 (previously referred to as 15-RD-PW1). The transducers were installed at the open bedrock or screened zones and both wells were under artesian pressure. The installed DipperLogs were programmed to record groundwater level changes every 4 hours to provide long-term data at the project location. The well designations and location information are summarized in Table 2-1.

Table 2-1 Summary of Installed Long-term Monitoring Wells in the LMOC Area

Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
	Easting (m)	Northing (m)			
TH-ED-01W	530503	5692376	249.49	Long-term Level Monitoring	Provides Groundwater Hydrographs from 2016 to present

Table 2-1 Summary of Installed Long-term Monitoring Wells in the LMOC Area

Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
	Easting (m)	Northing (m)			
TH-GD-07 (15-RD-PW1)	531900	5699454	252.05	Long-term Level Monitoring	Provides Groundwater Hydrographs from 2017 to present

Seasonal changes in groundwater levels were expected based on historical measurements in 2011 and 2015. The reported data are summarized in Figure 2-1 and Figure 2-2, showing piezometric changes from December 2016 through June 2020 for both wells. The largest recorded seasonal groundwater level fluctuation was 2.36 m (in well TH-ED-01 W) and 2.03 m (in well TH-GD-07) in 2019.

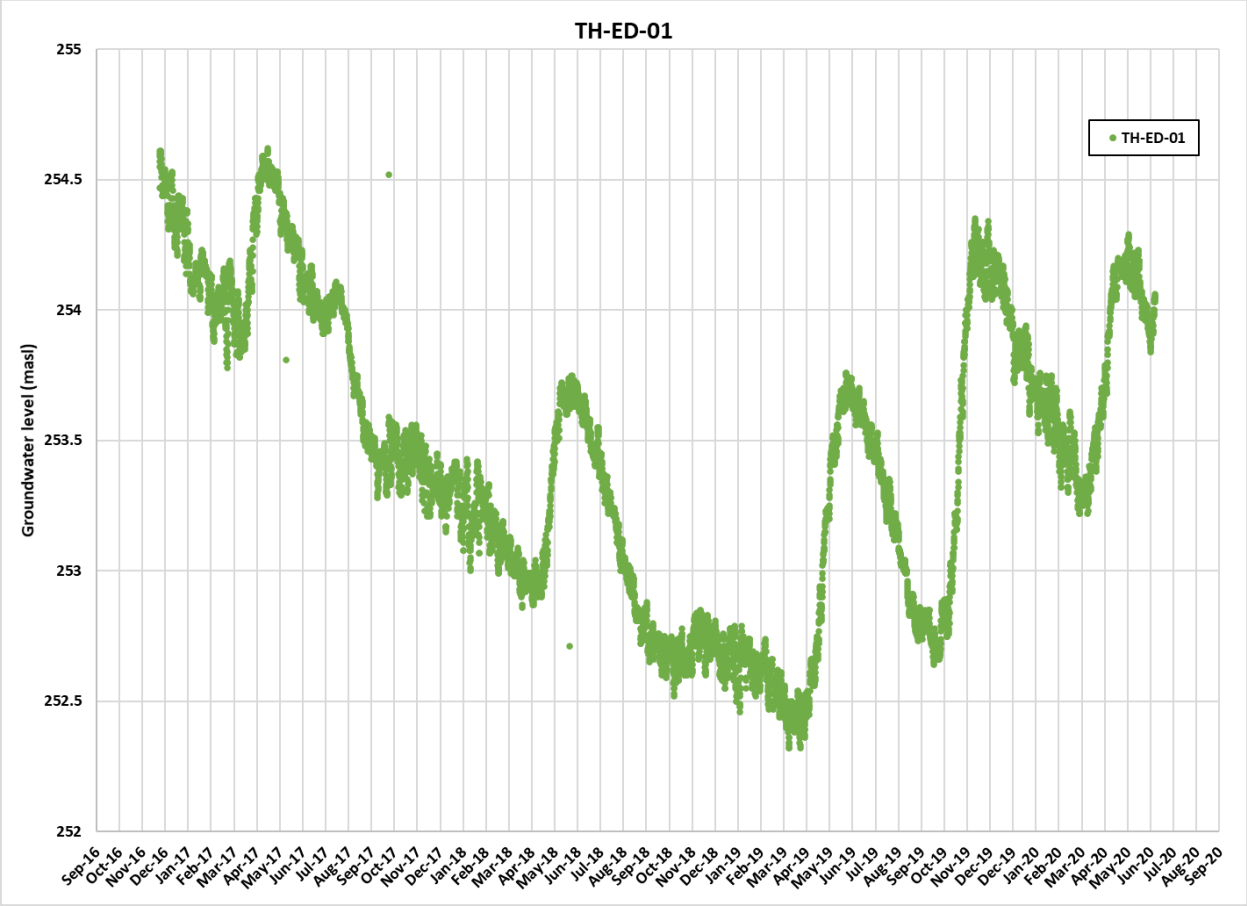

Figure 2-1 Long-term Groundwater Monitoring Data at TH-ED-01W

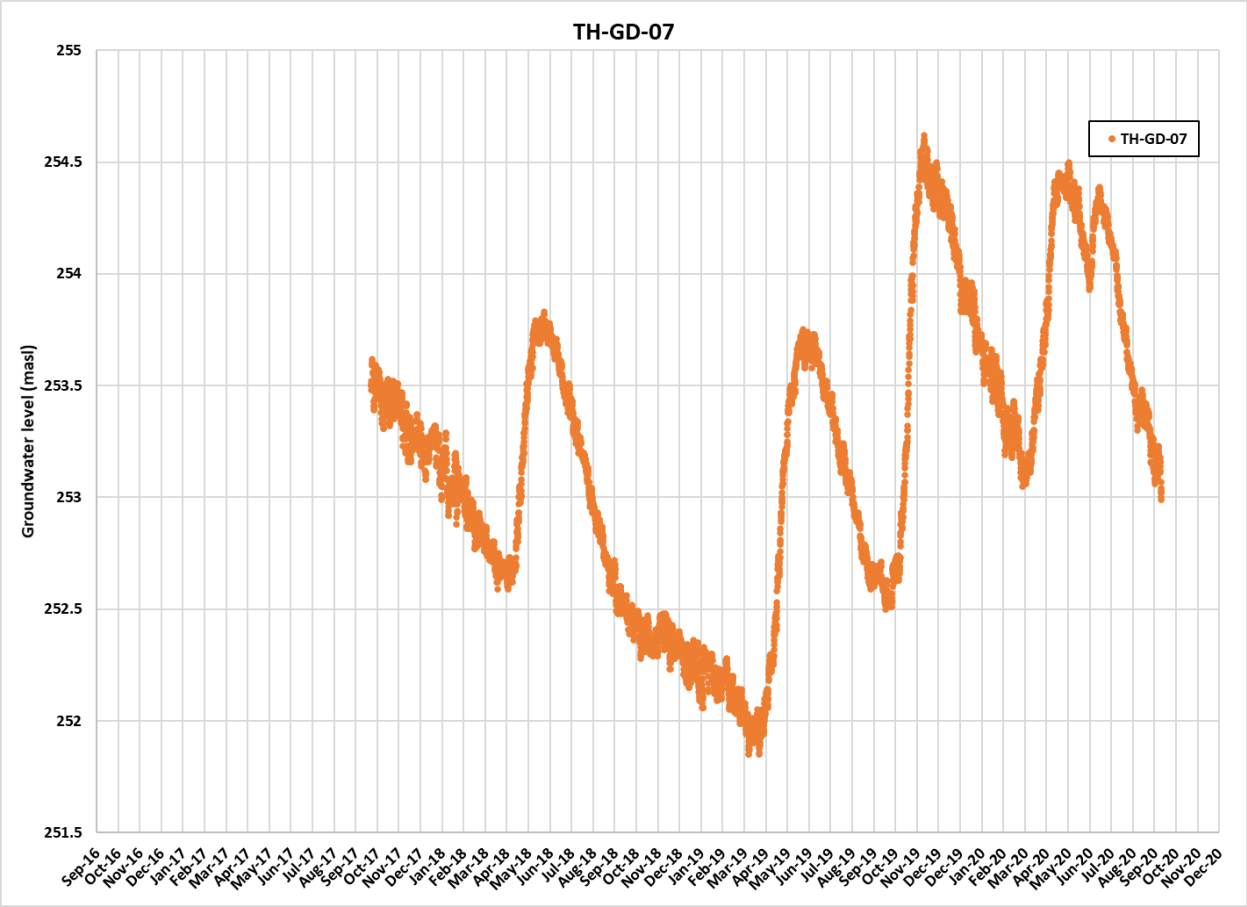

Figure 2-2 Long-term Groundwater Monitoring Data at TH-GD-07

2.3.2 Province of Manitoba Groundwater Wells

The Province of Manitoba drilled two groundwater wells in the LMOC area in 2003 that have been maintained as observation wells, providing water level records since 2005. These wells are designated WRB-116766 (provincial well G05LK001) and WRB-122050 (provincial well G05LM001) as summarized in Table 2-2.

Table 2-2 Summary of Existing Province of Manitoba Groundwater Wells in the LMOC Area

Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
	Easting (m)	Northing (m)			
WRB-116766 (provincial well 05LK001)	545154	5687006	280.91	Long-term Level Monitoring	Provincial well- Groundwater hydrograph was provided by Government of Manitoba from 2005 to present
WRB-122050 (provincial well G05LM001)	528861	5696563	255.83	Long-term level Monitoring	Provincial well- Groundwater hydrograph was provided by Government of Manitoba from 2005 to present

Figure 2-3 illustrates the seasonal fluctuation in the recorded groundwater elevations at the provincial wells from January 2005 to August 2020.

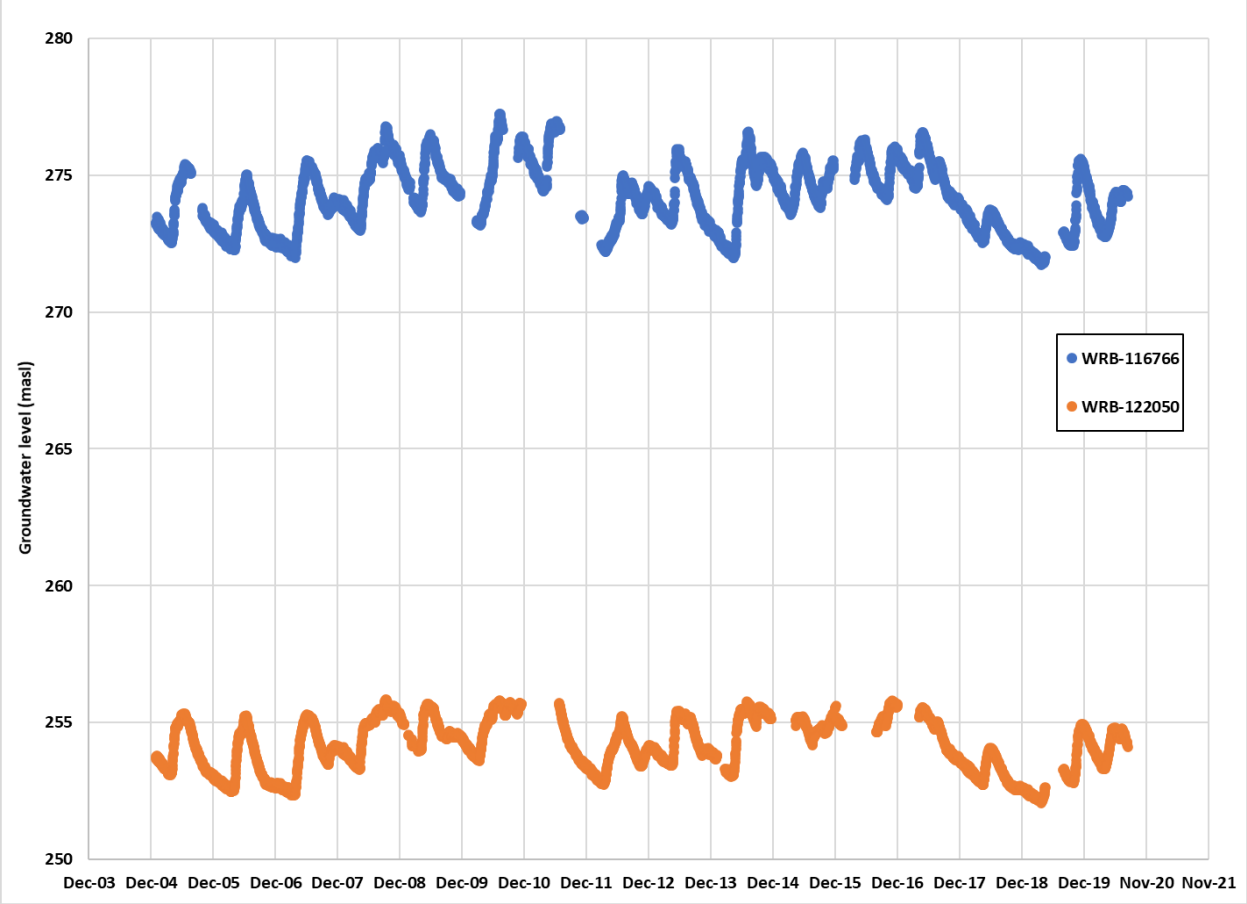

Figure 2-3 Piezometric Water Elevation in Carbonate Aquifer (2005-2020)

3.0 2020 PROGRAM METHODS

Methods for the collection of surface water samples and lake depths, groundwater samples, and groundwater level measurements have been consistent since the onset of the predesign monitoring program in the spring of 2019 (Stantec 2020). Monitoring will continue annually during the open water seasons until the detailed design phase of the LMOC, at which point site locations and methods may change to meet the monitoring needs of the detailed design and construction phases.

In 2020, surface water samples, lake depths, groundwater samples, and ground water level measurements were collected by Stantec in May, July, and October. Sampling frequency during the open water season was the same as in 2019 (3 times per year), but the month of sample collection varied in 2019, when samples were collected in June, August, and October. The surface water sites visited in 2019 were sampled in 2020 (Table 3-1). Groundwater quality sites monitored in 2020 were previously sampled in 2019 (Table 3-2), but the total number of groundwater sites decreased in 2020. In 2019, pump wells were sampled upon pump test completion and not in subsequent sampling events and therefore were not monitored during 2020 monitoring campaigns. A total of eight locations, including four pumping test locations (PW19-17, PW 19-06, PW19-22, and PW19-39), the two long term project monitoring wells (TH-ED-01W and TH-GD-07), and the two provincial wells (WRB-116766 and WRB-122050) were selected for monitoring long term groundwater levels in 2020. In 2019 only four long term monitoring and 12 single readings were conducted. Manual readings from the wells were not feasible in 2020 due to installed mechanical packers.

Details of the field and analytical methods used to characterize water quality and water level conditions in both surface and groundwater are summarized below.

3.1 SURFACE WATER QUALITY

3.1.1 Monitoring Sites

Monitoring campaigns were completed in May, July, and October 2020 by Stantec field technicians. Surface water quality was monitored at seven previously established sites (D1, D2, D3, D4, D6, D8, D9; KGS 2017a) and three sites (D10, D11, D12) added by Stantec in 2019 (Appendix A Map 3-1).

Water depths were recorded (when possible) at sampling sites D1 and D9 during 2020 monitoring events. Depth was also recorded at three surface water sites (D3, D4 and D10) in October 2020 during water level gauge installation.

Table 3-1 lists, from upstream to downstream, the surface water sample sites, rationale for site selection, sampling procedure and frequency. Surface water sample collection was limited at some sites by site and weather conditions.

Table 3-1 2020 Surface Water Quality Monitoring Sites, Locations, Rationale for Selection, and Sample Frequency

Watershed	Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Purpose/Selection Rationale	Sampling Procedure	2020 Samples Collected			Total
			Easting (m)	Northing (m)			May	July	October	
Lake Manitoba	D1	Lake Manitoba	529999	5680739	Surface water quality sample; water depth	Take surface sample from middle of bay by boat. Record depth at sample location. Record in-situ water quality readings at every meter depth. Record coordinates.	1	1	1*	3
Watchorn Creek	D2	Watchorn Creek	531563	5683591	Surface water quality sample	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D3	Reed Lake	532496	5686856	Surface water quality sample; water depth	Take surface sample from shore. Record coordinates. Install water level gauge (October). Record water depth.	1	1	1	3
Birch Creek	D4	Clear Lake	531214	5689935	Surface water quality sample; water depth	Take surface sample from shore. Record coordinates. Install water level gauge (October). Record water depth.	1	1	1	3
Birch Creek	D10	Water Lake	531272	5692230	Surface water quality sample; water depth	Take surface sample from shore. Record coordinates. Install water level gauge (October). Record water depth.	1	1	1	3
Birch Creek	D11	Unnamed lake inlet	531317	5693397	Surface water quality sample	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D12	Goodison Lake outlet	531741	5697313	Surface water quality sample	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D6	Birch Creek	532477	5698322	Surface water quality sample	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Birch Creek	D8	Birch Creek	533226	5702311	Surface water quality sample	Take surface sample from shore on upstream side of road crossing. Record coordinates.	1	1	1	3
Lake St. Martin	D9	Lake St. Martin	533392	5706318	Surface water quality sample; water depth	Take surface sample from middle of bay by boat. Record depth at sample location. Record in-situ water quality readings at every meter depth. Record coordinates.	1	1	1*	3
						Total Number of Samples	10	10	10	30

* Sample collected from shoreline instead of by boat due to weather conditions

3.1.2 Field Sampling and Laboratory Analyses

Field data collection methods for the surface water sampling program followed the Protocols Manual for Water Quality Sampling in Canada (CCME 2011). In situ water quality parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, nitrite) were measured at each site using a calibrated YSI multi-parameter meter, and either a La Motte turbidimeter or Hanna tester. At sites D1 and D9, water depth was measured, and in-situ water quality readings were recorded at 1-m depth increments. Samples were collected with gloved hands, in clean plastic bottles held facing upstream and oriented to collect water below the surface, thereby limiting the potential for collection of surface films. Samples for dissolved metals and nutrients were filtered in the field at the time of collection, then preserved. Samples for non-filtered parameters were preserved in the field. Bottles were kept cool and in the dark for transport to the laboratory (in a cooler).

Samples were sent to ALS Environmental Laboratory, Winnipeg, Manitoba, for analysis of the physical and chemical parameters presented in Table B-1 (Appendix B). ALS is certified under the Canadian Association for Laboratory Accreditation. For most parameters, detection limits (DL) were less than 10% of the water quality guidelines and were suitable for comparison with the guidelines. DLs for fluoride, nitrite, total copper, and toluene were greater than 10% of the guidelines for all samples analyzed but were below the guidelines. In some cases, DLs for dissolved zinc (May 2020) and total ammonia (as N; July 2020) were greater than 10% of the guidelines but were always below the referenced guidelines.

Surface water quality data were compared with the following federal and provincial guidelines:

- Canadian Water Quality Guidelines for Protection of Aquatic Life (short- and long-term) (CCME 2020).
- Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life (chronic and acute) (MWS 2011).

The most conservative guidelines were used to identify exceedances. Typically, the long-term CWQG-FAL and chronic MSOG-FAL, where available, were the most conservative.

Analytical, field duplicate, and QA/QC data are provided in Appendix B in Tables B-1, B-2, and B-5, respectively.

3.1.3 Quality Assurance/Quality Control

A quality assurance/ quality control (QA/QC) program was incorporated into the field and laboratory program. The QA/QC data are presented in Tables B-2 and B-5 in Appendix B. These include data from duplicate field samples, to test the reproducibility of the samples, field blank samples, to assess the potential for contaminants to be introduced during sampling, and trip blanks, to assess the potential for cross-contamination in the field or during transit. Field duplicates, field blanks, and trip blanks comprised 21% of the surface water quality dataset. ALS also followed internal QA/QC procedures for laboratory duplicates, method blanks, and reference materials.

Field duplicates were collected at randomly selected sampling sites along with the parent sample and submitted to the laboratory for analysis. Duplicates were submitted blind, without the location, name, or time indicated on the label, to test heterogeneity of the water being sampled and precision of the laboratory analysis. Field duplicate samples comprised 9% of the surface water quality dataset. Duplicate results were compared using relative percent difference (RPD), with a data quality objective (DQO) of 20% for values more than five times the DL (BC MOE 2013). The RPD was calculated as:

Equation 3-1 Relative Percent Difference

$$RPD = \frac{|result\ 1\ -\ result\ 2|}{(result\ 1 + result\ 2) \div 2}$$

There were three field duplicates collected and analyzed for the full suite of laboratory parameters (Table B-2 in Appendix B). Of these three field duplicates, one duplicate pair collected exceeded the DQO for three parameters (chloride, sulphate, and total uranium) and one duplicate pair exceeded the DQO for two parameters (total suspended solids and total coliforms). These samples were collected in May and October of 2020, respectively.

There were two field blanks collected and analyzed to assess the potential for cross-contamination in the field (Table B-5 in Appendix B). The field blanks consisted of reverse osmosis de-ionized water provided by ALS, which was exposed to the same field conditions as the water samples collected (opening the bottle in the field and filtering and preserving as required). The DQO (values below or within five times the method DL) was met for all parameters in field blanks collected in May and October 2020. The field blank collected in July 2020 met the DQO for all parameters except total cadmium and dissolved copper. Lab rechecks and reanalysis were requested, and the results were confirmed by ALS.

There were three trip blanks collected and analyzed to assess the potential for cross-contamination in the field or during transit (Table B-5 in Appendix B). Sealed trip blanks were provided by ALS and accompanied water samples to and from the field and were opened only when they arrived at the laboratory for analysis. The DQO (values below or within five times the method DL) was met for all parameters in all trip blanks in May and October 2020. The trip blank collected in July 2020 met the DQO for all parameters except total barium, total calcium, total magnesium, total manganese, total potassium, total sodium, total strontium, and total zinc. Lab rechecks and reanalysis were requested, and the results were confirmed by ALS.

3.2 GROUNDWATER QUALITY

3.2.1 Monitoring Sites

Groundwater quality monitoring was conducted contiguously with surface water sampling. Eight sites established by the Hatch team, including observation wells and test hole wells (within the channel right of way and at future bridge structure locations), were monitored for groundwater quality during field campaigns in May, July, and October 2020 (Appendix A, Map 3-2). In 2019, pump wells were sampled

upon pump test completion and not in subsequent sampling events and therefore were not visited during 2020 monitoring campaigns.

Table 3-2 lists the sample sites in the LMOC study area, site purpose, and sample frequency. Sites are listed in the order from south to north.

Table 3-2 2020 Groundwater Wells (pump, observation, and groundwater quality monitoring wells), Locations, Purpose and Sample Frequency

Site ID	Test Hole Site ID*	Coordinates (UTM Zone 14 U)		Purpose	2020 Samples Collected			Total
		Easting (m)	Northing (m)		May	July	October	
OW19-40	TH18-49	530823	5683152	Groundwater quality sampling		1	1	2
CH19-37	TH18-50	530879	5686139	Groundwater quality sampling	1	1	1	3
OW19-23	TH18-37	530694	5688133	Groundwater quality sampling.	1	1	1	2
BH19-29	TH18-27	530338	5693405	Groundwater quality sampling	1	1	1	3
OW19-05	TH18-22	531018	5696655	Groundwater quality sampling	1	1	1	3
BH19-12		532052	5699190	Groundwater quality sampling	1	1	1	3
OW19-18	TH18-10	532303	5701488	Groundwater quality sampling	1	1	1	3
CH19-08	TH18-03	533152	5703020	Groundwater quality sampling	1	1	1	3
				Total Number of Samples	7	8	8	23

OW: observation well drilled adjacent to pump wells
CH: test hole well in channel right of way
BH: test hole well at future bridge structure locations
* Test Hole Site ID from previous field programs. Sites were renamed for 2019 field program.
Cells shaded grey indicate that no sample was collected.

3.2.2 Field Sampling and Laboratory Analyses

Field data collection methods for the groundwater sampling program followed the Protocols Manual for Water Quality Sampling in Canada (CCME 2011) and Standard Operating Procedures for Groundwater Sample Collection developed by Stantec.

After well installation and prior to initial sampling, groundwater wells were developed by purging 10 times the volume of the well, under natural artesian flow. At subsequent sampling events, in order to ensure groundwater samples were representative of the natural formation water, the monitoring wells were purged a minimum of three well volumes, or until groundwater parameters (specific conductivity, dissolved oxygen, oxidation/reduction potential and temperature) stabilized. For flowing wells, a temporary shut off valve was installed with tubing that allowed the water to flow directly into a clean graduated pail used to measure purge water volume. In the fall, monitoring wells were prepared for winter months by pushing the water level down below typical soil frost depth using air pressure (Figure 3-1). The wells were sealed using mechanical packers to keep the groundwater below the frost depth (~2 m).

Figure 3-1 Groundwater Well Preparation for Winter Months including Packer Installation

In situ water quality parameters (temperature, pH, specific conductivity, oxidation/reduction potential and dissolved oxygen) were measured every 2 minutes from the water flowing into the graduated pail at each site using a calibrated YSI multi-parameter meter and La Motte turbidimeter or Hanna tester. Groundwater samples were collected with gloved hands, directly from the flowing water into clean plastic bottles. Samples for dissolved metals and nutrients were filtered at the time of collection. Samples for non-filtered parameters were preserved in the field. Bottles were kept cool and in the dark for transport to the laboratory (in a cooler).

Samples were sent to ALS Environmental Laboratory, Winnipeg, Manitoba, for analysis of the physical and chemical parameters listed in Table B-3 (Appendix B). ALS is certified under the Canadian Association for Laboratory Accreditation. DLs were less than 10% of the water quality guidelines for most parameters and were suitable for comparison with the guidelines. DLs for fluoride, nitrite, total copper, and toluene were greater than 10% of the guidelines for all samples analyzed but were below the guidelines. In some cases, DLs for dissolved zinc (May 2020) and total ammonia as nitrogen (July 2020) were greater than 10% of the guidelines but were always below the referenced guidelines.

Water quality data were compared with the following federal and provincial guidelines:

- Canadian Water Quality Guidelines for Protection of Aquatic Life (short- and long-term) (CCME 2020).
- Manitoba Standards, Objectives, and Guidelines for the protection of Freshwater Aquatic Life (chronic and acute) (MWS 2011).
- Guidelines for Canadian Drinking Water Quality (Health Canada 2019).

Although not typically considered for groundwater quality, groundwater quality results were referenced to Federal and Provincial guidelines for the protection of freshwater aquatic life. These guidelines were considered due to the artesian condition of the carbonate aquifer in the LMOC area and the potential for groundwater to be discharged to surface water during the Project.

The most conservative guidelines were used to identify exceedances. Typically, the long-term CWQG-FAL and chronic MSOG-FAL, where available, were the most conservative. Some parameters included in the CDWQ guidelines are not considered in CWQG-FAL and MSOG-FAL.

Analytical, field duplicates, and QA/QC data are provided in Tables B-3, B-4 and B-5 in Appendix B, respectively.

3.2.3 Quality Assurance/Quality Control

A quality assurance/ quality control (QA/QC) program was incorporated into the field and laboratory program. The QA/QC data are presented in Tables B-4 and B-5 in Appendix B. These include data from duplicate field samples, to test the reproducibility of the samples, field blank samples, to assess the potential for contaminants to be introduced during sampling, and trip blanks, to assess the potential for cross-contamination in the field or during transit. Field duplicates, field blanks, and trip blanks comprised 26% of the groundwater quality dataset. ALS also followed internal QA/QC procedures for laboratory duplicates, method blanks, and reference materials.

Field duplicates were collected at randomly selected sampling sites along with the parent sample and submitted to the laboratory for analysis. Duplicates were submitted blind, without the location, name, or time indicated on the label, to test heterogeneity of the water being sampled and precision of the laboratory analysis. Duplicate samples comprised 12% of the 2020 dataset. Duplicate results were compared using relative percent difference (RPD), with a data quality objective (DQO) of 20% for values

more than five times the DL (BC MOE 2013). The RPD was calculated using Equation 3-1 given in Section 3.1.3.

There were three field duplicates collected and analyzed for the full suite of laboratory parameters (Table B-4 in Appendix B). Of these three field duplicates, one duplicate pair collected in May 2020 exceeded the DQO for one parameter (total suspended solids), one duplicate pair collected in July 2020 exceeded the DQO for four parameters (total suspended solids, total aluminum, total iron, and total titanium and one duplicate pair collected in July 2020 exceeded the DQO for 12 parameters (total suspended solids, total aluminum, total calcium, total cesium, total chromium, total cobalt, total iron, total lead, total magnesium, total thorium, total titanium, and total uranium). Lab rechecks and reanalysis were requested, and the results were confirmed by ALS.

There were two field blanks collected and analyzed to assess the potential for cross-contamination in the field (Table B-5 in Appendix B). The field blanks consisted of reverse osmosis de-ionized water provided by ALS, which was exposed to the same field conditions as the water samples collected (opening the bottle in the field and filtering and preserving as required). The DQO (values below or within five times the method DL) was met for all parameters in field blanks collected in May and October 2020. The field blank collected in July 2020 met the DQO for all parameters except total cadmium and dissolved copper. Lab rechecks and reanalysis were requested, and the results were confirmed by ALS.

There were three trip blanks collected and analyzed to assess the potential for cross-contamination in the field and during transit (Table B-5 in Appendix B). Sealed trip blanks were provided by ALS and accompanied water samples to and from the field and were opened only when they arrived at the laboratory for analysis. The DQO (values below or within five times the method DL) was met for all parameters in all trip blanks in May and October 2020. The trip blank collected in July 2020 met the DQO for all parameters except total barium, total calcium, total magnesium, total manganese, total potassium, total sodium, total strontium, and total zinc. Lab rechecks and reanalysis were requested, and the results were confirmed by ALS.

3.3 GROUNDWATER LEVEL

3.3.1 Monitoring Sites

Stantec conducted groundwater level monitoring in conjunction with groundwater quality sampling (Section 3.2) during the 2020 field season. A total of eight locations, including four pumping test locations (PW19-17, PW 19-06, PW19-22, and PW19-39), the two long term project monitoring wells (TH-ED-01W and TH-GD-07), and the two provincial wells (WRB-116766 and WRB-122050) were selected for monitoring. The pump-wells were equipped with Heron™ DipperLog64 instrumentation, programmed to record groundwater changes every 4 hours starting 1st of October 2019, to provide additional long-term data (Table 3-3). The long-term groundwater monitoring data were retrieved from these wells using the Heron™ DipperLog64 reader.

Groundwater data were extracted from wells TH-ED-01W and TH-GD-07. Data loggers in these wells were programmed to record the groundwater level changes every 4 hours since 2016. In addition, the

Government of Manitoba provided data from 2005 to present for the two provincial wells, WRB-116766 and WRB-122050, located in vicinity of the LMOC. The groundwater level monitoring locations are shown in Appendix A- Map 3-3 and summarized in Table 3-3.

Table 3-3 Summary of Groundwater Wells for Long-term Level Monitoring

Pump Test Well ID	Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
		Easting (m)	Northing (m)			
2019 Installed Wells						
PW19-17		532294	5701488	248.876	Pump Test Long-Term Level Monitoring	Artesian Hydrographs from Oct 2019-present Data Logger # C30274
PW19-06		531018	5696645	250.472	Pump Test Long-Term Level Monitoring	Artesian Hydrographs from Oct 2019-present Data Logger #C30288
PW19-22		530695	5688122	248.514	Pump Test Long-Term Level Monitoring	Artesian Hydrographs from Oct 2019-present Data Logger# C30065
PW19-39		530823	5683152	247.811	Pump Test Long-Term Level Monitoring	Artesian Hydrographs from Oct 2019-present Data Logger# C30351
Existing Wells						
	TH-ED-01W (TH-ED-01P)	530503	5692376	249.49	Long-Term Level Monitoring	Groundwater Hydrographs from 2016 to present
	15-RD-PW1 (TH-GD-07)	531900	5699454	252.05	Long-Term Level Monitoring	Groundwater Hydrographs from 2017 to present
	WRB-116766 (G05LK001)	545154	5687006	280.91	Long-Term Level Monitoring	Provincial well-Groundwater hydrograph was provided by Government of Manitoba from 2005 to present
	WRB-122050 (G05LM001)	528861	5696563	255.83	Long-Term Level Monitoring	Provincial well-Groundwater hydrograph was

Table 3-3 Summary of Groundwater Wells for Long-term Level Monitoring

Pump Test Well ID	Observation Well ID	Coordinates (UTM Zone 14 U)		Ground Elevation (masl)	Purpose	Comment
		Easting (m)	Northing (m)			
						provided by Government of Manitoba from 2005 to present

3.3.2 Field Methods

3.3.2.1 Manual – Short-term Monitoring

Packers were installed after completion of the 2019 field campaign to keep water below the frost line and protect the wells from freezing; therefore, no further manual readings were conducted.

3.3.2.2 Data logger – Long-term Monitoring

Long-term groundwater monitoring data will be used to provide a record of the groundwater level changes before, and during, project construction. The monitoring plan included data collection from the existing long-term wells (TH-ED-01W and TH-GD-07) and the pump wells (PW19-17, PW19-06, PW19-22, and PW19-39).

Groundwater pressure changes have been continuously recorded at wells TH-ED-01W and TH-GD-07 and the four Hatch Team pump wells since 2016 and 2019, respectively. The recorded groundwater pressure data (total pressure: groundwater pressure plus atmospheric pressure) were downloaded from the dipperlogs using a Heron™ dipperlog64 reader. Data from a Heron™ barometer (programmed to record data every 4 hours – consistent with the other data loggers) that was installed at PW19-17 was downloaded to adjust the other readings for barometric pressure. Appendix A, Map 3-3 shows the locations of the long-term monitoring wells along the LMOC.

3.3.2.3 Vibrating Wire Transducers

Beginning in 2019, the Hatch Team installed vibrating wire transducers at different depths in various test hole locations to record groundwater level fluctuations along the LMOC throughout the year (Table 3-4). The installed equipment was programmed to record groundwater level changes every 24 hours to provide long-term data at the project location. Manual readings were also collected during quarterly field campaigns. Standpipes, installed in the LMOC area between 2011 and 2016, were also monitored by the Hatch Team on an opportunistic basis.

Table 3-4 Summary of Sites with Continuously Logged Vibrating Wire Transducers

Test Hole	Instrument	Stratigraphic Unit	Dates Logged
CH19-10	VW19-10	Bedrock	2019-Nov-04 to Present
BH19-14	VW19-14A	Till	2019-Sep-18 to 2020-Mar-12 and 2020-Jul-7 to Present
	VW19-14B	Bedrock	
	VW19-14A(2)	Till	
BH19-19A	VW19-19A	Till	2020-Mar-12 to Present
BH19-29	VW19-29A	Till	2019-Nov-23 to Present
	VW19-29B	Bedrock	
BH19-29A	VW19-29A(2)	Till	
BH19-31	VW19-31A	Till	2019-Nov-23 to 2019-Dec-8 2020-Mar-12 to Present
	VW19-31B	Bedrock	
CH19-36	VW19-36A	Till	2019-Nov-15 to Present
	VW19-36B	Sand	
	VW19-36C	Bedrock	
OW19-41	VW19-41A	Till	2019-Nov-23 to Present
	VW19-41B	Till	
	VW19-41C	Till	
	VW19-41D	Bedrock	
BH19-13	VW19-13A	Till	2019-Jun-29 to 2019-Sep-18 2020-Mar-12 to 2020-July-7
	VW19-13B	Bedrock	
BH19-14	VW19-14A	Till	2019-Nov-16 to 2020-Mar-11 2020-Jul-7 to Present
	VW19-14B	Bedrock	
BH19-14A	VW19-14A(2)	Till	
BH19-30	VW19-30A	Sand	2019-Jun-29 to 2019-Sep-30
	VW19-30B	Bedrock	

4.0 RESULTS

The following sections present the water quality and water level data for sites in the LMOC area. Watercourses and lakes in the vicinity of the LMOC that are expected to be affected by the proposed Project were listed in Table 3-1. Groundwater quality monitoring sites were listed in Table 3-2 and groundwater level monitoring sites were listed in Table 3-3. Surface water and groundwater quality data are presented in Table B-1 and B-3 in Appendix B, respectively. Water level results are presented in Section 4.2.2.

4.1 SURFACE WATER

4.1.1 Quality

Surface water samples collected from the LMOC area in 2020 yielded results that exceeded CWQG-FAL and/or MSOG-FAL guidelines for 10 parameters: dissolved oxygen, chloride, fluoride, total and dissolved phosphorus, dissolved iron, dissolved manganese, dissolved zinc, total aluminum, and total iron. Guideline exceedances are summarized Table 4-1 and a complete list of surface water quality results is provided in Table B-1, Appendix B.

Parameters with the largest number of exceedances at the most sites include fluoride (27 exceedances at 10 sites), total phosphorus (22 exceedances at 9 sites), dissolved phosphorus (9 exceedances at five sites), dissolved oxygen (8 records below guidelines at seven sites), and chloride (6 exceedances at two sites).

Although CWQG-FAL and/or MSOG-FAL exceedances for dissolved iron and manganese were observed at surface water quality sites in 2020, no sites in 2019 yielded results that exceeded federal and provincial guidelines. Additionally, surface water samples collected from the LMOC area in 2019 yielded results that exceeded CWQG-FAL and/or MSOG-FAL guidelines for five parameters that did not exceed guidelines in 2020: pH, dissolved aluminum, total arsenic, total copper, and total uranium (Stantec 2020).

Parameters with the largest number of exceedances at the most sites were consistent between 2019 and 2020, and include fluoride, total and dissolved phosphorus, and chloride.

Table 4-1 2020 Surface Water Quality Guideline Exceedances

Parameter	Guideline		Sites where Exceedances are Present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Dissolved Oxygen	CWQG-FAL	>5.5/6/6.5/9.5[VAR-D]	**D2**, **D3**, D4, D6, **D10**, D11, **D12**	8	27%	0.11[†]	D11[†]	6-July-20[†]
Chloride	CWQG-FAL	120[B]	**D1, D9**	6	18%	206	D1	8-Oct-20
Fluoride	CWQG-FAL	0.12[B]	**D1, D2, D3, D4, D6, D8, D9, D10, D11, D12**	27	82%	0.335	D8	5-Oct-20
Total phosphorus	MSOG-FAL	0.025[C]	**D2, D3, D4, D6, D8, D9, D10, D11, D12**	22	67%	0.192	D2	5-May-20
Dissolved phosphorus	MSOG-FAL	0.025[C]	**D2**, D4, D6, **D8,** D11	9	27%	0.172	D2	5-May-20
Dissolved iron	MSOG-FAL	0.3[D]	D11	1	3%	0.461	D11	6-July-20
Dissolved manganese	CWQG-FAL	3.6_{EQ3}[A] 0.43_{EQ4}[B]	D11	1	3%	1.51	D11	6-July-20
Dissolved zinc	CWQG-FAL	Varies with hardness	D10, D11	2	6%	0.0141	D10	6-May-20
Total aluminum	CWQG-FAL MSOG-FAL	Varies with pH	D3, **D8**	2	6%	0.273	D3	7-Oct-20
Total iron	CWQG-FAL MSOG-FAL	0.3[B] 0.3[D]	D9, **D10**	2	6%	0.44	D10	7-Oct-20

Notes:
Results are in mg/L unless otherwise specified in the parameter column.
Percent Exceedances: percent of total collected samples with guideline exceedances.
DX: site with guideline exceedances in 2019

Table 4-1 2020 Surface Water Quality Guideline Exceedances

Parameter	Guideline	Sites where Exceedances are Present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value

† Dissolved Oxygen values listed are the minimum value since it is the value farthest from the acceptable guidelines.

VAR Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6 mg/L; for warm water biota: other life stages = 5.5 mg/L; for cold water biota: early life stages = 9.5 mg/L; for cold water biota: other life stages = 6.5 mg/L

A CWQG-FAL Freshwater Aquatics Short Term

B CWQG-FAL Freshwater Aquatics Long Term

C MSOG-FAL Tier I - Water Quality Guidelines - Freshwater Aquatic Life

D MSOG-FAL Tier III - Water Quality Guidelines - Freshwater Aquatic Life

EQ3: The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L.

EQ4: The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.

4.1.2 Depth

Surface water depth was recorded at three water quality sampling locations during installation of water level gauges in October 2020 (Table 4-2).

Table 4-2 2020 Surface Water Depth Measurements at D3, D4, and D10 Gauge Sites

Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Water Depth (m)
		Easting (m)	Northing (m)	
D3	Reed Lake	532718	5686879	0.45
D4	Clear Lake	531158	5689897	0.58
D10	Water Lake	531314	5692247	0.52

Surface water depth was not measured at the locations listed in Table 4-2 in October 2019, so a yearly seasonal comparison is not possible. However, water levels will be measured at these sites in subsequent field programs.

4.2 GROUNDWATER

4.2.1 Quality

Groundwater samples collected from the study area in 2020 yielded results that exceeded referenced CWQG-FAL, MSOG-FAL, and/or CDWQ guidelines for 15 parameters: dissolved oxygen, pH, turbidity, fluoride, total phosphorus, total dissolved solids, dissolved copper, dissolved iron, dissolved manganese, dissolved zinc, total aluminum, total copper, total iron, total lead and total manganese. Guideline exceedances are summarized in Table 4-3 and a complete list of groundwater quality results is provided in Table B-3, Appendix B.

Parameters with the largest number of exceedances at the most sites include fluoride (26 exceedances at 8 sites), turbidity (18 exceedances at 8 sites), dissolved oxygen (18 exceedances at 8 sites), and total aluminum (12 exceedances at 7 sites).

Although CWQG-FAL, MSOG-FAL and/or CDWQ exceedances for pH, dissolved copper, dissolved iron, and total lead were observed at groundwater quality sites in 2020, no sites in 2019 yielded results that exceeded federal and provincial guidelines for these parameters. Additionally, groundwater samples collected from the LMOC area in 2019 yielded results that exceeded CWQG-FAL and/or MSOG-FAL guidelines for three parameters that did not record guideline exceedances in 2020: E. coli, total coliforms and toluene (Stantec 2020).

Parameters with the largest number of exceedances of the referenced guidelines at the most sites were consistent between 2019 and 2020, and include fluoride, field turbidity, and dissolved oxygen.

Table 4-3 2020 Groundwater Quality Guideline Exceedances

Parameter	Guideline		Sites where exceedances are present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
Dissolved Oxygen	CWQG-FAL	>5.5/6/6.5/9.5[V] AR-B	**BH19-12**, **BH19-29**, **CH19-08**, **CH19-37**, **OW19-05**, **OW19-18**, **OW19-23**, **OW19-40**	18	78%	0.64[†]	OW19-05[†]	5-Oct-20[†]
pH	CDWQ	7.0-10.5[E]	BH19-12, OW19-18	2	9%	6.9	OW19-18	5-Oct-20
Turbidity, Field (NTU)	CDWQ	≤0.3/1.0/0.1[G]	**BH19-12**, **BH19-29**, **CH19-08**, **CH19-37**, **OW19-05**, **OW19-18**, **OW19-23**, **OW19-40**	22	85%	54.0	OW19-05	5-Oct-20
Fluoride	CWQG-FAL	0.12[B]	**BH19-12**, **BH19-29**, **CH19-08**, **CH19-37**, **OW19-05**, **OW19-18**, **OW19-23**, **OW19-40**	26	100%	0.829	BH19-29	6-Oct-120
Total phosphorus	MSOG-FAL	0.025[C]	BH19-12, **CH19-08, OW19-05**, OW19-23, OW19-40	8	31%	0.578	CH19-08	5-May-20
Total Dissolved Solids	CDWQ	≤500[E]	**CH19-08**	1	4%	529	CH19-08	5-Oct-20
Dissolved copper	CWQG-FAL	$0.024/0.04_{s10}$[D]	BH19-29	1	4%	0.00554	BH19-29	6-Oct-20
Dissolved iron	CWQG-FAL CDWQ	0.3[D] ≤0.3[E]	CH19-08	1	4%	0.47	CH19-08	7-July-20
Dissolved manganese	CDWQ	≤0.05[E]	CH19-08, **OW19-05**	7	27%	0.0518	CH19-08	7-Jully-20
Dissolved zinc	CWQG-FAL	Varies with hardness	**CH19-37, OW19-18**	2	8%	0.0148	CH19-37	4-May-20
Total aluminum	CWQG-FAL	Varies with pH	BH19-29, **CH19-08**, CH19-37, **OW19-05**,	12	46%	6.34	CH19-08	7-July-20

Table 4-3 2020 Groundwater Quality Guideline Exceedances

Parameter	Guideline		Sites where exceedances are present	No. of Exceedances	Percent Exceedances	Max. Value	Site of Max. Value	Date of Max. Value
	MSOG-FAL CDWQ		OW19-08, OW19-23, OW19-40					
Total copper	CWQG-FAL CDWQ	Varies with hardness	**BH19-29**, **CH19-08**, **CH19-37**, OW19-05	6	23%	0.0271	CH19-08	7-July-20
Total iron	CWQG-FAL MSOG-FAL CDWQ	0.3[B/D/E]	**CH19-08**, CH19-37, **OW19-05**, OW19-40	9	35%	6.69	CH19-08	7-July-20
Total lead	CDWQ	0.005[F]	CH19-08	2	8%	0.00661	CH19-08	7-July-20
Total manganese	CWQG-FAL CDWQ	≤0.05[E]	**CH19-08**, CH19-37, **OW19-05**, OW19-40	10	38%	0.438	CH19-08	5-May-20

Notes:

Results are in mg/L unless otherwise specified in the parameter column.

Percent Exceedances: percent of total collected samples with guideline exceedances.

DX: site with guideline exceedances in 2019

[†] Dissolved Oxygen values listed are the minimum value since it is the value farthest from the acceptable guidelines.

[VAR] Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6 mg/L; for warm water biota: other life stages = 5.5 mg/L; for cold water biota: early life stages = 9.5 mg/L; for cold water biota: other life stages = 6.5 mg/L

s9: Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Lead, 0.008 mg/L is for 4 day averaging duration and 0.227 mg/L is for 1 hour averaging duration.

s10: Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Copper, 0.024 mg/L is for 4 day averaging duration and 0.04 mg/L is for 1 hour averaging duration.

[A] CWQG-FAL Freshwater Aquatics Short Term

[B] CWQG-FAL Freshwater Aquatics Long Term

[C] MSOG-FAL Tier I - Water Quality Guidelines - Freshwater Aquatic Life

[D] MSOG-FAL Tier III - Water Quality Guidelines - Freshwater Aquatic Life

[E] CDWQ Aesthetic Objectives/ Operational Guidelines

[F] CDWQ Maximum Acceptable Concentration

[G] CDWQ Microbial Parameters

4.2.2 Level

4.2.2.1 Long-term Pump Well Monitoring Data

The long-term monitoring data at the pump wells are shown in Figure 4-1. Based on previous work (Section 2.0), the groundwater elevation was expected to be the highest at middle reach of LMOC and lowest towards the lakes. The maximum groundwater elevation was recorded at PW1906 with seasonal change of approximately 2 m. All of the recorded groundwater levels show the same fluctuation pattern. The groundwater peaks are recorded in November 2019 and May 2020 following the wet seasonal recharge in the area. The lowest groundwater level was recorded at the end of the dry season, as expected, in March 2020.

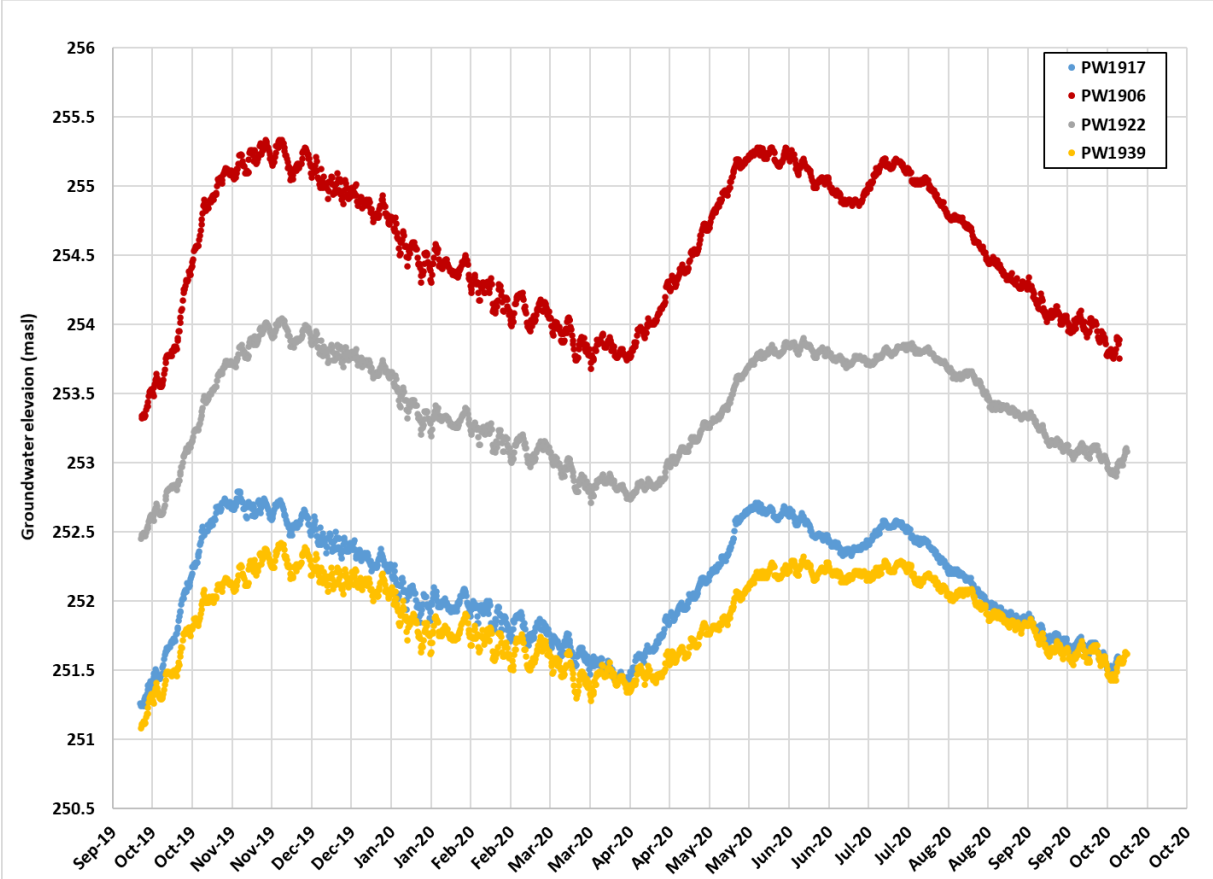

Figure 4-1 Long-term Monitoring Data at Four Pump Wells along the LMOC

4.2.2.2 Comparison of Pump Wells to Provincial and Historical Wells

Long-term groundwater readings were plotted and compared to the WRB-122050 (G05LM001) and WRB-116766 (G05LK001) provincial well data. The maximum seasonal groundwater fluctuations were 2.36 m (in well TH-ED-01 W) and 2.03 m (in well TH-GD-07), recorded in 2019. As shown in Figure 4-2, the long-term data followed a recharge trend, showing lower groundwater elevations in dry seasons and higher groundwater elevations in wet seasons. Groundwater level changes in TH-ED-01, TH-GD-07, PW19-17, PW19-06, PW19-22, and PW19-39 closely followed the groundwater level changes in the provincial well data. Additionally, as expected, the recorded groundwater levels are between the lake levels, higher than downstream Lake St. Martin and lower than upstream Lake Manitoba.

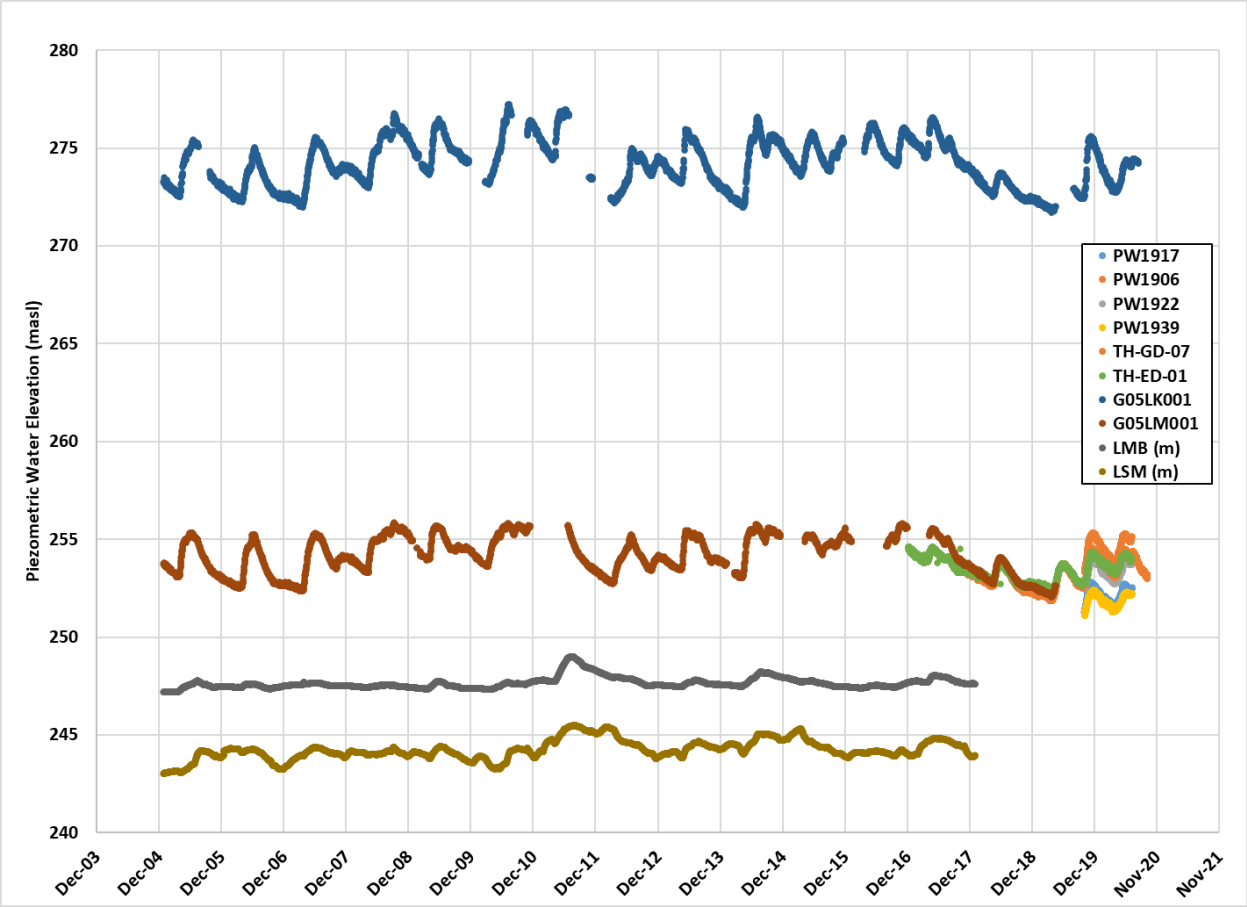

Figure 4-2 Piezometric Water Elevation at Groundwater Wells, Lake St. Martin, and Lake Manitoba

4.2.2.3 Long-term Vibrating Wire Groundwater Elevation

Summary tables of groundwater level measurements from manual and continuous vibrating wire transducer readings are provided in Tables D-1 to D-3 in Appendix D. A summary of groundwater level measurements from standpipe sites is provided in Table D-4 in Appendix D.

The recorded groundwater fluctuation in the bedrock was extracted at specific wells and analyzed by the Hatch Team (Map 4-1). Figure 4-3 shows the groundwater level changes in the bedrock from November 2019 to present. The maximum recorded seasonal fluctuation was approximately 1.3 m at BH19-29 and BH19-31 (March to May).

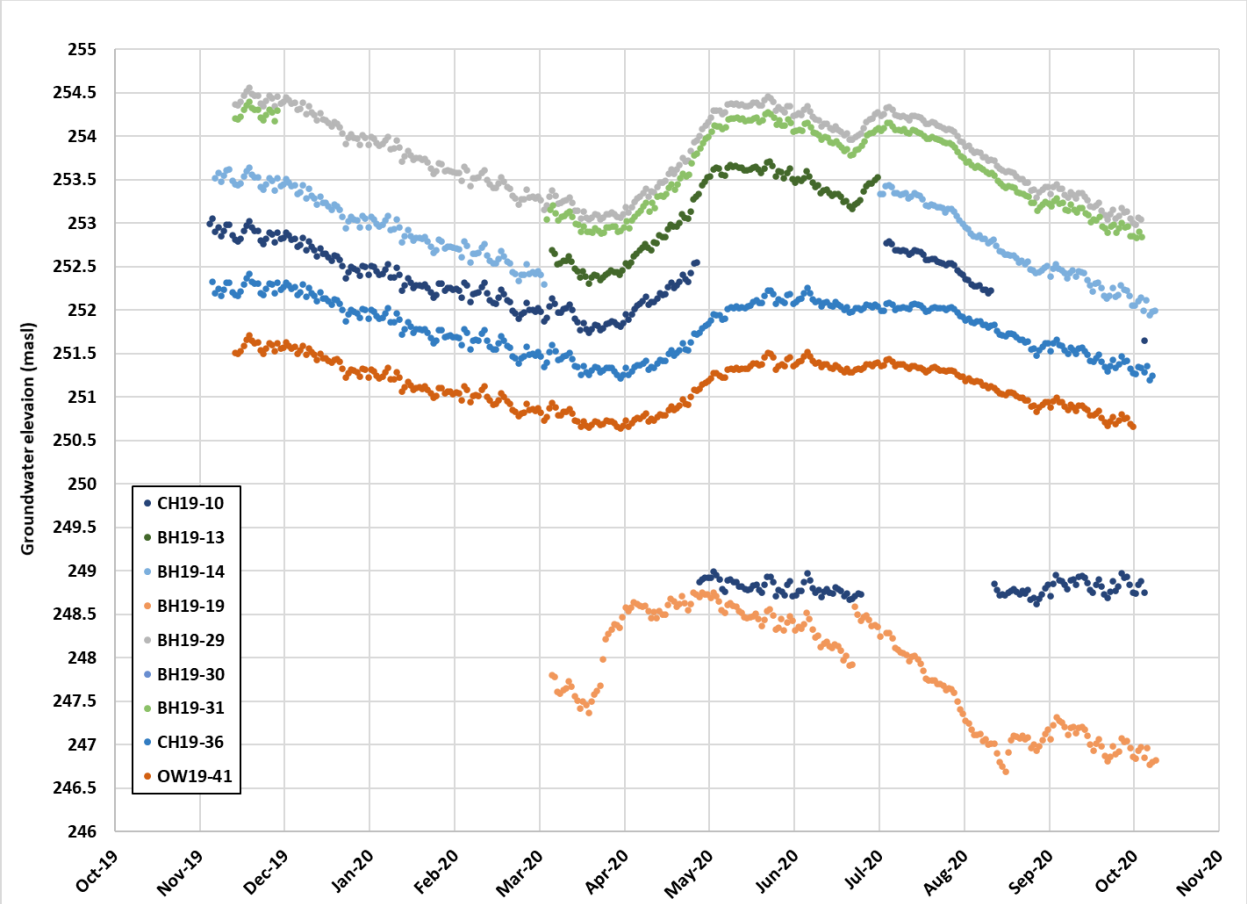

Figure 4-3 Long-term Groundwater Elevation Records by Vibrating Wire

4.2.2.4 Data Confirmation

The groundwater levels were plotted previously (Figure 4-2) for the long-term project monitoring wells and the provincial wells. The recorded piezometric levels are generally higher around monitoring wells near the middle of the LMOC (PW19-06, WRB-122050, TH-ED-01W and TH-GD-07) compared to more northern and southern wells. A comparison between the recorded data at VWs and transducers is shown in Figure 4-4. The groundwater readings are consistent between the two sets of records, following the same pattern and decreasing from middle of the channel to the lakes. BH19-19 and CH19-10 readings

are not representing the groundwater condition by showing groundwater levels within 246.5 to 249 m range.

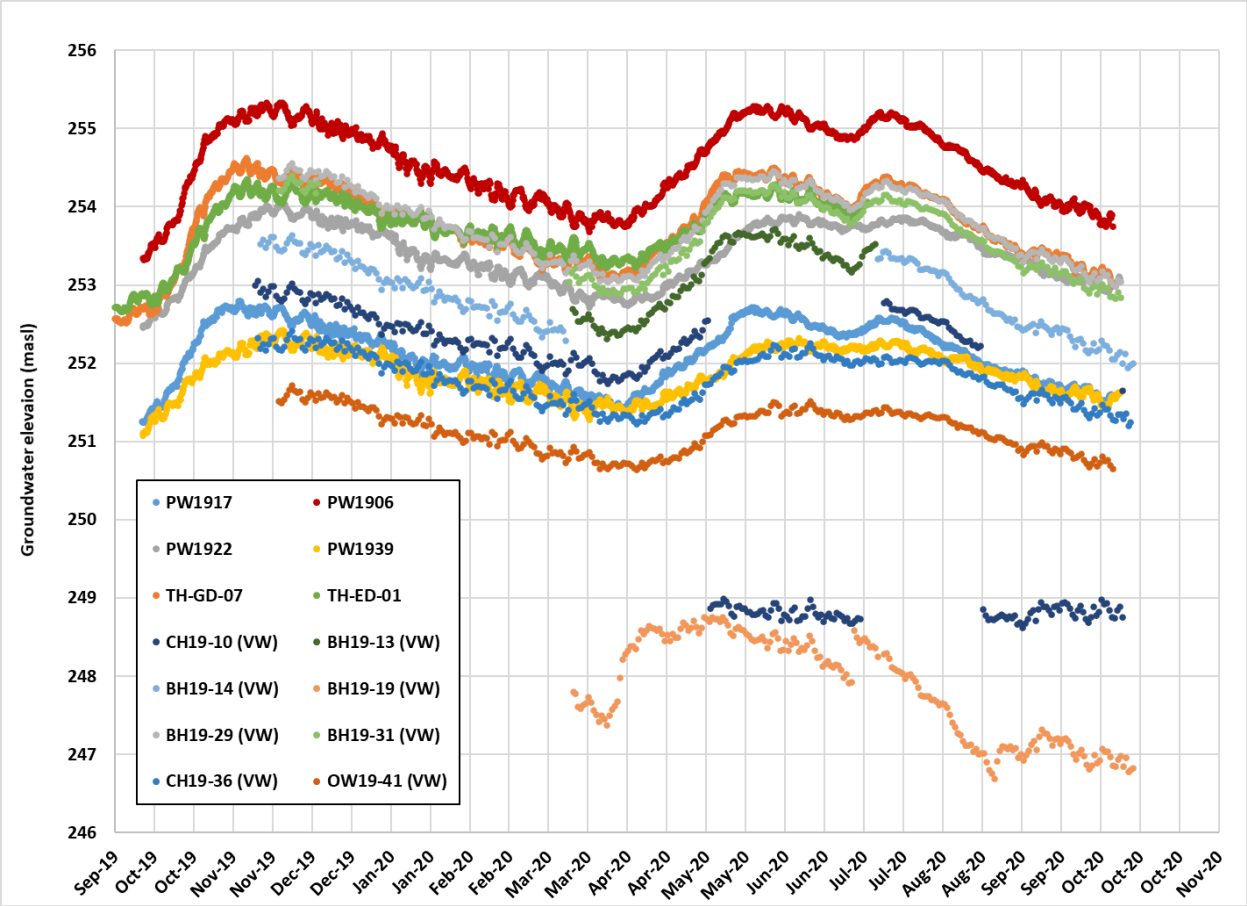

Figure 4-4 Comparison between the Groundwater Fluctuation Records from VWs and Dipperlogs

5.0 PRELIMINARY DATA TRENDS

5.1 SURFACE WATER

5.1.1 Quality

Surface water samples collected from the LMOC area in 2019 and 2020 yielded results that exceeded CWQG-FAL and/or MSOG-FAL guidelines for many of the same parameters. These include dissolved oxygen, chloride, fluoride, total and dissolved phosphorus, and total aluminum.

Dissolved oxygen concentrations were below CWQG-FAL guidelines at more sites in 2020 when compared to 2019 and were generally lower at lake and stream sites east of the LMOC (D2, D3, D4, D10, D11, D12, D6, D8) when compared to Lake Manitoba (D1) and Lake St. Martin (D9). Fluoride was typically highest at lake and stream sites east of the LMOC (D2, D3, D4, D10, D11, D12, D6, D8) and lowest in Lake Manitoba and Lake St. Martin in both 2019 and 2020. Chloride concentrations were highest in Lake Manitoba (D1) and Lake St. Martin (D9) with CWQG-FAL exceedances recorded in 2019 and 2020.

Total phosphorus concentrations were above MSOG-FAL guidelines in lake and stream sites east of the LMOC (D2, D3, D4, D10, D11, D12, D6, D8) and in Lake St. Martin (D9) in both 2019 and 2020. Dissolved phosphorus concentrations were lowest in Lake Manitoba (D1) and Lake St. Martin (D9 and above MSOG-FAL guidelines in 2019 and 2020 at lake and stream sites east of the LMOC (D2, D8).

Total aluminum concentrations were above CWQG-FAL and MSOG-FAL guidelines at Birch Creek (D8), upstream of Lake St. Martin, in both 2019 and 2020.

5.1.2 Depth

Although surface water depth was measured at select sites in 2019 and 2020, these measurements were recorded at different locations and during difference seasons, so a yearly comparison was not conducted. However, water level will be measured at these sites in subsequent field programs.

5.2 GROUNDWATER

5.2.1 Quality

Groundwater samples collected from the LMOC area in 2019 and 2020 yielded results that exceeded CWQG-FAL, MSOG-FAL and/or CDWQ guidelines for many of the same parameters. These include dissolved oxygen, turbidity, fluoride, total phosphorus, total dissolved solids, and several total and dissolved metals (dissolved manganese, dissolved zinc, total aluminum, total copper, total iron, total manganese).

All sites visited in 2020 (OW19-40, CH19-37, OW19-23, BH19-29, OW19-05, BH19-12, OW19-18, CH19-08) exhibited dissolved oxygen concentrations below CWQG-FAL guidelines, which is consistent with concentrations recorded in 2019. Field turbidity measurements were above CDWQ guidelines in both 2019 and 2020 for all sites (OW19-40, CH19-37, OW19-23, BH19-29, OW19-05, BH19-12, OW19-18, CH19-08), and was generally highest at wells OW19-05 and CH19-08 in the northern section of the LMOC.

Fluoride concentrations were highest in 2019 and 2020 at wells OW19-23, BH19-29 and OW19-18, and exceeded CWQG-FAL guidelines at all sites (OW19-40, CH19-37, OW19-23, BH19-29, OW19-05, BH19-12, OW19-18, CH19-08) in both 2019 and 2020. Total phosphorus concentrations were above MSOG-FAL guidelines at two wells in 2019 and 2020 (OW19-05 and CH19-08) and were notably higher in well CH19-08 than other wells in the LMOC area. Total dissolved solids concentrations were below CDWQ guidelines at all wells except CH19-08, which exhibited the highest concentration and CDWQ exceedances in 2019 and 2020.

Dissolved manganese concentrations were above CDWQ guidelines at well OW19-05 in 2019 and 2020 and were generally higher at OW19-05 and CH19-08 when compared to other wells in the LMOC area. Dissolved zinc concentrations were above CWQG-FAL guidelines at wells CH19-37 and OW19-18 in 2019 and 2020 and were generally low in all other wells. Total aluminum concentrations were above CWQG-FAL and MSOG-FAL guideline criteria at CH19-08 and OW19-05 in 2019 and 2020. Total copper concentrations exceeded CWQG-FAL and CDWQ guideline criteria at wells BH19-29, CH19-08 and CH19-37 in 2019 and 2020. Total iron and total manganese concentrations were above CWQG-FAL, MSOG-FAL and CDWQ guideline criteria at CH19-08 and OW19-05 in 2019 and 2020 and were highest at well CH19-08. Generally, when compared to other wells, CH19-08 had the highest concentrations of total and dissolved metals and the most instances of recorded concentrations that exceeded CWQG-FAL, MSOG-FAL and CDWQ guidelines in the LMOC area.

5.2.2 Level

The recorded groundwater levels from summer 2019 showed lower levels than expected based on previous work. However, continuous readings throughout the year (2019- present) shows increases to the expected levels based on long-term monitoring at provincial wells. The maximum seasonal fluctuation is expected to be within 1.5 to 2.0 m along the LMOC.

Summary tables of groundwater level measurements from manual and continuous vibrating wire transducer readings are provided in Tables D-1 to D-3 in Appendix D. A summary of groundwater level measurements from standpipe sites is provided in Table D-4 in Appendix D.

6.0 FUTURE MONITORING

6.1 2021 FIELD PROGRAM

Water quality and water level monitoring is recommended in the study area in 2021. Field programs could include collection of surface water samples, groundwater samples, and water level measurements from sites three times during the open water season (May, July, September/October). Proposed surface water and groundwater sites are listed in Table 6-1 and Table 6-2, respectively. As the LMOC project shifts between the predesign and detailed design phases, current groundwater sites may be removed and additional groundwater well sites may be added.

Table 6-1 Planned 2021 Surface Water Quality Sites

Watershed	Site ID	Waterbody	Coordinates (UTM Zone 14 U)		Purpose
			Easting (m)	Northing (m)	
Lake Manitoba	D1	Lake Manitoba	529999	5680739	Surface water quality sample, lake depth
Watchorn Creek	D2	Watchorn Creek	531563	5683591	Surface water quality sample
Birch Creek	D3	Reed Lake	532496	5686856	Surface water quality sample, lake depth
Birch Creek	D4	Clear Lake	531214	5689935	Surface water quality sample, lake depth
Birch Creek	D10	Water Lake	531272	5692230	Surface water quality sample, lake depth
Birch Creek	D11	Unnamed lake inlet	531317	5693397	Surface water quality sample
Birch Creek	D12	Goodison Lake outlet	531741	5697313	Surface water quality sample
Birch Creek	D6	Birch Creek	532477	5698322	Surface water quality sample
Birch Creek	D8	Birch Creek	533226	5702311	Surface water quality sample
Lake St. Martin	D9	Lake St. Martin	533392	5706318	Surface water quality sample, lake depth

Table 6-2 Planned 2021 Groundwater Quality and Level Sites

Site ID	Previous Side ID	Coordinates (UTM Zone 14 U)		Purpose
		Easting (m)	Northing (m)	
Groundwater Quality Monitoring Sites				
OW19-40	TH18-49	530823	5683152	Groundwater quality sample
CH19-37	TH18-50	530879	5686139	Groundwater quality sample
OW19-23	TH18-37	530694	5688133	Groundwater quality sample
BH19-29	TH18-27	530338	5693405	Groundwater quality sample
OW19-05	TH18-22	531018	5696656	Groundwater quality sample
BH19-12		532052	5699190	Groundwater quality sample
OW19-18	TH18-10	532305	5701490	Groundwater quality sample
CH19-08	TH18-03	533152	5703020	Groundwater quality sample
Groundwater Level Monitoring Sites				
PW19-39	TH18-48	530823	5683152	Water level data
PW19-22	TH18-36	530695	5688126	Water level data
PW19-06	TH18-21	531017	5696646	Water level data
PW19-17	TH18-09	532295	5701490	Water level data; pressure data
TH-ED-01W		529670	5693404	Water level data
15-RD-PW1		531900	5699454	Water level data

7.0 REFERENCES

British Columbia Ministry of Environment (BC MOE). 2013. B.C. Field Sampling Manual. Accessed October 2019 at https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_complete.pdf

CCME. 2011. Protocols Manual for Water Quality Sampling in Canada. PN 1461, ISBN 978-1-896997- 7-0 Pdf.

CCME. 2020. Canadian Water Quality Guidelines for The Protection of Aquatic Life: Summary Table. Accessed January 2020 at http://st-ts.ccme.ca/en/index.html

Health Canada (2019). Guidelines for Canadian Drinking Water Quality—Summary Table. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. Accessed December 2019 at https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

KGS Group Consulting Engineers. 2017a. Investigations and Preliminary Engineering for LMB Outlet Channels Options C and D. Final – Rev 0. KGS Group 16-0300 006. May 2017.

KGS Group Consulting Engineers. 2017b. Investigations and Preliminary Engineering for LMB Channels Options C and D Deliverable D2, Annual Monitoring Report to July 1, 2017. Final Rev 0, Prepared by KGS Group.

KGS Group Consulting Engineers. 2018. Investigations and Preliminary Engineering for Lake Manitoba Outlet Channels Options C and D Deliverable D3, Annual Monitoring Report to July 01, 2018. KGS Group Project 16-0300-006. Final - Rev 0. August 2018.

Manitoba Infrastructure. 2019. Lake Manitoba and Lake St. Martin Outlet Channels Impacts on Lake Manitoba and Lake St. Martin. Technical Memorandum. Prepared by Manitoba Infrastructure Hydrologic Operations Section. Dated June 14, 2019.

Manitoba Water Stewardship (MWS). 2011. Manitoba Water Quality Standards, Objectives, and Guidelines. Manitoba Water Stewardship Report 2011-01. Prepared by Water Science and Management Branch, Manitoba Water Stewardship, November 28, 2011.

Stantec Consulting Ltd. (Stantec). 2020. Lake Manitoba Outlet Channel 2019 Surface Water and Groundwater Monitoring Report. Prepared by Stantec Consulting. Project 111475107.

APPENDICES

Appendix A MAPS

Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet
- Proposed PR 239
- Proposed Bridge
- Proposed Water Control

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Provincial Waterway/Drain
- Waterbody

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by JHiebert on 2020-09-02
Technical Review by DMorgan on 2020-09-02

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
1-1

Title
Project Area

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Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Proposed PR 239 Realignment
- Proposed Bridge
- Proposed Water Control Structure

Surface Water Quality Site (Stantec)

Frequency of Sampling

- May, July and October 2020

Study Area

- Surface Water Flow Direction
- Subwatershed

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Provincial Waterway/Drain
- Waterbody

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by ACampigotto on 2020-12-01
Technical Review by TStainton on 2020-12-01

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-1

Title
2020 Surface Water Sites

G:\...GIS_Project_Folder\111475107_LakeManitobaOutlet\ArcMap\2020 Monitoring Report Map 3-1 2020_SurfaceWaterSites_20201201.mxd Revised 2020-12-01 By: ACampigotto

Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Proposed PR 239 Realignment
- Proposed Bridge
- Proposed Water Control Structure

Groundwater Quality Site (Stantec)

Frequency of Sampling

- July and October 2020
- May, July and October 2020

Landbase

- Community
- Highway
- Major Road
- Watercourse
- Provincial Waterway/Drain
- Waterbody

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

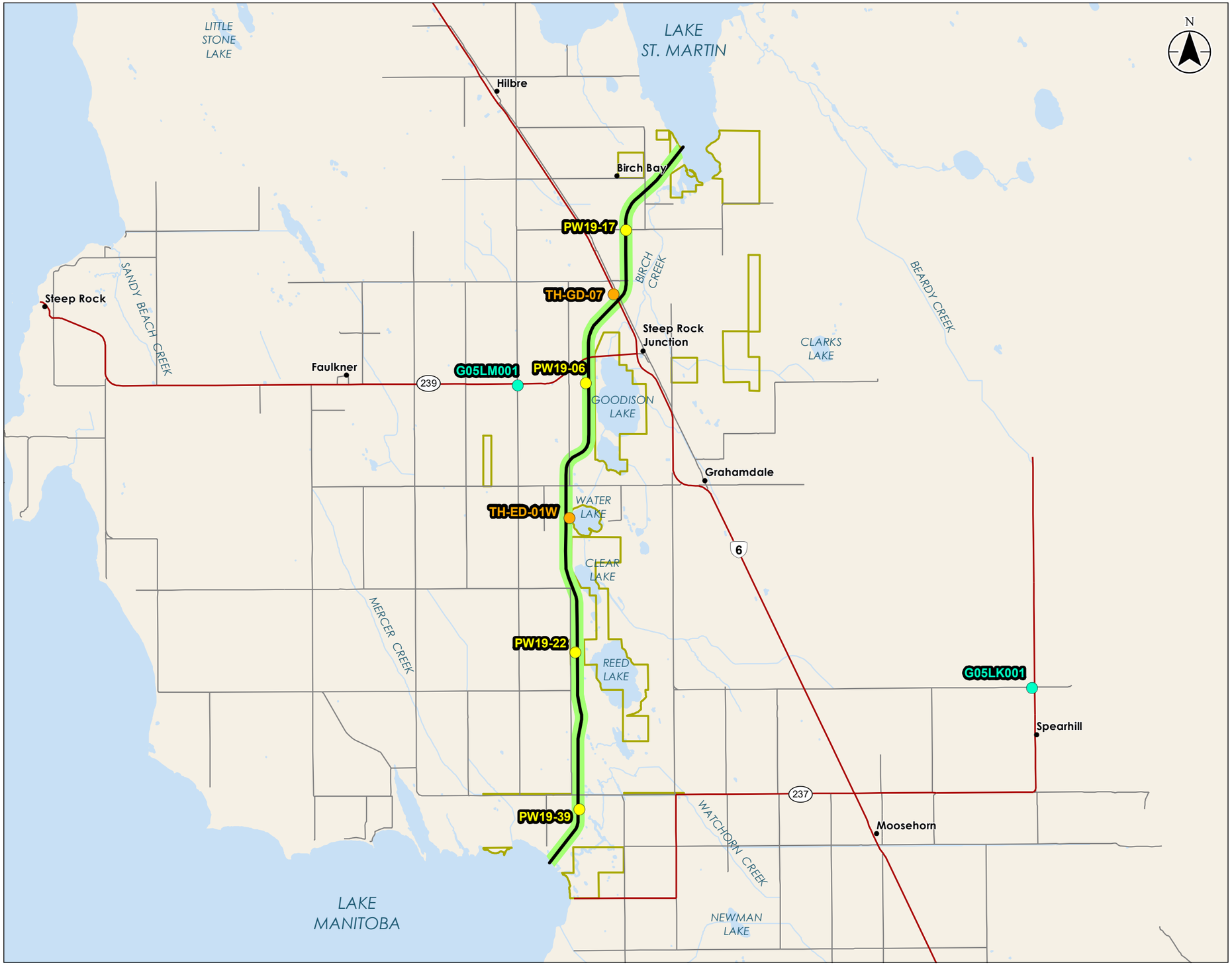
Prepared by ACampigotto on 2020-12-01
Technical Review by TStainton on 2020-12-01

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-2

Title
2020 Groundwater Sites

G:_GIS Project Folder\111475107 - LakeManitobaOutlet\ArcMap\2020 Monitoring Report\Map 3-2 2020_GroundwaterSites_20201201.mxd Revised: 2020-12-08 By: ACampigotto



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Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Channel RoW

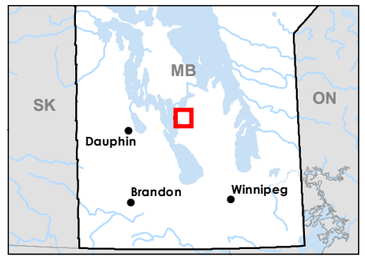
Survey Locations

Pump Test Well ID

- Hatch
- KGS
- Provincial

Landbase

- Community
- Highway
- Major Road
- Crown Land
- Watercourse
- Waterbody



0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

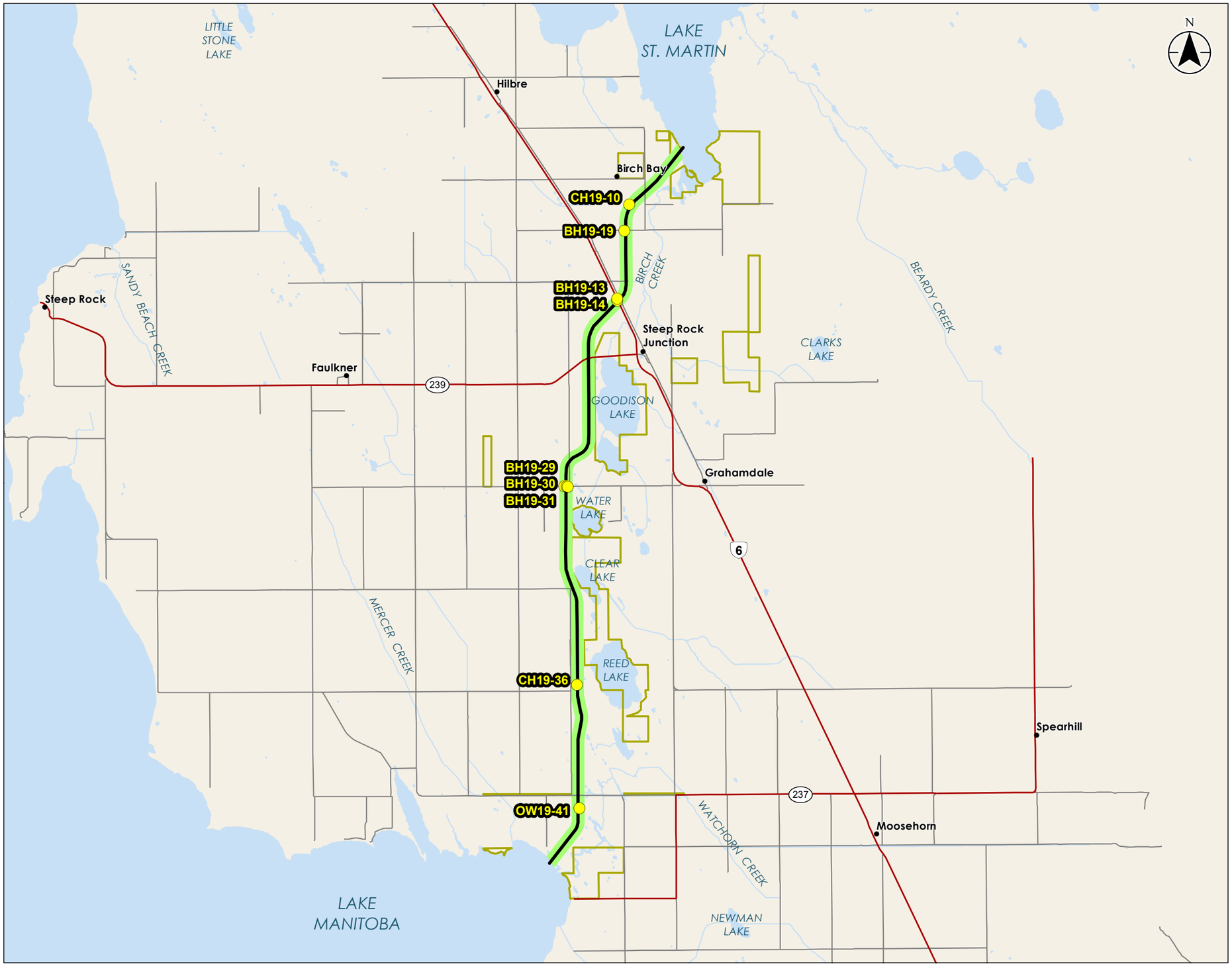
111475107

Prepared by ACampigotto on 2020-12-03
Technical Review by NFiroozy on 2020-12-03

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
3-3

Title
Long-term groundwater level monitoring locations



Stantec

Project Infrastructure

- Proposed Lake Manitoba Outlet Channel
- Channel RoW

Survey Locations

- TREK's bedrock long term monitoing locations

Landbase

- Community
- Highway
- Major Road
- Crown Land
- Watercourse
- Waterbody

0 2.5 5 Kilometres

1:125,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada.

Project Location
Lake Manitoba and Lake St. Martin Outlets

111475107

Prepared by ACampigotto on 2020-12-03
Technical Review by NFiroozy on 2020-12-03

Client/Project
MANITOBA INFRASTRUCTURE
Lake Manitoba Outlet Channel

Map No.
4-1

Title
Long-term groundwater level monitoring locations from bedrock vibrating wires (TREK wells)

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Appendix B TABLES

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1						D2								D3					
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	6-May-20	8-Jul-20	8-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	6-Jul-20	6-Oct-20	20-Jun-19	22-Aug-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D1	D1	D1	D1	D1	D1	D2	D2	D2	D2	QC-01	D2	QC-02	D2	D3	D3	D3	D3	D3	D3
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2443834	L2443834	L2470843	L2470843	L2512953	L2296166	L2334482	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2444978-9	L2472215-1	L2514453-5	L2296166-5	L2334482-6	L2362912-11	L2443834-1	L2443834-10	L2470843-2	L2470843-11	L2512953-10	L2296166-7	L2334482-5	L2444978-1	L2470843-13	L2514453-3
Sample Type	Units	CWQG-FAL	MSOG-FAL											Field Duplicate		Field Duplicate						
Field Parameters																						
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}^{B}$	n/v	8.27	8.57	11.72	11.82	7.74	16.16	8.31	**4.74**^{B}	7.19	8.89	-	**0.67**^{B}	-	9.5	8.62	**0.51**^{B}	7.43	**1.9**^{B}	10.5
Electrical Conductivity, Field	µS/cm	n/v	n/v	974	959	843	582.7	1,008.0	1,008	967	1,104	728	371.1	-	570.0	-	946	619	818	450.4	659.0	868
Nitrite, Field	mg/L	n/v	n/v	0.03	0.00	0.02	-	-	-	0.03	0.04	0.01	-	-	-	-	-	0.04	0.07	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	79.2	36	46.2	196.3	45.2	133.7	-123.1	-165	-156.5	163.3	-	-96.7	-	27.4	-48.2	-228.1	-46.2	-183.4	71.7
pH, Field	S.U.	6.5-9.0^{B}	6.5-9.0^{D}	8.49	8.63	8.42	8.14	8.52	8.34	8.54	8.67	7.75	7.69	-	7.08	-	7.85	8.7	8.66	7.78	6.96	8.07
Pressure	kPa	n/v	n/v	100.98	102.16	100.13	102.34	99.89	98.82	100.97	102.11	100.24	99.17	-	101.42	-	97.16	100.94	102.12	102.18	101.47	98.63
Temperature, Field	deg C	n/v	n/v	20.1	17.2	8.7	3.9	25.0	6.7	20.6	14.6	9.2	6.9	-	22.2	-	11.2	22.3	15.1	13.2	22.5	14.8
Total Dissolved Solids, Field	ppm	n/v	n/v	-	-	-	582	702	680	-	-	-	504	-	469	-	530	-	-	414	499	540
Turbidity, Field	NTU	n/v	n/v	4.49	5.22	13.87	2.21	225.09	8.01	2.83	0.43	2.48	2.30	-	0.24	-	2.59	1.65	2.73	2.69	1.24	9.08
General Chemistry																						
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	207	210	199	161	198	201	440	414	343	259	253	409	418	361	326	514	297	360	454
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	4.32	6.16	2.16	2.16	7.20	4.92	20.3	27.8	1.56	<0.60	<0.60	<0.60	<0.60	21.5	19.6	33.2	<0.60	9.24	23.9
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	177	182	167	135	175	173	395	386	284	212	208	335	342	331	300	477	244	311	412
Ammonia (as N)	mg/L	$_{TBC2}^{B}$	$_{TBC1}^{D}$	<0.010	0.031	0.067	<0.010	<0.010	<0.010	0.045	0.051	0.090	0.027	0.030	<0.10 DM	0.021	0.022	0.035	0.421	0.022	0.055	0.209
Chloride	mg/L	640^{A} 120^{B}	n/v	**182**^{B}	**199**^{B}	**192**^{B}	**134**^{B}	**171**^{B}	**206**^{B}	57.3	97.1	46.0	10.9	15.4	18.7	18.5	65.7	6.95	11.4	6.54	7.01	11.0
Fluoride	mg/L	0.12^{B}	n/v	**0.136**^{B}	**0.144**^{B}	**0.137**^{B}	0.113	**0.143**^{B}	**0.160**^{B}	**0.225**^{B}	**0.314**^{B}	**0.211**^{B}	0.081	0.115	**0.220**^{B}	**0.217**^{B}	**0.210**^{B}	**0.154**^{B}	**0.179**^{B}	0.106	**0.148**^{B}	**0.201**^{B}
Hardness (as CaCO3)	mg/L	n/v	n/v	222	234	227	189	249	230	519	606	386	292	289	369	368	490	358	570	319	405	489
Nitrate (as N)	mg/L	124^{A} 3.0^{B}	13^{D}	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	0.044	<0.020	0.023	<0.020	<0.040 DM	<0.020	<0.040 DM	0.032	<0.020	<0.040 DM
Nitrite (as N)	mg/L	0.06^{B}	0.06^{D}	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020 DM	<0.010	<0.020 DM	<0.010	<0.010	<0.020 DM
Nitrogen (Total)	mg/L	n/v	n/v	0.84	1.04	-	1.01	1.16	1.11	2.04	2.85	-	1.67	1.77	1.92	1.92	1.18	2.37	5.43	1.70	2.70	3.99
Phosphorus, Total	mg/L	n/v	0.025^{C}	0.0148	0.0169	0.0235	0.0179	0.0243	0.0232	**0.0903**^{C}	**0.0384**^{C}	**0.0557**^{C}	**0.189**^{C}	**0.192**^{C}	**0.178**^{C}	**0.181**^{C}	**0.0294**^{C}	**0.0259**^{C}	**0.0522**^{C}	**0.0519**^{C}	**0.0292**^{C}	**0.0704**^{C}
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025^{C}	0.0073	0.0042	0.0077	0.0051	0.0091	0.0070	**0.0362**^{C}	**0.0258**^{C}	**0.0456**^{C}	**0.171**^{C}	**0.172**^{C}	**0.163**^{C}	**0.168**^{C}	0.0218	0.0152	0.0216	0.0184	0.0201	0.0241
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0075	0.0127	0.0158	0.0128	0.0152	0.0162	0.0541	0.0125	0.0102	0.0182	0.0199	0.0153	0.0128	0.0075	0.0107	0.0306	0.0335	0.0091	0.0463
Total Dissolved Solids	mg/L	n/v	n/v	595	618	598	435	553	631	679	844	480	372	360	458	441	639	419	718	352	461	649
Sulfate	mg/L	n/v	n/v	73.0	72.8	71.0	53.3	90.4	97.3	143	222	79.4	53.2	81.8	24.1	23.1	146	79.5	138	55.7	98.4	142
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	0.84	1.04	1.05	1.01	1.16	1.11	2.04	2.85	1.14	1.67	1.77	1.92	1.92	1.18	2.37	5.43	1.70	2.70	3.99
Total Suspended Solids	mg/L	$_{SN}^{B}$	n/v	4.8	8.4	9.6	<2.0	8.6	11.4	25.7	2.8	<2.0	3.3	2.1	5.3	1.7	36.9	3.7	9.5	2.9	3.7	36.1
Microbiological Parameters																						
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	<1	52 ZH	4	<1 SV	<1	55	-	461	42	3	1	2	2	6	34	12	<1 SV	11	11
Total Coliforms	mpn/100mL	n/v	n/v	40	326 ZH	59	<1 SV	>2420	548	-	1,300	>2420	317	308	870	921	308	387	326	105 SV	2,420	687
BTEX and Petroleum Hydrocarbons																						
Benzene	mg/L	0.37^{B}	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002^{B}	n/v	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09^{B}	0.09^{D}	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	-	-	YES	-	-	-	-	-	YES	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1						D2								D3				
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	6-May-20	8-Jul-20	8-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	6-Jul-20	6-Oct-20	20-Jun-19	22-Aug-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D1	D1	D1	D1	D1	D1	D2	D2	D2	D2	QC-01	D2	QC-02	D2	D3	D3	D3	D3	D3
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2443834	L2443834-10	L2470843	L2470843-11	L2512953	L2296166	L2334482	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2444978-9	L2472215-1	L2514453-5	L2296166-5	L2334482-6	L2362912-11	L2443834-1	Field Duplicate	L2470843-2	Field Duplicate	L2512953-10	L2296166-7	L2334482-5	L2444978-1	L2470843-13	L2514453-3
Sample Type	Units	CWQG-FAL	MSOG-FAL																			
Metals, Dissolved																						
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	0.0119	0.0016	0.0026	0.0016	0.0037	0.0010	0.0027	0.0023	0.0030	0.0040	0.007	0.0020	0.0014	0.0018	0.0029	0.0026	0.0019	0.0014	0.0022
Antimony	mg/L	n/v	n/v	0.00014	0.00015	0.00014	0.00010	0.00018	0.00018	0.00013	0.00014	0.00011	0.00011	0.00011	0.00021	0.00016	<0.00010	<0.00010	0.00016	0.00012	0.00013	0.00017
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.00185	0.00177	0.00176	0.00117	0.00224	0.00189	0.00176	0.00214	0.00115	0.00109	0.00113	0.00213	0.00212	0.00101	0.00137	0.00241	0.00104	0.00173	0.00216
Barium	mg/L	n/v	n/v	0.0390	0.0424	0.0379	0.0308	0.0436	0.0440	0.0357	0.0339	0.0407	0.0248	0.0279	0.0491	0.0436	0.0341	0.0146	0.0244	0.0216	0.0296	0.0353
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	0.094	0.072	0.117	0.072	0.114	0.094	0.160	0.110	0.118	0.066	0.079	0.149	0.154	0.114	0.091	0.044	0.062	0.103	0.071
Cadmium	mg/L	n/v	$0.00084/0.011_{s8}$[D]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000053
Calcium	mg/L	n/v	n/v	39.4	37.2	39.6	30.3	36.9	36.4	57.8	35.9	64.2	43.2	42.6	56.2	56.8	74.6	20.2	27.7	30.0	26.1	43.0
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.317/2.43_{s7}$[D]	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	0.00011	0.00017	0.00010	<0.00010	0.00024	0.00023	0.00012	0.00011	<0.00010	<0.00010	0.00011	<0.00010
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	0.00014	0.00012	0.00014	0.00014	0.00045	0.00046	<0.00010	<0.00010	0.00015	<0.00010	0.00014	0.00011
Copper	mg/L	n/v	$0.040/0.07_{s10}$[D]	0.00090	0.00145	0.00024	0.00217 RV	0.00329	0.00119	0.00181	0.00022	0.00190	0.00068	0.00193 RV	0.00043	0.00065	0.00082	0.00036	0.00037	0.00143	0.00314 RV	0.00079
Iron	mg/L	n/v	0.3[D]	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	0.029	0.032	0.036	0.063	0.060	0.214	0.221	0.027	0.014	0.013	0.018	0.015	<0.010
Lead	mg/L	n/v	$0.016/0.416_{s9}$[D]	<0.000050	<0.000050	<0.000050	<0.000050	0.000085	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000115	<0.000050	<0.000050	<0.000050	0.000070	0.000053	0.000149	0.000065
Lithium	mg/L	n/v	n/v	0.0293	0.0199	0.0293	0.0224	0.0361	0.0328	0.0464	0.0416	0.0416	0.0127	0.0128	0.0259	0.0264	0.0471	0.0227	0.0242	0.0157	0.0244	0.0313
Magnesium	mg/L	n/v	n/v	29.9	34.3	31.1	27.5	38.1	33.9	91.0	125	54.8	44.8	44.3	55.4	54.9	73.7	74.7	122	59.3	82.6	92.7
Manganese	mg/L	3.6_{EQ3}[A] 0.43_{EQ4}[B]	n/v	0.00135	0.00024	0.00026	0.00065	0.00044	0.00034	0.00461	0.00653	0.00203	0.0252	0.0252	0.228	0.227	0.0137	0.0276	0.133	0.0105	0.0413	0.0100
Molybdenum	mg/L	n/v	0.073[D]	0.00176	0.00315	0.00210	0.00146	0.00196	0.00230	0.000442	0.00382	0.00148	0.000740	0.000719	0.000728	0.000694	0.000769	0.000255	0.000866	0.000532	0.000302	0.00100
Nickel	mg/L	n/v	$0.23/2.1_{s11}$[D]	0.00066	0.00051	0.00051	<0.00050	0.00065	<0.00050	0.00151	0.00095	0.00133	0.00071	0.00066	0.00141	0.00138	0.00088	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	<0.030	0.050	0.186	0.177	0.154	0.162	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	8.90	8.67	9.08	7.08	10.1	10.2	8.60	9.34	9.91	15.4	15.7	6.59	6.56	4.16	14.7	18.2	10.9	14.3	16.0
Rubidium	mg/L	n/v	n/v	0.00352	0.00367	0.00393	0.00285	0.00349	0.00393	0.00309	0.00375	0.00350	0.00505	0.00520	0.00347	0.00353	0.00191	0.00578	0.00722	0.00396	0.00566	0.00625
Selenium	mg/L	n/v	0.001[D]	0.000094	0.000061	0.000060	0.000064	0.000098	0.000069	0.000184	0.000143	0.000170	0.000116	0.000138	0.000405	0.000345	0.000119	0.000081	0.000148	0.000081	0.000141	0.000139
Silicon	mg/L	n/v	n/v	3.79	4.76	4.37	2.67	3.65	3.97	0.094	0.218	7.70	3.24	3.22	17.2	17.3	0.407	1.27	10.3	2.66	5.56	3.98
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	125	127	135	90.9	124	134	42.0	61.0	25.1	10.8	10.7	13.5	13.4	30.0	16.2	24.8	11.2	17.8	22.8
Strontium	mg/L	n/v	n/v	0.234	0.257	0.261	0.185	0.248	0.249	0.212	0.188	0.179	0.113	0.111	0.166	0.170	0.199	0.0423	0.0637	0.0697	0.0694	0.0997
Sulfur	mg/L	n/v	n/v	28.5	27.2	25.5	20.2	33.6	32.1	57.3	78.1	27.4	30.3	30.6	8.56	9.08	52.7	32.2	52.0	22.2	34.1	49.1
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00039	<0.00030	0.00032	<0.00030	<0.00030	0.00044	0.00046	<0.00030	<0.00030	0.00038	<0.00030	<0.00030	0.00036
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.00150	0.00152	0.00164	0.00128	0.00140	0.00168	0.00319	0.00258	0.00639	0.00145	0.00134	0.00129	0.00136	0.00259	0.000548	0.00177	0.000747	0.000484	0.00203
Vanadium	mg/L	n/v	n/v	0.00107	0.00126	0.00123	0.00069	0.00127	0.00139	0.00122	0.00053	0.00124	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00113	0.00052	<0.00050	0.00084
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.530_{s12}[D]	0.0032	0.0035	0.0011	0.0043	0.0046	0.0028	0.0062	0.0035	0.0055	0.0017	0.0043	0.0052	0.0036	0.0024	0.0024	<0.0010	0.0030	0.0038	0.0021
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00036	<0.00020	0.00025	<0.00020	<0.00020	0.00034	0.00033	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D1						D2								D3				
Sample Date				20-Jun-19	22-Aug-19	8-Oct-19	6-May-20	8-Jul-20	8-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	6-Jul-20	6-Oct-20	20-Jun-19	22-Aug-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D1	D1	D1	D1	D1	D1	D2	D2	D2	D2	QC-01	D2	QC-02	D2	D3	D3	D3	D3	D3
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2443834	L2443834-10	L2470843	L2470843-11	L2512953	L2296166	L2334482	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-6	L2334482-4	L2362912-10	L2444978-9	L2472215-1	L2514453-5	L2296166-5	L2334482-6	L2362912-11	L2443834-1	Field Duplicate	L2470843-2	Field Duplicate	L2512953-10	L2296166-7	L2334482-5	L2444978-1	L2470843-13	L2514453-3
Sample Type	Units	CWQG-FAL	MSOG-FAL																			
Metals, Total																						
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.0422	0.0243	0.037	0.0236	0.0325	0.0928	0.0322	0.0062	0.0284	0.0491	0.0495	0.0069	0.0046	0.0163	0.0097	0.0249	0.0157	0.0068	**0.273[BD]**
Antimony	mg/L	n/v	n/v	0.00016	0.00014	0.00018	0.00012	0.00023	0.00019	0.00012	0.00014	0.00012	0.00018	0.00014	0.00019	0.00017	0.00014	<0.00010	0.00019	0.00010	0.00021	0.00015
Arsenic	mg/L	0.005[B]	n/v	0.00202	0.00197	0.00192	0.00125	0.00220	0.00221	0.00180	0.00229	0.00125	0.00133	0.00121	0.00207	0.00222	0.00100	0.00139	0.00254	0.00109	0.00189	0.00218
Barium	mg/L	n/v	n/v	0.0382	0.0395	0.0387	0.0298	0.0417	0.0444	0.0357	0.0297	0.0397	0.0253	0.0244	0.0450	0.0478	0.0333	0.0140	0.0244	0.0190	0.0255	0.0355
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{83}$[D]	0.095	0.085	0.108	0.069	0.102	0.105	0.160	0.137	0.110	0.072	0.079	0.138	0.154	0.121	0.089	0.050	0.053	0.106	0.093
Cadmium	mg/L	0.001$_{STB}$[A] 9E-5$_{LTG}$[B]	n/v	0.0000062	<0.0000050	<0.0000050	0.0000056	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000056	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000055	<0.0000050	<0.0000050	0.0000099
Calcium	mg/L	n/v	n/v	40.4	37.6	37.2	31.9	39.2	37.1	60.4	36.8	57.8	46.4	45.8	56.4	56.8	78.1	20.9	29.4	31.4	27.2	43.9
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000022
Chromium	mg/L	n/v	n/v	0.00051	0.00015	0.00019	<0.00010	0.00015	0.00019	0.00055	0.00020	0.00031	0.00036	0.00024	0.00025	0.00025	0.00011	0.00046	0.00027	<0.00010	0.00012	0.00049
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	0.00015	0.00014	0.00018	0.00019	0.00050	0.00054	0.00011	<0.00010	0.00021	<0.00010	0.00016	0.00023
Copper	mg/L	0.004*[B]	n/v	0.00066	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00100	<0.00050	0.00185	0.00064	0.00059	0.00090	0.00053	0.00057	0.00083	<0.00050	<0.00050	<0.00050	0.00067
Iron	mg/L	0.3[B]	0.3[D]	0.041	0.026	0.038	0.026	0.038	0.070	0.067	0.025	0.062	0.108	0.110	0.269	0.258	0.054	0.018	0.033	0.027	0.022	0.293
Lead	mg/L	0.007#[B]	n/v	0.000121	0.000114	0.000152	0.000067	0.000089	0.000161	<0.000050	<0.000050	<0.000050	0.000054	0.000059	<0.000050	<0.000050	<0.000050	0.000074	0.000105	0.000063	0.000085	0.000200
Lithium	mg/L	n/v	n/v	0.0315	0.0300	0.0305	0.0241	0.0354	0.0369	0.0490	0.0648	0.0422	0.0141	0.0140	0.0261	0.0270	0.0482	0.0242	0.0386	0.0162	0.0262	0.0357
Magnesium	mg/L	n/v	n/v	32.3	34.4	33.7	27.4	39.1	40.0	97.3	129	60.8	45.4	44.5	55.1	60.6	78.5	78.4	120	58.6	86.3	111
Manganese	mg/L	n/v	n/v	0.00643	0.00498	0.00557	0.00417	0.00624	0.00590	0.0182	0.00775	0.00260	0.0283	0.0287	0.241	0.245	0.0230	0.0542	0.150	0.0169	0.0570	0.0305
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00191	0.00379	0.00199	0.00161	0.00210	0.00231	0.000485	0.00458	0.00130	0.000778	0.000788	0.000638	0.000674	0.000728	0.000291	0.00101	0.000500	0.000276	0.00102
Nickel	mg/L	0.150**[B]	n/v	0.00107	0.00070	0.00063	0.00056	0.00065	0.00066	0.00165	0.00115	0.00138	0.00111	0.00080	0.00135	0.00155	0.00092	0.00050	0.00078	<0.00050	<0.00050	0.00076
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.069	0.063	0.067	0.209	0.205	0.190	0.214	0.049	<0.030	0.052	0.052	0.062	0.132
Potassium	mg/L	n/v	n/v	8.00	8.77	8.48	7.05	9.97	10.6	7.64	9.48	9.67	15.9	16.2	6.65	7.12	4.36	13.2	18.2	10.7	14.8	16.9
Rubidium	mg/L	n/v	n/v	0.00361	0.00388	0.00388	0.00288	0.00369	0.00419	0.00311	0.00376	0.00369	0.00555	0.00555	0.00353	0.00368	0.00206	0.00551	0.00728	0.00387	0.00571	0.00656
Selenium	mg/L	0.001[B]	0.001[D]	0.000081	0.000067	0.000122	0.000062	0.000108	0.000086	0.000124	0.000116	0.000197	0.000139	0.000146	0.000358	0.000298	0.000083	0.000087	0.000206	0.000061	0.000164	0.000143
Silicon	mg/L	n/v	n/v	3.66	4.38	4.43	2.76	3.79	4.41	0.20	0.23	7.79	3.35	3.24	18.2	18.3	0.49	1.21	9.27	2.75	6.11	4.85
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	127	132	133	95.8	122	138	43.9	65.2	24.7	10.7	10.4	13.5	14.8	29.5	16.2	27.0	11.5	18.7	24.1
Strontium	mg/L	n/v	n/v	0.251	0.267	0.263	0.195	0.260	0.278	0.231	0.195	0.181	0.118	0.113	0.170	0.172	0.218	0.0448	0.0686	0.0725	0.0707	0.112
Sulfur	mg/L	n/v	n/v	26.9	27.0	25.8	21.1	34.3	34.6	52.1	81.8	28.2	31.4	33.4	9.01	9.56	54.2	30.7	51.0	22.7	38.6	52.3
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00079	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00060	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00162	0.00110	0.00148	0.00085	0.00132	0.00327	0.00137	<0.00030	0.00150	0.00225	0.00198	0.00050	0.00069	0.00072	0.00034	0.00109	0.00065	0.00031	0.00925
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00031	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{94}$[D]	0.00155	0.00160	0.00159	0.00134	0.00162	0.00171	0.00324	0.00273	0.00589	0.00145	0.00108	0.00133	0.00136	0.00277	0.000563	0.00193	0.000707	0.000507	0.00223
Vanadium	mg/L	n/v	n/v	0.00158	0.00157	0.00158	0.00099	0.00142	0.00171	0.00168	0.00081	0.00157	0.00060	0.00063	0.00071	0.00063	<0.00050	0.00086	0.00150	0.00069	0.00087	0.00141
Zinc	mg/L	n/v	n/v	0.0067	<0.0030	<0.0030	0.0031	<0.0030	<0.0030	0.0102	<0.0030	0.0053	<0.0030	0.0037	0.0041	0.0056	<0.0030	0.0084	<0.0030	<0.0030	0.0068	0.0035
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00033	<0.00020	0.00025	<0.00020	<0.00020	0.00029	0.00031	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D4						D6						D8					
Sample Date				20-Jun-19	22-Aug-19	9-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	8-Jul-20	5-Oct-20	19-Jun-19	21-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID				D4	D4	D4	D4	D4	D4	D6	D6	D6	D6	D6	D6	D8	D8	D8	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2443834	L2470843	L2514453	L2296166	L2334482	L2362912	L2444978	L2472215	L2512953	L2296166	L2334482	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID				L2296166-8	L2334482-7	L2362912-18	L2443834-4	L2470843-5	L2514453-1	L2296166-3	L2334482-10	L2362912-7	L2444978-6	L2472215-4	L2512953-5	L2296166-2	L2334482-2	L2362912-3	L2443834-7	L2470843-16	L2512953-2
Sample Type	Units	CWQG-FAL	MSOG-FAL																		
Field Parameters																					
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	9.18	7.92	8.34	8.86	**1.87**[B]	7.52	8	7.64	7.04	7.01	**3.39**[B]	9.65	6.89	9.32	13.36	9.37	9.82	8
Electrical Conductivity, Field	µS/cm	n/v	n/v	679	598	664	192.9	482.2	555.6	984	1,142	815	430.9	731.0	836	809	856	639.9	359.9	569.0	922
Nitrite, Field	mg/L	n/v	n/v	0.03	NM	0.03	-	-	-	0.03	0.01	0.00	-	-	-	0.01	0.04	4.35	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	-27.2	8.9	-14.7	170.2	56.5	94	144.9	-101.3	42.3	157.7	33.4	-14.6	188.8	-69.6	54.5	100.8	14.8	-28.2
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	8.62	**9.09**[BD]	7.69	7.99	7.35	7.27	8.38	8.31	7.83	7.42	7.32	7.7	8.46	**9.02**[BD]	8.24	7.76	7.81	7.87
Pressure	kPa	n/v	n/v	100.94	102.07	101.72	98.93	101.38	98.5	101.05	101.9	99.9	102.49	99.85	97.21	101.12	103.2	100.95	99.13	101.45	97.2
Temperature, Field	deg C	n/v	n/v	23.4	22.5	6.1	9.2	24.4	10	21.6	19.8	7.8	5.2	25.1	10.8	18.3	16.9	11.1	7.2	22.7	9.5
Total Dissolved Solids, Field	ppm	n/v	n/v	-	-	-	224	398	340	-	-	-	430	480	460	-	-	-	435	470	570
Turbidity, Field	NTU	n/v	n/v	3.36	68.00	13.93	9.45	0.49	2.79	0.13	0.00	1.48	0.45	0.24	5.51	2.82	1.65	73.93	8.44	0.26	4.59
General Chemistry																					
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	341	274	379	176	329	293	507	524	247	1,070	415	430	391	388	288	359	434	432
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	21.0	6.91	<0.60	<0.60	<0.60	10.6	13.7	30.8	<0.60	<0.60	<0.60	30.0	34.7	52.1	4.32	<0.60	9.36	28.1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	314	236	310	144	269	258	438	481	202	878	340	403	379	404	243	295	371	401
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	0.023	0.180	0.330	0.023	0.025	0.012	0.029	0.076	0.022	0.015	0.046	0.030	0.027	0.092	0.021	0.023	0.020	0.089
Chloride	mg/L	640[A] 120[B]	n/v	13.7	19.5	20.7	4.67	8.59	11.2	16.6	35.2	25.8	8.62	10.4	15.7	10.9	25.0	28.8	8.05	6.68	18.1
Fluoride	mg/L	0.12[B]	n/v	**0.285**[B]	**0.292**[B]	**0.230**[B]	0.112	**0.219**[B]	**0.248**[B]	**0.338**[B]	**0.399**[B]	**0.193**[B]	**0.211**[B]	**0.293**[B]	**0.331**[B]	**0.325**[B]	**0.359**[B]	**0.167**[B]	**0.227**[B]	**0.268**[B]	**0.335**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	386	365	442	166	317	292	607	745	545	349	396	478	494	613	417	334	397	520
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	<0.020	<0.020	0.053	<0.020	<0.020	<0.020	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	<0.020	0.066	<0.040 DM	<0.040 DM	0.329	<0.020	<0.020	0.048
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.010	<0.020 DM
Nitrogen (Total)	mg/L	n/v	n/v	1.61	3.34	-	1.19	1.61	1.51	2.42	3.52	-	0.42	1.60	1.90	2.05	3.99	-	1.21	1.82	2.47
Phosphorus, Total	mg/L	n/v	0.025[C]	**0.0277**[C]	**0.108**[C]	**0.423**[C]	**0.0704**[C]	**0.0309**[C]	0.0154	0.0217	**0.0257**[C]	0.0150	0.0118	0.0242	**0.0297**[C]	**0.0275**[C]	**0.0736**[C]	0.0203	**0.0571**[C]	**0.0254**[C]	**0.0602**[C]
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	0.0207	0.0163	0.0217	0.0217	**0.0269**[C]	0.0099	0.0160	0.0168	0.0093	**0.0268 RV**[C]	0.0155	0.0168	0.0209	**0.0513**[C]	0.0092	**0.0459**[C]	0.0241	**0.0348**[C]
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0070	0.0917	0.402	0.0488	<0.0042	0.0055	0.0056	0.0089	0.0057	<0.0042	0.0087	0.0129	0.0066	0.0223	0.0111	0.0112	<0.0042	0.0254
Total Dissolved Solids	mg/L	n/v	n/v	474	581	595	181	351	380	749	942	610	358	450	565	610	718	554	349	444	663
Sulfate	mg/L	n/v	n/v	92.7	141	148	18.2	46.3	58.8	196	295	324	50.0	44.5	93.1	136	191	170	39.1	23.7	141
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	1.61	3.34	9.93	1.19	1.61	1.51	2.42	3.52	1.18	0.42	1.60	1.90	2.05	3.99	1.12	1.21	1.82	2.47
Total Suspended Solids	mg/L	$_{SN}$[B]	n/v	21.9	83.7	1,280	12.3	3.7	2.5	4.7	6.9	2.5	<2.0	<1.0	2.9	5.9	2.9	7.6	3.9	<1.0	12.6
Microbiological Parameters																					
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	5	727	2,420	<1	7	1	-	54	186 ZH	3	36	72	-	3 ZH	313 ZH	13	88	727 SV
Total Coliforms	mpn/100mL	n/v	n/v	27	727	>2420	77	>2420	1,300	-	>2420	>2420 ZH	649	>2420	1,990	-	488 ZH	>2420 ZH	461	>2420	>2420 SV
BTEX and Petroleum Hydrocarbons																					
Benzene	mg/L	0.37[B]	n/v	<0.00050	<0.00050	<0.00050 OWP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	<0.0010	<0.0010	<0.00050 OWP	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	<0.00050	<0.00050	<0.00050 OWP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040 OWP	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00050	<0.00050	<0.00030 OWP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.025 OWP	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	-	-	YES	-	-	-	-	-	YES	-	-	-	-	-	YES	-	-	-

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D4						D6						D8					
Sample Date				20-Jun-19	22-Aug-19	9-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	8-Jul-20	5-Oct-20	19-Jun-19	21-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID				D4	D4	D4	D4	D4	D4	D6	D6	D6	D6	D6	D6	D8	D8	D8	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2443834	L2470843	L2514453	L2296166	L2334482	L2362912	L2444978	L2472215	L2512953	L2296166	L2334482	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID				L2296166-8	L2334482-7	L2362912-18	L2443834-4	L2470843-5	L2514453-1	L2296166-3	L2334482-10	L2362912-7	L2444978-6	L2472215-4	L2512953-5	L2296166-2	L2334482-2	L2362912-3	L2443834-7	L2470843-16	L2512953-2
Sample Type	Units	CWQG-FAL	MSOG-FAL																		
Metals, Dissolved																					
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	0.0041	**0.0062**[D]	0.0092	0.0039	0.0012	0.0012	0.0025	0.0030	0.0021	0.0014	0.0013	<0.0010	0.0049	**0.0352**[D]	0.0186	0.0022	0.0020	0.0042
Antimony	mg/L	n/v	n/v	0.00013	0.00021	0.00015	<0.00010	<0.00010	<0.00010	0.00014	0.00015	0.00022	<0.00010	0.00012	0.00010	0.00014	0.00016	<0.00010	<0.00010	0.00012	0.00012
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.00139	0.00321	0.00143	0.00057	0.00108	0.00098	0.00191	0.00237	0.00112	0.00073	0.00147	0.00134	0.00221	0.00346	0.00094	0.00077 RV	0.00171	0.00181
Barium	mg/L	n/v	n/v	0.0360	0.0580	0.0394	0.0255	0.0389	0.0249	0.0556	0.0416	0.0380	0.0311	0.0527	0.0347	0.0346	0.0189	0.0383	0.0355	0.0483	0.0505
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	0.123	0.044	0.076	0.046	0.115	0.029	0.130	0.163	0.104	0.076	0.153	0.136	0.116	0.077	0.097	0.075	0.109	0.134
Cadmium	mg/L	n/v	$0.00084/0.011_{s8}$[D]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000063	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000062	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	47.0	34.9	65.2	24.0	43.0	33.6	77.5	54.2	78.3	47.3	57.4	60.6	55.3	35.3	67.3	48.6	61.5	65.5
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.317/2.43_{s7}$[D]	0.00015	0.00011	0.00026	<0.00010	0.00014	0.00012	0.00020	0.00013	<0.00010	<0.00010	0.00013	0.00014	0.00029	0.00022	0.00011	<0.00010	0.00019	0.00017
Cobalt	mg/L	n/v	n/v	0.00012	0.00016	0.00014	<0.00010	<0.00010	<0.00010	0.00017	0.00016	0.00011	<0.00010	<0.00010	<0.00010	0.00022	0.00027	0.00010	<0.00010	0.00015	0.00014
Copper	mg/L	n/v	$0.040/0.07_{s10}$[D]	0.00072	0.00194	0.00055	0.00172	0.00045	0.00120	0.00062	0.00084	0.00092	0.00163 RV	0.00031	0.00122	0.00116	0.00052	0.00121	0.00182	0.00339 RV	0.00190
Iron	mg/L	n/v	0.3[D]	0.015	0.013	0.220	0.026	0.023	0.011	0.063	0.035	0.020	0.038	0.045	0.017	0.039	0.027	0.039	0.030	0.084	0.029
Lead	mg/L	n/v	$0.016/0.416_{s9}$[D]	<0.000050	0.000088	0.000069	0.000056	0.000102	<0.000050	<0.000050	<0.000050	0.000057	<0.000050	0.000096	<0.000050	0.000050	<0.000050	0.000055	<0.000050	0.000103	<0.000050
Lithium	mg/L	n/v	n/v	0.0228	0.0201	0.0354	0.0068	0.0163	0.0193	0.0312	0.0346	0.0268	0.0153	0.0191	0.0248	0.0260	0.0268	0.0184	0.0121	0.0153	0.0266
Magnesium	mg/L	n/v	n/v	65.2	67.5	67.8	25.9	50.9	50.5	100	148	84.9	56.1	61.3	79.3	86.4	128	60.4	51.7	59.1	86.6
Manganese	mg/L	3.6_{EQ3}[A] 0.43_{EQ4}[B]	n/v	0.00255	0.0314	0.0165	0.00415	0.0144	0.00356	0.00977	0.00987	0.00448	0.0229	0.00776	0.0118	0.00555	0.00989	0.00353	0.0137	0.00966	0.0346
Molybdenum	mg/L	n/v	0.073[D]	0.00105	0.00139	0.00204	0.000640	0.000768	0.000705	0.000654	0.00378	0.00210	0.000789	0.000496	0.000578	0.000695	0.00115 RV	0.00169	0.000782	0.000527	0.00117
Nickel	mg/L	n/v	$0.23/2.1_{s11}$[D]	0.00076	0.00097	0.00068	<0.00050	0.00066	<0.00050	0.00086	0.00099	0.00059	0.00061	0.00080	0.00081	0.00115	0.00143	0.00090	0.00063	0.00090	0.00098
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.049	<0.030	0.047	<0.030	<0.030
Potassium	mg/L	n/v	n/v	13.6	12.0	13.2	4.78	7.15	4.82	10.0	12.4	12.2	6.16	4.49	8.13	6.39	7.74	6.91	5.00	3.77	12.6
Rubidium	mg/L	n/v	n/v	0.00529	0.00397	0.00536	0.00220	0.00375	0.00260	0.00394	0.00465	0.00382	0.00259	0.00249	0.00263	0.00279	0.00319	0.00239	0.00260	0.00287	0.00368
Selenium	mg/L	n/v	0.001[D]	0.000200	0.000203	0.000123	0.000073	0.000196	0.000180	0.000220	0.000258	0.000141	0.000135	0.000318	0.000147	0.000179	0.000265	0.000182	0.000145	0.000305	0.000235
Silicon	mg/L	n/v	n/v	0.484	5.58	7.73	3.04	6.00	4.29	2.20	1.77	6.15	4.11	16.2	6.62	2.70	3.71	6.53	4.47	14.3	6.53
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010 RV	<0.000010
Sodium	mg/L	n/v	n/v	15.6	25.0	21.5	4.83	9.97	12.1	19.0	33.9	19.4	9.84	11.8	16.3	14.5	28.1	20.0	8.19	8.93	17.4
Strontium	mg/L	n/v	n/v	0.158	0.120	0.196	0.0679	0.136	0.108	0.265	0.307	0.241	0.135	0.175	0.217	0.185	0.167	0.174	0.128	0.159	0.215
Sulfur	mg/L	n/v	n/v	37.2	50.9	52.7	7.35	16.1	20.2	79.5	94.3	115	19.8	16.6	29.6	55.1	73.2	57.8	14.7	9.81	46.0
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	0.00014	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	<0.00030	0.00081	0.00055	0.00040	<0.00030	<0.00030	<0.00030	0.00033	<0.00030	<0.00030	<0.00030	<0.00030	0.00058	0.00054	0.00091	<0.00030	0.00032	0.00031
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.00262	0.00211	0.00413	0.00144	0.00129	0.00163	0.00319	0.00200	0.00532	0.00267	0.000829	0.00159	0.00272	0.00186	0.00588	0.00320	0.00113	0.00287
Vanadium	mg/L	n/v	n/v	0.00081	0.00184	0.00071	0.00093	<0.00050	0.00055	0.00056	0.00055	<0.00050	<0.00050	<0.00050	<0.00050	0.00166	0.00162	0.00095	0.00065	<0.00050	0.00118
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.530_{s12}[D]	0.0041	0.0043	**0.0567**[AB]	0.0031	0.0037	0.0022	0.0067	0.0066	0.0027	0.0036	0.0030	0.0030	**0.0085**[B]	0.0037	0.0030	0.0035	0.0031	0.0028
Zirconium	mg/L	n/v	n/v	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	0.00037	0.00043	<0.00020	<0.00020	0.00022	0.00030

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D4						D6						D8					
Sample Date				20-Jun-19	22-Aug-19	9-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	8-Jul-20	5-Oct-20	19-Jun-19	21-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID				D4	D4	D4	D4	D4	D4	D6	D6	D6	D6	D6	D6	D8	D8	D8	D8	D8	D8
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2334482	L2362912	L2443834	L2470843	L2514453	L2296166	L2334482	L2362912	L2444978	L2472215	L2512953	L2296166	L2334482	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID				L2296166-8	L2334482-7	L2362912-18	L2443834-4	L2470843-5	L2514453-1	L2296166-3	L2334482-10	L2362912-7	L2444978-6	L2472215-4	L2512953-5	L2296166-2	L2334482-2	L2362912-3	L2443834-7	L2470843-16	L2512953-2
Sample Type	Units	CWQG-FAL	MSOG-FAL																		
Metals, Total																					
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.0943	**3.06[BD]**	**1.24 DM[BD]**	0.262	0.0091	0.0294	0.0227	0.0175	0.0505	0.0289	0.0041	0.0521	0.0916	**0.0818[BD]**	**0.109[BD]**	**0.106[BD]**	0.0217	0.0465
Antimony	mg/L	n/v	n/v	0.00012	0.00022	<0.0010 DM	<0.00010	0.00010	<0.00010	0.00012	0.00012	<0.00010	<0.00010	0.00013	0.00018	0.00011	0.00029	<0.00010	0.00011	0.00013	0.00013
Arsenic	mg/L	0.005[B]	n/v	0.00147	0.00343	0.0020 DM	0.00064	0.00113	0.00099	0.00186	0.00245	0.00118	0.00080	0.00142	0.00139	0.00211	0.00376	0.00100	0.00088	0.00175	0.00177
Barium	mg/L	n/v	n/v	0.0314	0.0754	0.0536 DM	0.0228	0.0362	0.0236	0.0506	0.0363	0.0370	0.0290	0.0489	0.0334	0.0316	0.0145	0.0381	0.0328	0.0460	0.0494
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.0010 DM	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.00050 DM	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{83}$[D]	0.121	0.055	0.19 DM	0.050	0.106	0.035	0.125	0.190	0.108	0.064	0.126	0.148	0.106	0.078	0.090	0.070	0.122	0.142
Cadmium	mg/L	0.001$_{STB}$[A] 9E-5$_{LTG}$[B]	n/v	0.0000073	0.0000423	<0.000050 DM	0.0000090	<0.0000050	<0.0000050	0.0000054	<0.0000050	<0.0000050	0.0000644	0.0000224	0.0000083	<0.0000050	<0.0000050	0.0000054	<0.0000050	<0.0000050	0.0000069
Calcium	mg/L	n/v	n/v	49.8	45.4	70.1 DM	28.4	43.2	35.2	79.4	52.7	77.5	50.1	58.4	68.1	55.9	33.7	67.0	54.2	62.6	71.9
Cesium	mg/L	n/v	n/v	0.000011	0.000355	0.00010 DM	0.000028	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	n/v	0.00051	0.00655	0.0026 DM	0.00050	0.00018	0.00014	0.00036	0.00027	0.00024	0.00014	0.00019	0.00025	0.00039	0.00068	0.00032	0.00030	0.00017	0.00025
Cobalt	mg/L	n/v	n/v	0.00017	0.00189	<0.0010 DM	0.00016	0.00010	<0.00010	0.00018	0.00020	0.00012	<0.00010	<0.00010	0.00012	0.00026	0.00033	0.00012	0.00013	0.00016	0.00019
Copper	mg/L	0.004*[B]	n/v	0.00096	**0.00450[B]**	***<0.0050 DM***	0.00090	0.00072	<0.00050	0.00074	0.00096	0.00083	0.00053	<0.00050	0.00182	0.00130	0.00081	0.00144	0.00082	<0.00050	0.00153
Iron	mg/L	0.3[B]	0.3[D]	0.100	**2.99[BD]**	**1.36 DM[BD]**	0.221	0.037	0.031	0.069	0.047	0.072	0.051	0.053	0.061	0.096	0.083	0.112	0.118	0.102	0.059
Lead	mg/L	0.007#[B]	n/v	0.000088	0.00165	0.00085 DM	0.000179	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000142	0.000055	0.000074	0.000073	0.000072	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	0.0243	0.0355	0.033 DM	0.0077	0.0165	0.0215	0.0328	0.0508	0.0257	0.0148	0.0178	0.0255	0.0269	0.0365	0.0201	0.0135	0.0162	0.0276
Magnesium	mg/L	n/v	n/v	70.3	64.4	81.5 DM	24.5	50.5	61.3	110	152	81.9	53.6	55.9	77.6	92.5	121	60.3	53.5	61.5	83.9
Manganese	mg/L	n/v	n/v	0.00877	0.102	0.0619 DM	0.0161	0.0168	0.00578	0.0154	0.0124	0.00705	0.0172	0.0137	0.0224	0.00830	0.0199	0.00570	0.0189	0.0138	0.0477
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00111	0.00149	0.00105 DM	0.000658	0.000792	0.000730	0.000759	0.00389	0.00213	0.000809	0.000500	0.000965	0.000678	0.000777	0.00186	0.000854	0.000542	0.00121
Nickel	mg/L	0.150**[B]	n/v	0.00106	0.00680	<0.0050 DM	0.00085	0.00069	0.00050	0.00146	0.00126	0.00066	0.00064	0.00075	0.00093	0.00137	0.00186	0.00093	0.00091	0.00102	0.00112
Phosphorus	mg/L	n/v	n/v	0.041	0.128	<0.30 DM	0.124	0.059	<0.030	0.034	<0.030	0.036	<0.030	<0.030	0.139	<0.030	0.104	<0.030	0.068	<0.030	0.059
Potassium	mg/L	n/v	n/v	11.9	12.0	13.0 DM	4.78	7.27	4.93	9.02	12.9	11.4	6.09	4.13	8.61	5.96	7.62	6.59	5.25	3.88	13.7
Rubidium	mg/L	n/v	n/v	0.00531	0.0103	0.0071 DM	0.00253	0.00384	0.00269	0.00382	0.00465	0.00388	0.00270	0.00253	0.00281	0.00301	0.00330	0.00264	0.00285	0.00291	0.00422
Selenium	mg/L	0.001[B]	0.001[D]	0.000173	0.000150	<0.00050 DM	0.000116	0.000196	0.000156	0.000211	0.000207	0.000112	0.000115	0.000244	0.000192	0.000195	0.000259	0.000164	0.000143	0.000240	0.000184
Silicon	mg/L	n/v	n/v	0.67	11.0	9.8 DM	3.66	6.34	4.57	2.15	1.87	6.84	4.42	15.0	7.86	2.73	3.24	7.36	4.89	15.1	7.50
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	0.000020	<0.00010 DM	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	15.9	25.0	21.8 DM	4.29	9.95	13.2	19.7	38.1	18.9	9.10	10.4	16.5	15.1	28.8	20.1	8.26	9.36	17.2
Strontium	mg/L	n/v	n/v	0.182	0.143	0.191 DM	0.0715	0.142	0.120	0.276	0.288	0.245	0.137	0.177	0.221	0.206	0.174	0.181	0.134	0.162	0.225
Sulfur	mg/L	n/v	n/v	34.6	50.5	56.1 DM	7.51	18.1	21.8	73.5	109	123	21.4	15.2	34.2	50.4	66.8	64.3	15.5	10.5	51.5
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.0020 DM	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	0.000051	<0.00010 DM	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Thorium	mg/L	n/v	n/v	<0.00010	0.00070	<0.0010 DM	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	<0.0010 DM	<0.00010	0.00020	<0.00010	<0.00010	<0.00010	0.00041	<0.00010	<0.00010	<0.00010	0.00022	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00385	0.127	0.0393 DM	0.00888	0.00049	0.00111	0.00120	0.00093	0.00242	0.00138	0.00040	0.00198	0.00411	0.00260	0.00405	0.00448	0.00103	0.00182
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.0010 DM	<0.00010	0.00021	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{94}$[D]	0.00272	0.00243	0.00390 DM	0.00142	0.00133	0.00170	0.00339	0.00198	0.00440	0.00252	0.000825	0.00211	0.00274	0.00195	0.00498	0.00344	0.00121	0.00337
Vanadium	mg/L	n/v	n/v	0.00142	0.00764	<0.0050 DM	0.00139	0.00089	0.00075	0.00100	0.00073	0.00076	0.00060	<0.00050	0.00064	0.00213	0.00197	0.00131	0.00105	0.00069	0.00136
Zinc	mg/L	n/v	n/v	0.0050	0.0145	<0.030 DM	0.0035	0.0051	<0.0030	0.0040	<0.0030	0.0056	<0.0030	<0.0030	0.0055	0.0043	<0.0030	<0.0030	<0.0030	0.0053	<0.0030
Zirconium	mg/L	n/v	n/v	<0.00020	0.00243	<0.0020 DM	<0.00020	<0.00020	<0.00020	0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	0.00037	0.00043	0.00027	0.00023	0.00024	0.00033

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9									D10					
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	7-May-20	8-Jul-20	8-Oct-20	20-Jun-19	22-Aug-19	9-Oct-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D9	D9	D9	D10	D10	D10	D10	D10	D10
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2296166	L2334482	L2334482	L2362912	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-1	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2444978-7	L2472215-2	L2514453-11	L2296166-9	L2334482-8	L2362912-21	L2444978-2	L2470843-12	L2514453-4
Sample Type	Units	CWQG-FAL	MSOG-FAL		Field Duplicate		Field Duplicate		Field Duplicate									
Field Parameters																		
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	9.32	-	9.25	-	12.02	-	8.54	7.12	11.97	9.73	**2.57**[B]	11.29	6.16	**4.79**[B]	9.74
Electrical Conductivity, Field	µS/cm	n/v	n/v	973	-	960	-	851	-	479.8	979.0	935	907	5,061	1,793	312.2	467.4	636.6
Nitrite, Field	mg/L	n/v	n/v	0.01	-	0.01	-	0.00	-	-	-	-	0.04	0.06	0.02	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	202.8	-	161.7	-	212.9	-	175	65.3	45	-124.2	0.3	69	107.3	-28.4	82.6
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	8.4	-	8.64	-	8.26	-	7.69	8.30	8.16	**9.75**[BD]	8.2	7.95	7.5	8.24	8.02
Pressure	kPa	n/v	n/v	101.18	-	103.23	-	101.18	-	102.54	99.90	98.65	100.91	101.99	101.68	102.22	101.47	98.66
Temperature, Field	deg C	n/v	n/v	19.6	-	18.1	-	7.9	-	1.6	24.5	7.9	26.1	25.6	3.7	10.3	23.1	11.9
Total Dissolved Solids, Field	ppm	n/v	n/v	-	-	-	-	-	-	485	677	620	-	-	-	314	372	410
Turbidity, Field	NTU	n/v	n/v	4.30	-	11.42	-	4.40	-	0.48	6.24	17.30	4.40	9.02	32.97	1.30	0.86	13.03
General Chemistry																		
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	206	206	214	214	203	202	423	203	209	86.9	750	308	186	227	336
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	4.08	3.84	6.59	6.48	6.00	2.40	<0.60	5.64	6.12	67.2	27.0	<0.60	<0.60	27.8	15.6
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	175	176	186	186	176	170	346	176	182	183	660	252	153	232	302
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	0.011	0.010	0.024	0.010	0.011	0.013	0.031	0.012	<0.010	0.044	0.257	0.64	<0.010	0.018	0.016
Chloride	mg/L	640[A] 120[B]	n/v	**182**[B]	**177**[B]	**194**[B]	**195**[B]	**190**[B]	**193**[B]	103	**170**[B]	**200**[B]	10.9	**144**[B]	18.0	5.44	5.68	7.89
Fluoride	mg/L	0.12[B]	n/v	**0.144**[B]	**0.144**[B]	**0.164**[B]	**0.151**[B]	**0.176**[B]	**0.140**[B]	0.091	**0.141**[B]	**0.144**[B]	**0.318**[B]	**0.43**[B]	**0.31**[B]	**0.135**[B]	**0.215**[B]	**0.274**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	223	224	253	243	241	228	160	242	241	533	4,050	1,280	225	329	381
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	<0.040 DM	0.045	0.673	<0.040 DM	<0.040 DM	<0.40 DM	<0.10 DM	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	***<0.20 DM***	<0.050 DM	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	1.03	1.05	1.13	1.14	-	-	<0.20	1.01	1.41	2.78	20.5	-	1.09	1.66	1.95
Phosphorus, Total	mg/L	n/v	0.025[C]	0.0135	0.0174	**0.0278**[C]	**0.0263**[C]	0.0228	0.0217	0.0089	0.0248	**0.0389**[C]	**0.0279**[C]	**0.109**[C]	**0.121**[C]	**0.0505**[C]	**0.0258**[C]	**0.0357**[C]
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	0.0059	0.0054	0.0055	0.0064	0.0057	0.0036	0.0038	0.0096	0.0077	0.0216	**0.0833**[C]	0.0216	0.0207	0.0208	0.0138
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0076	0.0120	0.0223	0.0199	0.0171	0.0181	0.0051	0.0153	0.0312	0.0062	0.0258	0.0989	0.0299	0.0050	0.0219
Total Dissolved Solids	mg/L	n/v	n/v	606	586	616	603	606	598	334	536	601	770	5,950 XB	1,870	257	378	456
Sulfate	mg/L	n/v	n/v	72.7	71.0	75.9	76.2	75.1	74.8	47.9	65.1	84.7	365	3,970	1,020	48.7	81.6	85.4
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	1.03	1.05	1.13	1.14	1.12	1.00	<0.20	1.01	1.41	2.78	20.5	4.30	1.09	1.66	1.95
Total Suspended Solids	mg/L	SN[B]	n/v	7.1	5.1	25.3	25.1	9.3	9.3	<2.0	6.8	45.0	5.6	13.3	83.9	<2.0	19.1	38.7
Microbiological Parameters																		
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	-	-	11 ZH	24 ZH	1 ZH	<1 ZH	<1	3	86	<1	19	1,200	2 SV	11	27
Total Coliforms	mpn/100mL	n/v	n/v	-	-	1,200 ZH	1,730 ZH	20 ZH	12 ZH	4	517	272	1	365	>2420	866 SV	830	921
BTEX and Petroleum Hydrocarbons																		
Benzene	mg/L	0.37[B]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.38	<0.38	<0.38	<0.38	<0.37	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	-	-	-	-	YES	YES	-	-	-	-	-	YES	-	-	-

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9									D10					
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	7-May-20	8-Jul-20	8-Oct-20	20-Jun-19	22-Aug-19	9-Oct-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D9	D9	D9	D10	D10	D10	D10	D10	D10
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2296166	L2334482	L2334482	L2362912	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-1	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2444978-7	L2472215-2	L2514453-11	L2296166-9	L2334482-8	L2362912-21	L2444978-2	L2470843-12	L2514453-4
Sample Type	Units	CWQG-FAL	MSOG-FAL		Field Duplicate		Field Duplicate		Field Duplicate									
Metals, Dissolved																		
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	0.0023	0.0032	0.0052	0.0058	0.0016	0.0019	0.0013	0.0072	0.0045	0.0044	0.0030	0.0018	0.0016	<0.0010	0.0028
Antimony	mg/L	n/v	n/v	0.00016	0.00015	0.00017	0.00017	0.00019	0.00021	<0.00010	0.00017	0.00025	0.00015	0.00063	0.00039	<0.00010	<0.00010	0.00010
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.00182	0.00183	0.00192	0.00188	0.00190	0.00190	0.00082	0.00212	0.00206	0.00195	0.0118	0.00179	0.00071	0.00127	0.00104
Barium	mg/L	n/v	n/v	0.0387	0.0402	0.0441	0.0399	0.0401	0.0438	0.0261	0.0379	0.0432	0.0175	0.330	0.0927	0.0247	0.0269	0.0363
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	0.094	0.090	0.114	0.085	0.102	0.114	0.057	0.102	0.103	0.189	0.405	0.269	0.062	0.125	0.077
Cadmium	mg/L	n/v	$0.00084/0.011_{s8}$[D]	<0.0000050	0.0000055	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000151	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	39.4	39.1	41.3	38.2	47.0	39.7	27.5	40.9	36.5	37.5	373	192	33.2	33.4	50.9
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.317/2.43_{s7}$[D]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	0.00099	0.00013	<0.00010	0.00014	0.00010
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	0.00099	0.00025	<0.00010	0.00015	<0.00010
Copper	mg/L	n/v	$0.040/0.07_{s10}$[D]	0.00054	0.00062	0.00023	0.00070	0.00043	0.00140	0.00187 RV	0.00035	0.00103	0.00104	0.00174	0.00089	0.00177 RV	0.00316 RV	0.00107
Iron	mg/L	n/v	0.3[D]	<0.010	<0.010	0.038	<0.010	<0.010	0.026	0.047	<0.010	<0.010	<0.010	0.048	0.017	0.030	0.025	0.026
Lead	mg/L	n/v	$0.016/0.416_{s9}$[D]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000053	0.000179	0.000070	<0.000050	0.000100	<0.000050
Lithium	mg/L	n/v	n/v	0.0294	0.0295	0.0351	0.0229	0.0314	0.0305	0.0169	0.0298	0.0317	0.0355	0.154	0.0624	0.0108	0.0175	0.0215
Magnesium	mg/L	n/v	n/v	30.2	30.7	36.3	35.9	29.9	31.2	22.2	34.0	36.4	107	758	194	34.4	59.5	61.7
Manganese	mg/L	3.6_{EQ3}[A] 0.43_{EQ4}[B]	n/v	0.00033	0.00048	0.00115	0.00057	0.00026	0.00043	0.00426	0.00016	0.00049	0.00826	0.154	0.121	0.00309	0.0194	0.00384
Molybdenum	mg/L	n/v	0.073[D]	0.00178	0.00187	0.00214	0.00215	0.00267	0.00230	0.00127	0.00269	0.00258	0.000555	0.00128	0.00715	0.000793	0.000663	0.000624
Nickel	mg/L	n/v	$0.23/2.1_{s11}$[D]	0.00061	0.00064	0.00059	0.00050	0.00051	0.00056	<0.00050	0.00054	0.00060	0.00134	0.00537	0.00122	0.00052	0.00083	0.00055
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.116	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	8.73	9.01	9.18	9.11	9.08	8.95	5.27	8.66	9.38	18.8	78.1	19.7	7.22	8.15	6.36
Rubidium	mg/L	n/v	n/v	0.00350	0.00361	0.00386	0.00398	0.00389	0.00392	0.00188	0.00353	0.00378	0.00634	0.0189	0.00654	0.00290	0.00365	0.00269
Selenium	mg/L	n/v	0.001[D]	0.000070	0.000100	0.000077	0.000067	0.000076	0.000070	0.000053	0.000106	0.000120	0.000263	0.000920	0.000248	0.000109	0.000231	0.000177
Silicon	mg/L	n/v	n/v	2.97	3.02	4.12	3.96	3.68	3.91	2.31	3.20	3.75	7.20	33.8	3.18	2.94	7.57	0.446
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000030	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	123	126	128	123	127	127	69.8	123	133	25.7	192	34.5	6.08	11.5	12.9
Strontium	mg/L	n/v	n/v	0.234	0.232	0.262	0.268	0.302	0.263	0.146	0.250	0.255	0.177	1.63	0.667	0.0980	0.126	0.169
Sulfur	mg/L	n/v	n/v	28.0	29.0	30.2	28.9	26.4	26.4	18.8	24.1	27.5	148	1,270	377	21.4	29.2	29.9
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	0.00066	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	0.00012	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00047	0.00207	0.00042	<0.00030	<0.00030	0.00040
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.00157	0.00158	0.00161	0.00172	0.00175	0.00180	0.00133	0.00138	0.00173	0.00162	0.00836	**0.0186**[D]	0.00129	0.00108	0.00160
Vanadium	mg/L	n/v	n/v	0.00116	0.00116	0.00137	0.00135	0.00132	0.00130	0.00051	0.00117	0.00170	0.00172	0.00432	0.00164	0.00055	<0.00050	0.00074
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.530_{s12}[D]	0.0037	**0.0074**[B]	0.0048	<0.0010	<0.0010	0.0036	0.0030	0.0022	0.0017	0.0042	0.0049	0.0026	**0.0141 RV**[B]	0.0027	0.0024
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	0.00127	0.00022	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D9									D10					
Sample Date				19-Jun-19	19-Jun-19	21-Aug-19	21-Aug-19	7-Oct-19	7-Oct-19	7-May-20	8-Jul-20	8-Oct-20	20-Jun-19	22-Aug-19	9-Oct-19	6-May-20	7-Jul-20	7-Oct-20
Sample ID				D9	QC-01	D9	QC-02	D9	QC-01	D9	D9	D9	D10	D10	D10	D10	D10	D10
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2296166	L2296166	L2334482	L2334482	L2362912	L2362912	L2444978	L2472215	L2514453	L2296166	L2334482	L2362912	L2444978	L2470843	L2514453
Laboratory Sample ID				L2296166-1	L2296166-12	L2334482-1	L2334482-3	L2362912-1	L2362912-6	L2444978-7	L2472215-2	L2514453-11	L2296166-9	L2334482-8	L2362912-21	L2444978-2	L2470843-12	L2514453-4
Sample Type	Units	CWQG-FAL	MSOG-FAL		Field Duplicate		Field Duplicate		Field Duplicate									
Metals, Total																		
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	0.0441	0.0481	**0.108[BD]**	**0.102[BD]**	0.0618	0.0773	0.0427	0.0444	0.331	**0.0352[BD]**	0.0827	**1.36[BD]**	0.0165	0.0067	0.374
Antimony	mg/L	n/v	n/v	0.00015	0.00018	0.00021	0.00023	0.00014	0.00013	<0.00010	0.00019	0.00020	0.00015	0.00062	0.00042	<0.00010	<0.00010	0.00013
Arsenic	mg/L	0.005[B]	n/v	0.00195	0.00202	0.00228	0.00237	0.00209	0.00207	0.00091	0.00205	0.00236	0.00205	**0.0113[B]**	0.00220	0.00084	0.00133	0.00118
Barium	mg/L	n/v	n/v	0.0401	0.0418	0.0420	0.0423	0.0408	0.0401	0.0233	0.0395	0.0468	0.0180	0.285	0.111	0.0223	0.0231	0.0376
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{83}$[D]	0.094	0.096	0.092	0.093	0.100	0.106	0.053	0.082	0.115	0.206	-	0.236	0.058	0.130	0.088
Cadmium	mg/L	0.001$_{STB}$[A] 9E-5$_{LTG}$[B]	n/v	<0.0000050	0.0000118	0.0000053	0.0000054	<0.0000050	<0.0000050	<0.0000050	0.0000208	0.0000062	0.0000065	0.0000181	0.0000325	<0.0000050	<0.0000050	0.0000177
Calcium	mg/L	n/v	n/v	41.2	41.5	38.8	37.8	40.5	38.5	27.9	40.0	40.5	38.8	374	176	34.8	34.1	50.8
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	0.000017	0.000017	<0.000010	<0.000010	<0.000010	0.000011	0.000038	<0.000010	0.000015	0.000165	<0.000010	<0.000010	0.000053
Chromium	mg/L	n/v	n/v	0.00035	0.00050	0.00034	0.00038	0.00015	0.00022	0.00012	0.00016	0.00076	0.00035	0.00131	0.00301	0.00011	0.00017	0.00086
Cobalt	mg/L	n/v	n/v	<0.00010	<0.00010	0.00013	0.00013	<0.00010	0.00010	<0.00010	<0.00010	0.00025	0.00028	0.00106	0.00103	<0.00010	0.00017	0.00030
Copper	mg/L	0.004*[B]	n/v	0.00060	0.00093	0.00051	0.00051	<0.00050	<0.00050	<0.00050	0.00053	0.00082	0.00106	0.00183	0.00283	0.00056	<0.00050	0.00089
Iron	mg/L	0.3[B]	0.3[D]	0.038	0.042	0.119	0.114	0.058	0.063	0.054	0.040	**0.370[BD]**	0.046	0.117	**1.75[BD]**	0.055	0.030	**0.440[BD]**
Lead	mg/L	0.007#[B]	n/v	0.000113	0.000156	0.000232	0.000226	0.000174	0.000184	0.000067	0.000116	0.000440	0.000076	0.000212	0.00101	<0.000050	<0.000050	0.000263
Lithium	mg/L	n/v	n/v	0.0310	0.0303	0.0312	0.0306	0.0312	0.0296	0.0181	0.0283	0.0352	0.0375	0.231	0.0665	0.0113	0.0185	0.0247
Magnesium	mg/L	n/v	n/v	32.3	33.4	35.7	35.9	30.3	31.1	22.0	29.4	39.8	112	-	227	34.4	62.8	69.5
Manganese	mg/L	n/v	n/v	0.00617	0.00663	0.0124	0.0123	0.00876	0.00859	0.00525	0.00957	0.0151	0.0116	0.158	0.198	0.0182	0.0318	0.0241
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00203	0.00213	0.00220	0.0111	0.00227	0.00225	0.00133	0.00183	0.00258	0.000592	0.00141	0.00677	0.000872	0.000717	0.000670
Nickel	mg/L	0.150**[B]	n/v	0.00095	0.00126	0.00087	0.00093	0.00070	0.00069	0.00054	0.00058	0.00121	0.00145	0.00576	0.00335	0.00059	0.00087	0.00108
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	<0.030	0.035	<0.030	<0.030	<0.030	<0.030	0.040	<0.030	0.140	0.108	0.083	0.035	0.044
Potassium	mg/L	n/v	n/v	8.12	8.38	9.04	9.37	8.37	8.66	5.20	7.78	9.77	16.6	73.9	19.7	7.27	8.39	6.42
Rubidium	mg/L	n/v	n/v	0.00353	0.00372	0.00408	0.00417	0.00433	0.00400	0.00199	0.00375	0.00469	0.00589	0.0180	0.0101	0.00293	0.00373	0.00356
Selenium	mg/L	0.001[B]	0.001[D]	0.000103	0.000115	0.000073	0.000073	0.000058	0.000101	<0.000050	0.000191	0.000082	0.000288	0.000879	0.000393	0.000123	0.000242	0.000176
Silicon	mg/L	n/v	n/v	2.90	2.96	3.72	3.65	4.34	4.43	2.43	2.84	4.92	6.85	33.6	5.83	2.73	8.02	1.32
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	0.000030	0.000012	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	125	127	131	131	127	127	74.2	105	135	25.6	192	36.9	6.45	12.1	12.8
Strontium	mg/L	n/v	n/v	0.262	0.265	0.267	0.266	0.255	0.265	0.155	0.245	0.268	0.195	-	0.669	0.104	0.127	0.196
Sulfur	mg/L	n/v	n/v	26.7	27.4	28.2	27.6	31.0	29.2	18.7	21.5	31.7	140	-	404	20.1	31.7	30.9
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00030	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000023	<0.000010	<0.000010	0.000012
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00030	<0.00010	<0.00010	0.00011
Tin	mg/L	n/v	n/v	0.00021	0.00121	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00154	0.00172	0.00489	0.00483	0.00259	0.00283	0.00164	0.00165	0.0152	0.00180	0.00643	0.0615	0.00080	0.00055	0.0153
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{94}$[D]	0.00167	0.00169	0.00176	0.00179	0.00153	0.00155	0.00132	0.00137	0.00197	0.00168	0.00869	**0.0163[BD]**	0.00129	0.00113	0.00169
Vanadium	mg/L	n/v	n/v	0.00152	0.00160	0.00186	0.00185	0.00168	0.00177	0.00081	0.00120	0.00259	0.00221	0.00452	0.00452	0.00078	0.00071	0.00155
Zinc	mg/L	n/v	n/v	0.0042	0.0131	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0081	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	0.00025	0.00137	0.00071	<0.00020	<0.00020	0.00039

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D11				D12					
Sample Date				9-Oct-19	4-May-20	6-Jul-20	6-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20
Sample ID				D11	D11	D11	D11	D12	D12	D12	D12	D12	D12
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2362912	L2443834	L2470843	L2512953	L2296166	L2334482	L2362912	L2444978	L2470843	L2512953
Laboratory Sample ID				L2362912-20	L2443834-5	L2470843-6	L2512953-8	L2296166-4	L2334482-9	L2362912-8	L2444978-5	L2470843-9	L2512953-6
Sample Type	Units	CWQG-FAL	MSOG-FAL										
Field Parameters													
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	NM	9.43	**0.11**[B]	**4.33**[B]	**4.81**[B]	8.34	6.24	7.27	**0.88**[B]	11.17
Electrical Conductivity, Field	µS/cm	n/v	n/v	NM	272.3	1,017.0	688.3	1,005	1,028	749.3	427.7	551.0	821
Nitrite, Field	mg/L	n/v	n/v	NM	-	-	-	0.03	0.03	0.03	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	NM	157.0	-44.4	-27.8	148.1	-115	6.4	146.5	32.9	-34.5
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	NM	7.81	7.14	7.17	7.81	8.57	7.73	7.49	7.15	7.4
Pressure	kPa	n/v	n/v	NM	98.95	101.35	97.18	101.03	101.9	99.93	102.47	101.31	97.34
Temperature, Field	deg C	n/v	n/v	NM	9.3	20.1	10.5	19.2	16.8	7.5	19.2	24.2	12.8
Total Dissolved Solids, Field	ppm	n/v	n/v	-	324	833	390	-	-	-	425	463	450
Turbidity, Field	NTU	n/v	n/v	NM	1.53	1.45	3.98	0.59	1.69	2.66	0.03	0.00	1.65
General Chemistry													
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	249	202	471	336	550	529	279	321	400	406
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	<0.60	2.16	<0.60	18.7	<0.60	39.5	<0.60	<0.60	<0.60	26.8
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	204	169	386	307	451	499	229	263	328	377
Ammonia (as N)	mg/L	[B] TBC2	[D] TBC1	0.058	0.018	0.203	0.028	0.036	0.071	0.094	0.013	0.027	0.022
Chloride	mg/L	640[A] 120[B]	n/v	8.2	5.79	5.9	8.39	15.7	20.1	19.7	9.54	9.31	19.3
Fluoride	mg/L	0.12[B]	n/v	**0.24**[B]	**0.140**[B]	**0.254**[B]	**0.265**[B]	**0.353**[B]	**0.348**[B]	**0.208**[B]	**0.206**[B]	**0.294**[B]	**0.300**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	897	226	726	388	598	698	519	338	374	447
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	<0.10 DM	0.021	<0.040 DM	<0.020	<0.040 DM	<0.040 DM	<0.040 DM	<0.020	0.039	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	<0.050 DM	<0.010	<0.020 DM	<0.010	<0.020 DM	<0.020 DM	<0.020 DM	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	-	1.13	6.53	1.57	2.28	3.26	-	0.47	2.04	1.56
Phosphorus, Total	mg/L	n/v	0.025[C]	**0.0577**[C]	**0.0436**[C]	**0.158**[C]	0.0208	0.0243	**0.0284**[C]	0.0115	0.0181	**0.0650**[C]	**0.0276**[C]
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	0.0140	0.0205	**0.125**[C]	0.0159	0.0141	0.0172	0.0077	0.0117	0.0217	0.0089
Phosphorus, Total Particulate	mg/L	n/v	n/v	0.0438	0.0230	0.0336	0.0049	0.0101	0.0113	<0.0042	0.0064	0.0432	0.0187
Total Dissolved Solids	mg/L	n/v	n/v	1,270	269	1,030	425	747	850	694	364	428	552
Sulfate	mg/L	n/v	n/v	660	56.9	321	91.5	176	234	293	48.8	40.3	82.1
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	1.48	1.13	6.53	1.57	2.28	3.26	1.26	0.47	2.04	1.56
Total Suspended Solids	mg/L	[B] SN	n/v	2.8	<2.0	3.0	4.3	<2.0	4.7	<2.0	<2.0	10.7	2.3
Microbiological Parameters													
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	9	<1	<10	58	-	9	276 ZH	5	435	4
Total Coliforms	mpn/100mL	n/v	n/v	>2420	66	930	921	-	179	>2420 ZH	1,410	>2420	1,120
BTEX and Petroleum Hydrocarbons													
Benzene	mg/L	0.37[B]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	-	-	-	-	YES	-	-	-

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Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D11				D12					
Sample Date				9-Oct-19	4-May-20	6-Jul-20	6-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20
Sample ID				D11	D11	D11	D11	D12	D12	D12	D12	D12	D12
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2362912	L2443834	L2470843	L2512953	L2296166	L2334482	L2362912	L2444978	L2470843	L2512953
Laboratory Sample ID				L2362912-20	L2443834-5	L2470843-6	L2512953-8	L2296166-4	L2334482-9	L2362912-8	L2444978-5	L2470843-9	L2512953-6
Sample Type	Units	CWQG-FAL	MSOG-FAL										
Metals, Dissolved													
Aluminum	mg/L	n/v	$0.005/0.1_{VAR1}$[D]	0.0128	0.0013	0.0062B	<0.0010	0.0012	0.0025	0.0023	0.0011	0.0014	<0.0010
Antimony	mg/L	n/v	n/v	0.00018	<0.00010	0.00047	<0.00010	0.00012	0.00015	0.00014	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	n/v	$0.15/0.34_{s2}$[D]	0.00081	0.00073	0.00390	0.00104	0.00164	0.00354	0.00120	0.00069	0.00128	0.00129
Barium	mg/L	n/v	n/v	0.0720	0.0200	0.0632	0.0312	0.0537	0.0353	0.0354	0.0305	0.0544	0.0460
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	$29/1.5_{s3}$[D]	0.144	0.060	0.456	0.089	0.126	0.117	0.106	0.082	0.145	0.104
Cadmium	mg/L	n/v	$0.00084/0.011_{s8}$[D]	0.0000071	<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	159	33.0	99.8	47.6	75.8	57.1	69.8	47.5	53.4	63.7
Cesium	mg/L	n/v	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	$0.317/2.43_{s7}$[D]	0.00019	<0.00010	0.00038	0.00012	0.00013	0.00024	<0.00010	<0.00010	0.00015	0.00010
Cobalt	mg/L	n/v	n/v	0.00016	<0.00010	0.00080	<0.00010	0.00014	0.00014	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	n/v	$0.040/0.07_{s10}$[D]	0.00225	0.00062	0.00133	0.00122	0.00050	0.00091	0.00099	0.00178 RV	0.00271 RV	0.00100
Iron	mg/L	n/v	0.3[D]	0.049	0.037	**0.461**[D]	0.031	0.042	0.025	0.018	0.027	0.058	0.029
Lead	mg/L	n/v	$0.016/0.416_{s9}$[D]	<0.000050	<0.000050	0.000131	<0.000050	<0.000050	<0.000050	0.000054	<0.000050	0.000109	<0.000050
Lithium	mg/L	n/v	n/v	0.0381	0.0105	0.0449	0.0237	0.0300	0.0262	0.0260	0.0138	0.0167	0.0255
Magnesium	mg/L	n/v	n/v	121	35.0	116	65.4	99.2	135	83.8	53.3	58.4	69.9
Manganese	mg/L	3.6_{EQ3}[A] 43_{EQ4}[B]	n/v	0.0242	0.00238	**1.51**[B]	0.0126	0.0407	0.00930	0.00516	0.00544	0.0874	0.00972
Molybdenum	mg/L	n/v	0.073[D]	0.00558	0.000844	0.00488	0.000544	0.000517	0.000427	0.00161	0.000752	0.00260 RV	0.000335
Nickel	mg/L	n/v	$0.23/2.1_{s11}$[D]	0.00130	<0.00050	0.00210	<0.00050	0.00061	0.00094	0.00059	0.00053	0.00079	<0.00050
Phosphorus	mg/L	n/v	n/v	<0.030	<0.030	0.123	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	15.6	7.07	21.1	6.27	9.49	9.85	11.5	6.22	4.34	9.85
Rubidium	mg/L	n/v	n/v	0.00375	0.00282	0.00547	0.00264	0.00396	0.00397	0.00364	0.00254	0.00237	0.00382
Selenium	mg/L	n/v	0.001[D]	0.000080	0.000112	0.000526	0.000145	0.000243	0.000312	0.000077	0.000095	0.000266	0.000141
Silicon	mg/L	n/v	n/v	5.64	2.92	29.3	1.45	6.72	1.60	6.38	4.25	14.4	11.8
Silver	mg/L	n/v	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	18.9	6.42	25.0	12.8	19.1	24.7	16.2	8.79	10.7	14.7
Strontium	mg/L	n/v	n/v	0.406	0.101	0.523	0.173	0.247	0.276	0.230	0.129	0.167	0.201
Sulfur	mg/L	n/v	n/v	238	21.1	117	30.6	67.2	81.3	105	20.2	15.0	26.5
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	0.00021	<0.00010	0.00013	<0.00010	0.00014	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00112	<0.00030	0.00163	<0.00030	<0.00030	0.00040	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	$0.033/0.015_{s4}$[D]	0.0114	0.00149	0.00493	0.00135	0.00284	0.00153	0.00384	0.00243	0.000821	0.00101
Vanadium	mg/L	n/v	n/v	0.00061	0.00054	0.00090	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037_{EQ1}[A] 0.007_{EQ2}[B]	0.530_{s12}[D]	0.0046	<0.0010	**0.0071**[B]	0.0035	0.0017	0.0013	0.0035	0.0055	0.0047	0.0032
Zirconium	mg/L	n/v	n/v	<0.00020	<0.00020	0.00052	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Sample Location				D11				D12					
Sample Date				9-Oct-19	4-May-20	6-Jul-20	6-Oct-20	19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20
Sample ID				D11	D11	D11	D11	D12	D12	D12	D12	D12	D12
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order				L2362912	L2443834	L2470843	L2512953	L2296166	L2334482	L2362912	L2444978	L2470843	L2512953
Laboratory Sample ID				L2362912-20	L2443834-5	L2470843-6	L2512953-8	L2296166-4	L2334482-9	L2362912-8	L2444978-5	L2470843-9	L2512953-6
Sample Type	Units	CWQG-FAL	MSOG-FAL										
Metals, Total													
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	**0.155[BD]**	0.0059	0.0385	0.0519	0.0043	0.0111	0.0078	0.0045	0.0506	0.0171
Antimony	mg/L	n/v	n/v	0.00025	0.00010	0.00048	<0.00010	0.00011	0.00015	<0.00010	<0.00010	0.00012	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.00101	0.00079	0.00385	0.00102	0.00161	0.00358	0.00122	0.00076	0.00133	0.00122
Barium	mg/L	n/v	n/v	0.0741	0.0200	0.0648	0.0305	0.0529	0.0353	0.0328	0.0282	0.0505	0.0436
Beryllium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	0.125	0.057	0.434	0.096	0.120	0.142	0.143	0.066	0.152	0.113
Cadmium	mg/L	0.001$_{STB}$[A] 9E-5$_{LTG}$[B]	n/v	0.0000069	<0.0000050	0.0000070	<0.0000050	0.0000059	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	155	35.4	98.8	53.6	76.8	57.3	69.0	49.5	55.1	66.6
Cesium	mg/L	n/v	n/v	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	n/v	n/v	0.00050	0.00012	0.00041	0.00017	0.00022	0.00034	0.00016	<0.00010	0.00021	0.00012
Cobalt	mg/L	n/v	n/v	0.00021	<0.00010	0.00083	0.00010	0.00014	0.00017	<0.00010	<0.00010	0.00013	<0.00010
Copper	mg/L	0.004*[B]	n/v	0.00258	<0.00050	0.00114	0.00177	<0.00050	0.00102	0.00057	<0.00050	0.00058	0.00112
Iron	mg/L	0.3[B]	0.3[D]	0.175	0.045	**0.543[BD]**	0.072	0.048	0.045	0.024	0.023	0.118	0.050
Lead	mg/L	0.007#[B]	n/v	0.000079	<0.000050	0.000162	0.000103	<0.000050	<0.000050	<0.000050	<0.000050	0.000073	0.000109
Lithium	mg/L	n/v	n/v	0.0415	0.0115	0.0460	0.0252	0.0319	0.0404	0.0250	0.0147	0.0178	0.0260
Magnesium	mg/L	n/v	n/v	139	35.3	116	65.7	103	138	79.7	53.6	60.1	66.9
Manganese	mg/L	n/v	n/v	0.0345	0.00630	1.53	0.0156	0.0445	0.0137	0.00655	0.00630	0.144	0.0176
Molybdenum	mg/L	0.073[B]	0.073[D]	0.00599	0.000890	0.00511	0.000589	0.000542	0.000443	0.00170	0.000814	0.00158	0.000375
Nickel	mg/L	0.150**[B]	n/v	0.00152	0.00060	0.00206	0.00060	0.00070	0.00115	0.00057	0.00057	0.00086	<0.00050
Phosphorus	mg/L	n/v	n/v	0.039	0.042	0.171	0.031	<0.030	0.038	<0.030	<0.030	0.059	<0.030
Potassium	mg/L	n/v	n/v	15.6	7.13	21.8	6.91	8.35	9.90	10.7	6.20	4.35	10.7
Rubidium	mg/L	n/v	n/v	0.00407	0.00288	0.00549	0.00296	0.00382	0.00406	0.00342	0.00259	0.00254	0.00419
Selenium	mg/L	0.001[B]	0.001[D]	0.000184	0.000164	0.000457	0.000142	0.000199	0.000248	0.000088	0.000125	0.000255	0.000149
Silicon	mg/L	n/v	n/v	6.22	2.97	30.3	1.85	6.30	1.59	6.75	4.38	15.6	14.0
Silver	mg/L	0.00025[B]	0.0001[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	20.4	6.24	25.3	13.1	19.4	27.1	16.4	9.22	10.6	14.6
Strontium	mg/L	n/v	n/v	0.426	0.101	0.552	0.179	0.267	0.289	0.236	0.137	0.180	0.206
Sulfur	mg/L	n/v	n/v	249	21.4	122	36.3	63.9	83.0	108	21.4	16.2	31.1
Tellurium	mg/L	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	0.00553	0.00038	0.00303	0.00178	<0.00030	0.00058	0.00032	<0.00030	0.00223	0.00070
Tungsten	mg/L	n/v	n/v	<0.00010	<0.00010	0.00026	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.0117	0.00148	0.00518	0.00154	0.00291	0.00164	0.00339	0.00252	0.000864	0.00116
Vanadium	mg/L	n/v	n/v	0.00111	0.00066	0.00149	0.00069	0.00077	0.00075	0.00063	0.00051	<0.00050	<0.00050
Zinc	mg/L	n/v	n/v	0.0050	<0.0030	0.0053	0.0036	0.0039	<0.0030	<0.0030	<0.0030	0.0040	0.0054
Zirconium	mg/L	n/v	n/v	0.00027	<0.00020	0.00049	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-1
Summary of Surface Water Analytical Results
Lake Manitoba Outlet

Notes:

CWQG-FAL	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
MSOG-FAL	Manitoba Provincial Water Quality Guidelines
C	Tier I - Water Quality Guidelines - Freshwater Aquatic Life
D	Tier III - Water Quality Guidelines - Freshwater Aquatic Life
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1.
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1.
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness. At hardness≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10{0.83(log[hardness]) – 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
STB	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation: (Short-term benchmark (µg/L) = 10{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness≥82 to ≤180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness)]-1.465}. At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L
#	The CWQG for lead is related to water hardness. When the hardness is 0 to≤ 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e{1.273[ln(hardness)]-4.705}. At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L
**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to≤ 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L
s3	29 mg/L short term exposure; 1.5 mg/L long term exposure.
s4	0.033 mg/L short term exposure; 0.15 mg/L long term exposure.
s7	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Chromium, 0.00084 mg/L is for 4 day averaging duration and 2.43 mg/L is for 1 hour averaging duration.
s8	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Cadmium, 0.00084 mg/L is for 4 day averaging duration and 0.011 mg/L is for 1 hour averaging duration.
s9	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Lead, 0.016 mg/L is for 4 day averaging duration and 0.416 mg/L is for 1 hour averaging duration.
s10	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Copper, 0.040 mg/L is for 4 day averaging duration and 0.07 mg/L is for 1 hour averaging duration.
S11	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Nickel, 0.23 mg/L is for 4 day averaging duration and 2.1 mg/L is for 1 hour averaging duration.
s12	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Zinc, 0.530 mg/L is for both the 4 day averaging duration and the 1 hour averaging duration.
SN	see Narrative
TBC1	Value is minimum value available. Sample-specific value to be calculated (equation).
TBC2	To be calculated (equation), then the present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
DM	Detection limit adjusted due to sample matrix effects.
NM	Result is non calculable due to matrix interference.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
RV	Reported result verified by repeat analysis.
SV	Sample was analyzed past the hold time.
XB	Re-analysis was completed past recommended hold time.
ZH	Sample analysed past recommended hold time.most probable number.

Table B-2
Summary of Surface Water RPDs - Field Duplicates
Lake Manitoba Outlet

Sample Location		D1			D2						D9								
Sample Date		8-Oct-20	8-Oct-20		4-May-20	5-May-20		6-Jul-20	6-Jul-20		19-Jun-19	19-Jun-19		21-Aug-19	21-Aug-19		7-Oct-19	7-Oct-19	
Sample ID		D1	SW0		D2	QC-01		D2	QC-02		D9	QC-01		D9	QC-02		D9	QC-01	
Sampling Company		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory		ALS	ALS		ALS	ALS		ALS	ALS		ALS	ALS		ALS	ALS		ALS	ALS	
Laboratory Work Order		L2514453	L2514453		L2443834	L2443834		L2470843	L2470843		L2296166	L2296166		L2334482	L2334482		L2362912	L2362912	
Laboratory Sample ID		L2514453-5	L2514453-6		L2443834-1	L2443834-10		L2470843-2	L2470843-11		L2296166-1	L2296166-12		L2334482-1	L2334482-3		L2362912-1	L2362912-6	
Sample Type	Units		Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		Field Duplicate	RPD (%)
General Chemistry																			
Alkalinity, Bicarbonate (as CaCO3)	mg/L	201	201	0%	259	253	2%	409	418	2%	206	206	0%	214	214	0%	203	202	0%
Alkalinity, Carbonate (as CaCO3)	mg/L	4.92	5.64	14%	<0.60	<0.60	nc	<0.60	<0.60	nc	4.08	3.84	6%	6.59	6.48	2%	6.00	2.40	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc
Alkalinity, Total	mg/L	173	174	1%	212	208	2%	335	342	2%	175	176	1%	186	186	0%	176	170	3%
Ammonia (as N)	mg/L	<0.010	<0.010	nc	0.027	0.030	nc	<0.10 DM	0.021	nc	0.011	0.010	nc	0.024	0.010	nc	0.011	0.013	nc
Chloride	mg/L	206	202	2%	10.9	15.4	**34%**	18.7	18.5	1%	182	177	3%	194	195	1%	190	193	2%
Fluoride	mg/L	0.160	0.161	nc	0.081	0.115	nc	0.220	0.217	1%	0.144	0.144	nc	0.164	0.151	nc	0.176	0.140	nc
Hardness (as CaCO3)	mg/L	230	237	3%	292	289	1%	369	368	0%	223	224	0%	253	243	4%	241	228	6%
Nitrate (as N)	mg/L	<0.040 DM	<0.040 DM	nc	0.044	<0.020	nc	0.023	<0.020	nc	<0.040 DM	<0.040 DM	nc	<0.040 DM	<0.040 DM	nc	<0.040 DM	<0.040 DM	nc
Nitrite (as N)	mg/L	<0.020 DM	<0.020 DM	nc	<0.010	<0.010	nc	<0.010	<0.010	nc	<0.020 DM	<0.020 DM	nc	<0.020 DM	<0.020 DM	nc	<0.020 DM	<0.020 DM	nc
Nitrogen (Total)	mg/L	1.11	1.05	6%	1.67	1.77	6%	1.92	1.92	0%	1.03	1.05	2%	1.13	1.14	1%	-	-	-
Phosphorus, Total (Dissolved)	mg/L	0.0070	0.0117	nc	0.171	0.172	1%	0.163	0.168	3%	0.0059	0.0054	nc	0.0055	0.0064	nc	0.0057	0.0036	nc
Phosphorus, Total	mg/L	0.0232	0.0248	7%	0.189	0.192	2%	0.178	0.181	2%	0.0135	0.0174	nc	0.0278	0.0263	6%	0.0228	0.0217	5%
Phosphorus, Total Particulate	mg/L	0.0162	0.0131	nc	0.0182	0.0199	nc	0.0153	0.0128	nc	0.0076	0.0120	nc	0.0223	0.0199	nc	0.0171	0.0181	nc
Sulfate	mg/L	97.3	95.9	1%	53.2	81.8	**42%**	24.1	23.1	4%	72.7	71.0	2%	75.9	76.2	0%	75.1	74.8	0%
Total Dissolved Solids	mg/L	631	567	11%	372	360	3%	458	441	4%	606	586	3%	616	603	2%	606	598	1%
Total Kjeldahl Nitrogen	mg/L	1.11	1.05	6%	1.67	1.77	6%	1.92	1.92	0%	1.03	1.05	2%	1.13	1.14	1%	1.12	1.00	11%
Total Suspended Solids	mg/L	11.4	8.7	**27%**	3.3	2.1	nc	5.3	1.7	nc	7.1	5.1	nc	25.3	25.1	1%	9.3	9.3	nc
Microbiological Parameters																			
Escherichia coli (E.Coli)	mpn/100mL	55	58	5%	3	1	nc	2	2	nc	-	-	-	11 ZH	24 ZH	**74%**	1 ZH	<1 ZH	nc
Total Coliforms	mpn/100mL	548	387	**34%**	317	308	3%	870	921	6%	-	-	-	1,200 ZH	1,730 ZH	**36%**	20 ZH	12 ZH	**50%**
BTEX and Petroleum Hydrocarbons																			
Benzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Toluene	mg/L	0.0016	<0.0010	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc	<0.00050	<0.00050	nc
Ethylbenzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylene, m & p-	mg/L	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc
Xylene, o-	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00030	<0.00030	nc
Xylenes, Total	mg/L	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00050	<0.00050	nc
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.025	<0.025	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.025	<0.025	nc
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.37	<0.37	nc
Chromatogram to baseline at C50	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	YES	YES	nc
Metals, Dissolved																			
Aluminum	mg/L	0.0010	0.0012	nc	0.0040	0.0070	nc	0.0020	0.0014	nc	0.0023	0.0032	nc	0.0052	0.0058	11%	0.0016	0.0019	nc
Antimony	mg/L	0.00018	0.00018	nc	0.00011	0.00011	nc	0.00021	0.00016	nc	0.00016	0.00015	nc	0.00017	0.00017	nc	0.00019	0.00021	nc
Arsenic	mg/L	0.00189	0.00196	4%	0.00109	0.00113	4%	0.00213	0.00212	0%	0.00182	0.00183	1%	0.00192	0.00188	2%	0.00190	0.00190	0%
Barium	mg/L	0.0440	0.0408	8%	0.0248	0.0279	12%	0.0491	0.0436	12%	0.0387	0.0402	4%	0.0441	0.0399	10%	0.0401	0.0438	9%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.094	0.097	3%	0.066	0.079	18%	0.149	0.154	3%	0.094	0.090	4%	0.114	0.085	**29%**	0.102	0.114	11%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc	<0.0000050	0.0000055	nc	0.0000055	<0.0000050	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	36.4	37.7	4%	43.2	42.6	1%	56.2	56.8	1%	39.4	39.1	1%	41.3	38.2	8%	47.0	39.7	17%
Cesium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Chromium	mg/L	<0.00010	<0.00010	nc	0.00010	<0.00010	nc	0.00024	0.00023	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	0.00014	0.00014	nc	0.00045	0.00046	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Copper	mg/L	0.00119	0.00039	nc	0.00068	0.00193 RV	nc	0.00043	0.00065	nc	0.00054	0.00062	nc	0.00023	0.00070	nc	0.00043	0.00140	nc
Iron	mg/L	<0.010	<0.010	nc	0.063	0.060	5%	0.214	0.221	3%	<0.010	<0.010	nc	0.038	<0.010	nc	<0.010	0.026	nc
Lead	mg/L	<0.000050	0.000404 RV	nc	<0.000050	<0.000050	nc	0.000115	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Lithium	mg/L	0.0328	0.0328	0%	0.0127	0.0128	1%	0.0259	0.0264	2%	0.0294	0.0295	0%	0.0351	0.0229	**42%**	0.0314	0.0305	3%
Magnesium	mg/L	33.9	34.6	2%	44.8	44.3	1%	55.4	54.9	1%	30.2	30.7	2%	36.3	35.9	1%	29.9	31.2	4%
Manganese	mg/L	0.00034	0.00026	nc	0.0252	0.0252	0%	0.228	0.227	0%	0.00033	0.00048	nc	0.00115	0.00057	**67%**	0.00026	0.00043	nc
Molybdenum	mg/L	0.00230	0.00238	3%	0.000740	0.000719	3%	0.000728	0.000694	5%	0.00178	0.00187	5%	0.00214	0.00215	0%	0.00267	0.00230	15%
Nickel	mg/L	<0.00050	<0.00050	nc	0.00071	0.00066	nc	0.00141	0.00138	nc	0.00061	0.00064	nc	0.00059	0.00050	nc	0.00051	0.00056	nc
Phosphorus	mg/L	<0.030	<0.030	nc	0.186	0.177	5%	0.154	0.162	5%	<0.030	<0.030	nc	<0.030	<0.030	nc	<0.030	<0.030	nc
Potassium	mg/L	10.2	10.4	2%	15.4	15.7	2%	6.59	6.56	0%	8.73	9.01	3%	9.18	9.11	1%	9.08	8.95	1%
Rubidium	mg/L	0.00393	0.00392	0%	0.00505	0.00520	3%	0.00347	0.00353	2%	0.00350	0.00361	3%	0.00386	0.00398	3%	0.00389	0.00392	1%
Selenium	mg/L	0.000069	<0.000050	nc	0.000116	0.000138	nc	0.000405	0.000345	16%	0.000070	0.000100	nc	0.000077	0.000067	nc	0.000076	0.000070	nc
Silicon	mg/L	3.97	4.02	1%	3.24	3.22	1%	17.2	17.3	1%	2.97	3.02	2%	4.12	3.96	4%	3.68	3.91	6%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	134	139	4%	10.8	10.7	1%	13.5	13.4	1%	123	126	2%	128	123	4%	127	127	0%
Strontium	mg/L	0.249	0.248	0%	0.113	0.111	2%	0.166	0.170	2%	0.234	0.232	1%	0.262	0.268	2%	0.302	0.263	14%
Sulfur	mg/L	32.1	32.8	2%	30.3	30.6	1%	8.56	9.08	6%	28.0	29.0	4%	30.2	28.9	4%	26.4	26.4	0%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Titanium	mg/L	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	0.00044	0.00046	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc
Tungsten	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00168	0.00177	5%	0.00145	0.00134	8%	0.00129	0.00136	5%	0.00157	0.00158	1%	0.00161	0.00172	7%	0.00175	0.00180	3%
Vanadium	mg/L	0.00139	0.00145	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	0.00116	0.00116	nc	0.00137	0.00135	nc	0.00132	0.00130	nc
Zinc	mg/L	0.0028	<0.0010	nc	0.0017	0.0043	nc	0.0052	0.0036	nc	0.0037	0.0074	nc	0.0048	<0.0010	nc	<0.0010	0.0036	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	0.00034	0.00033	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Metals, Total																			
Aluminum	mg/L	0.0928	0.100	7%	0.0491	0.0495	1%	0.0069	0.0046	nc	0.0441	0.0481	9%	0.108	0.102	6%	0.0618	0.0773	**22%**
Antimony	mg/L	0.00019	0.00018	nc	0.00018	0.00014	nc	0.00019	0.00017	nc	0.00015	0.00018	nc	0.00021	0.00023	nc	0.00014	0.00013	nc
Arsenic	mg/L	0.00221	0.00213	4%	0.00133	0.00121	9%	0.00207	0.00222	7%	0.00195	0.00202	4%	0.00228	0.00237	4%	0.00209	0.00207	1%
Barium	mg/L	0.0444	0.0442	0%	0.0253	0.0244	4%	0.0450	0.0478	6%	0.0401	0.0418	4%	0.0420	0.0423	1%	0.0408	0.0401	2%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.105	0.105	0%	0.072	0.079	9%	0.138	0.154	11%	0.094	0.096	2%	0.092	0.093	1%	0.100	0.106	6%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	<0.0000050	0.0000056	nc	<0.0000050	<0.0000050	nc	<0.0000050	0.0000118	nc	0.0000053	0.0000054	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	37.1	36.9	1%	46.4	45.8	1%	56.4	56.8	1%	41.2	41.5	1%	38.8	37.8	3%	40.5	38.5	5%
Cesium	mg/L	0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	0.000017	0.000017	nc	<0.000010	<0.000010	nc
Chromium	mg/L	0.00019	0.00017	nc	0.00036	0.00024	nc	0.00025	0.00025	nc	0.00035	0.00050	nc	0.00034	0.00038	nc	0.00015	0.00022	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	0.00018	0.00019	nc	0.00050	0.00054	8%	<0.00010	<0.00010	nc	0.00013	0.00013	nc	<0.00010	0.00010	nc
Copper	mg/L	<0.00050	<0.00050	nc	0.00064	0.00059	nc	0.00090	0.00053	nc	0.00060	0.00093	nc	0.00051	0.00051	nc	<0.00050	<0.00050	nc
Iron	mg/L	0.070	0.059	17%	0.108	0.110	2%	0.269	0.258	4%	0.038	0.042	nc	0.119	0.114	4%	0.058	0.063	8%
Lead	mg/L	0.000161	0.000143	nc	0.000054	0.000059	nc	<0.000050	<0.000050	nc	0.000113	0.000156	nc	0.000232	0.000226	nc	0.000174	0.000184	nc
Lithium	mg/L	0.0369	0.0363	2%	0.0141	0.0140	1%	0.0261	0.0270	3%	0.0310	0.0303	2%	0.0312	0.0306	2%	0.0312	0.0296	5%
Magnesium	mg/L	40.0	40.0	0%	45.4	44.5	2%	55.1	60.6	10%	32.3	33.4	3%	35.7	35.9	1%	30.3	31.1	3%
Manganese	mg/L	0.00590	0.00540	9%	0.0283	0.0287	1%	0.241	0.245	2%	0.00617	0.00663	7%	0.0124	0.0123	1%	0.00876	0.00859	2%
Molybdenum	mg/L	0.00231	0.00235	2%	0.000778	0.000788	1%	0.000638	0.000674	5%	0.00203	0.00213	5%	0.00220	0.0111	**134%**	0.00227	0.00225	1%
Nickel	mg/L	0.00066	0.00065	nc	0.00111	0.00080	nc	0.00135	0.00155	nc	0.00095	0.00126	nc	0.00087	0.00093	nc	0.00070	0.00069	nc
Phosphorus	mg/L	<0.030	0.035	nc	0.209	0.205	2%	0.190	0.214	12%	<0.030	<0.030	nc	<0.030	0.035	nc	<0.030	<0.030	nc
Potassium	mg/L	10.6	10.5	1%	15.9	16.2	2%	6.65	7.12	7%	8.12	8.38	3%	9.04	9.37	4%	8.37	8.66	3%
Rubidium	mg/L	0.00419	0.00425	1%	0.00555	0.00555	0%	0.00353	0.00368	4%	0.00353	0.00372	5%	0.00408	0.00417	2%	0.00433	0.00400	8%
Selenium	mg/L	0.000086	0.000055	nc	0.000139	0.000146	nc	0.000358	0.000298	18%	0.000103	0.000115	nc	0.000073	0.000073	nc	0.000058	0.000101	nc
Silicon	mg/L	4.41	4.52	2%	3.35	3.24	3%	18.2	18.3	1%	2.90	2.96	2%	3.72	3.65	2%	4.34	4.43	2%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	0.000011	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	138	138	0%	10.7	10.4	3%	13.5	14.8	9%	125	127	2%	131	131	0%	127	127	0%
Strontium	mg/L	0.278	0.281	1%	0.118	0.113	4%	0.170	0.172	1%	0.262	0.265	1%	0.267	0.266	0%	0.255	0.265	4%
Sulfur	mg/L	34.6	34.5	0%	31.4	33.4	6%	9.01	9.56	6%	26.7	27.4	3%	28.2	27.6	2%	31.0	29.2	6%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	0.00021	0.00121	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Titanium	mg/L	0.00327	0.00304	7%	0.00225	0.00198	13%	0.00050	0.00069	nc	0.00154	0.00172	11%	0.00489	0.00483	1%	0.00259	0.00283	9%
Tungsten	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	0.00031	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00171	0.00172	1%	0.00145	0.00108	**29%**	0.00133	0.00136	2%	0.00167	0.00169	1%	0.00176	0.00179	2%	0.00153	0.00155	1%
Vanadium	mg/L	0.00171	0.00172	nc	0.00060	0.00063	nc	0.00071	0.00063	nc	0.00152	0.00160	nc	0.00186	0.00185	nc	0.00168	0.00177	nc
Zinc	mg/L	<0.0030	<0.0030	nc	<0.0030	0.0037	nc	0.0041	0.0056	nc	0.0042	0.0131	nc	<0.0030	<0.0030	nc	<0.0030	<0.0030	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	0.00029	0.00031	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
-	Parameter not analyzed / not available.
DM	Detection limit adjusted due to sample matrix effects.
RV	Reported result verified by repeat analysis.
ZH	Sample analysed past recommended hold time.most probable number.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 20%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12					BH19-29						CH19-08						
Sample Date					19-Aug-19	7-Oct-19	5-May-20	8-Jul-20	5-Oct-20	26-Jun-19	20-Aug-19	9-Oct-19	7-May-20	6-Jul-20	6-Oct-20	24-Jun-19	19-Aug-19	7-Oct-19	5-May-20	7-May-20	7-Jul-20	5-Oct-20
Sample ID					BH19-12	BH19-12	BH19-12	BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	BH19-29	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2472215	L2512953	L2301696	L2332554	L2362912	L2444978	L2470843	L2512953	L2297783	L2332554	L2362912	L2443834	L2444978	L2470843	L2512953
Laboratory Sample ID					L2332554-3	L2362912-5	L2443834-9	L2472215-3	L2512953-4	L2301696-2	L2332554-5	L2362912-19	L2444978-3	L2470843-7	L2512953-9	L2297783-1	L2332554-1	L2362912-2	L2443834-6	L2444978-8	L2470843-14	L2512953-1
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ																		
Field Parameters																						
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	n/v	**4.67**[B]	**1.13**[B]	**3.09**[B]	**4.19**[B]	**0.82**[B]	**2.98**[B]	**1.96**[B]	**1.59**[B]	**1.84**[B]	5.82	**1.32**[B]	**3.96**[B]	**3.8**[B]	7.9	**1.17**[B]	-	**4.22**[B]	6.6
Electrical Conductivity, Field	µS/cm	n/v	n/v	n/v	656	636.2	492.7	785.0	759.9	686.7	590	619	531	560.5	690	722.3	784	623	459.0	-	641.2	778.7
Nitrite, Field	mg/L	n/v	n/v	n/v	0.00	NM	-	-	-	0.01	0.01	NM	-	-	-	0.01	NM	NM	-	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	n/v	-27	-120.8	-40.5	-71.4	-143.7	127.1	-24.5	-74.2	-8.7	-58.4	-103.8	53.4	69.7	-157.2	-6.3	-	-38.6	-79.8
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	7.0-10.5[E]	7.77	7.4	7.11	7.04	**6.78**[E]	7.2	7.75	7.7	7.26	7.39	7.13	7.42	7.67	7.88	7.4	-	7.37	7.8
Pressure	kPa	n/v	n/v	n/v	NM	NM	-	-	97.41	NM	NM	NM	-	-	97.28	NM	NM	NM	-	-	-	97.21
Temperature, Field	deg C	n/v	n/v	≤15[E]	7.2	8.7	6.1	6.9	6.8	6.4	7.5	6.3	5.7	6.3	7.2	6.8	8.2	7.9	5.7	-	7.3	6.5
Total Dissolved Solids, Field	ppm	n/v	n/v	≤500[E]	-	-	441	**582**[E]	440	-	-	-	184	**528**[E]	400	-	-	-	**611**[E]	-	**590**[E]	450
Turbidity, Field	NTU	n/v	n/v	≤0.3/1.0/0.1[G]	**0.61**[G]	**3.51**[G]	**14.07**[G]	**3.99**[G]	**3.58**[G]	**1.31**[G]	**1.57**[G]	**0.59**[G]	0.07	**22.33**[G]	**11.83**[G]	**28.30**[G]	**51.73**[G]	**166.67**[G]	**14.73**[G]	-	**23.63**[G]	**4.98**[G]
General Chemistry																						
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	n/v	404	397	399	395	322	282	288	287	103	279	248	398	394	375	-	366	342	303
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	n/v	<0.60	<0.60	<0.60	<0.60	3.72	<0.60	<0.60	<0.60	<0.60	<0.60	5.40	<0.60	<0.60	<0.60	-	<0.60	<0.60	4.08
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	-	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	n/v	331	325	327	324	270	231	236	235	84.1	229	212	326	323	307	-	300	280	255
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	n/v	0.110	0.119	0.127	0.114	0.114	0.188	0.198	0.196	0.160	0.201	0.191	0.121	0.141	0.132	0.157	-	0.133	0.119
Chloride	mg/L	640[A] 120[B]	n/v	≤250[E]	6.08	5.84	3.75	5.74	5.73	11.9	11.6	11.2	11.2	11.1	11.2	10.5	10.4	9.95	-	9.82	10.4	10.2
Fluoride	mg/L	0.12[B]	n/v	1.5[F]	**0.596**[B]	**0.535**[B]	**0.374**[B]	**0.570**[B]	**0.608**[B]	**0.756**[B]	**0.855**[B]	**0.818**[B]	**0.803**[B]	**0.806**[B]	**0.829**[B]	**0.199**[B]	**0.236**[B]	**0.237**[B]	-	**0.236**[B]	**0.321**[B]	**0.272**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	n/v	369	359	389	389	359	300	284	311	315	286	278	362	354	381	369	-	349	345
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	10[F]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	1[F]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	n/v	<0.20	-	0.21	<0.20	<0.20	<0.20	0.21	-	<0.20	0.21	0.21	<0.20	0.21	-	-	-	<0.20	0.25
Phosphorus, Total	mg/L	n/v	0.025[C]	n/v	<0.0030	0.0036	**0.0376**[C]	0.0065	0.0050	0.0043	0.0033	0.0033	0.0024	0.0071	0.0058	**0.0321**[C]	**0.108**[C]	**0.191**[C]	**0.578**[C]	0.0027	**0.144**[C]	**0.322**[C]
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	n/v	<0.0030	<0.0030	0.0012	0.0020	<0.0010	<0.0030	<0.0030	<0.0030	0.0023	0.0045	0.0012	<0.0030	0.0033	0.0074	0.0024	<0.0010	<0.0010	<0.0010
Phosphorus, Total Particulate	mg/L	n/v	n/v	n/v	<0.0042	<0.0042	0.0364	0.0050	0.0043	<0.0042	<0.0042	<0.0042	<0.0028	<0.0032	0.0046	0.0311	0.104	0.184	0.576	<0.0028	0.143	0.321
Sulfate	mg/L	n/v	n/v	≤500[E]	123	121	76.1	117	116	132	145	142	129	134	138	149	147	147	-	131	133	141
Total Dissolved Solids	mg/L	n/v	n/v	≤500[E]	492	487	451	453	447	428	456	458	428	395	396	**532**[E]	**534**[E]	**561**[E]	-	475	491	**529**[E]
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	n/v	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	0.21	<0.20	<0.20	0.21	0.21	<0.20	0.21	<0.20	<2.0	-	<0.20	0.25
Total Suspended Solids	mg/L	SN[B]	n/v	n/v	3.9	<2.0	13.3	10.3	1.8	8.0	5.7	<2.0	<2.0	24.7	9.8	238 XB	465	843	-	<2.0	8,890	5,260 XB
Microbiological Parameters																						
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	0[G]	***<1 ZH***	***<1 ZH***	***<1***	***<1***	***<1***	-	***<1***	***<1***	***<1 SV***	***<1***	***<1***	***<1***	***<1 ZH***	***<1 ZH***	***<1***	-	***<1***	***<1 SV***
Total Coliforms	mpn/100mL	n/v	n/v	0[G]	**1 ZH**[G]	***<1 ZH***	***<1***	***<1***	***<1***	-	**9**[G]	***<1***	***<1 SV***	***<1***	***<1***	**46**[G]	**75 ZH**[G]	**1 ZH**[G]	***<1***	-	***<1***	***<1 SV***
BTEX and Petroleum Hydrocarbons																						
Benzene	mg/L	0.37[B]	n/v	0.005[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	0.024[E] 0.06[F]	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	0.00111	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	0.00197	<0.0010	-	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	0.0016[E] 0.14[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	-	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	n/v	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	-	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	0.02[E] 0.09[F]	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	-	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	-	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	-	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	n/v	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	-	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	n/v	-	YES	-	-	-	-	-	YES	-	-	-	-	-	YES	-	-	-	-

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12					BH19-29						CH19-08						
Sample Date					19-Aug-19	7-Oct-19	5-May-20	8-Jul-20	5-Oct-20	26-Jun-19	20-Aug-19	9-Oct-19	7-May-20	6-Jul-20	6-Oct-20	24-Jun-19	19-Aug-19	7-Oct-19	5-May-20	7-May-20	7-Jul-20	5-Oct-20
Sample ID					BH19-12	BH19-12	BH19-12	BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	BH19-29	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2472215	L2512953	L2301696	L2332554	L2362912	L2444978	L2470843	L2512953	L2297783	L2332554	L2362912	L2443834	L2444978	L2470843	L2512953
Laboratory Sample ID					L2332554-3	L2362912-5	L2443834-9	L2472215-3	L2512953-4	L2301696-2	L2332554-5	L2362912-19	L2444978-3	L2470843-7	L2512953-9	L2297783-1	L2332554-1	L2362912-2	L2443834-6	L2444978-8	L2470843-14	L2512953-1
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ																		
Metals, Dissolved																						
Aluminum	mg/L	n/v	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_{a}$[E]	0.0062	0.0020	<0.0010	<0.0010	<0.0010	0.0019	0.0038	<0.0010	<0.0010	0.0016	0.0022	0.0032	0.0036	0.0737	0.0018	-	<0.0010	0.0028
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Arsenic	mg/L	n/v	0.15/0.34$_{s2}$[D]	0.010[F]	0.00011	0.00010	0.00015	0.00012	0.00013	0.00204	0.00216	0.00194	0.00199	0.00185	0.00195	0.00035	0.00050	0.00043	0.00044	-	0.00039	0.00039
Barium	mg/L	n/v	n/v	2.0[F]	0.0245	0.0205	0.0233	0.0222	0.0202	0.0266	0.0260	0.0232	0.0224	0.0211	0.0235	0.0197	0.0295	0.0270	0.0303	-	0.0251	0.0277
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050
Boron	mg/L	n/v	29/1.5$_{s3}$[D]	5[F]	0.472	0.502	0.501	0.537	0.473	0.560	0.528	0.61	0.585	0.561	0.550	0.412	0.366	0.423	0.408	-	0.417	0.377
Cadmium	mg/L	n/v	0.00056/0.006$_{s8}$[D]	0.007[F]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	69.4	70.3	71.3	73.7	69.1	54.4	50.4	63.4	56.1	51.4	54.9	63.3	59.6	75.1	61.8	-	57.6	59.9
Cesium	mg/L	n/v	n/v	n/v	0.000022	0.000021	0.000023	0.000021	0.000018	<0.000010	0.000013	<0.000010	0.000012	<0.000010	<0.000010	0.000029	0.000018	0.000037	0.000017	-	0.000011	0.000013
Chromium	mg/L	n/v	0.195/1.5$_{s7}$[D]	0.05[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00018	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00024	0.00021	0.00024	0.00022	0.00023	0.00023	0.00033	0.00029	0.00025	0.00018	-	0.00023	0.00015
Copper	mg/L	n/v	0.024/0.04$_{s10}$[D]	≤1.0[E] 2[F]	0.00044	0.00028	0.00023	<0.00020	0.00052	0.00135	0.00108	<0.00020	<0.00020	<0.00020	**0.00554**[D]	0.00047	0.00109	0.00028	0.00106	-	<0.00020	0.00038
Iron	mg/L	n/v	0.3[D]	≤0.3[E]	0.087	0.049	0.063	0.053	0.050	0.111	0.135	0.125	0.113	0.111	0.131	0.066	0.143	0.247	0.262	-	**0.470**[DE]	0.287
Lead	mg/L	n/v	0.008/0.227$_{s9}$[D]	0.005[F]	<0.000050	<0.000050	<0.000050	0.000117	<0.000050	<0.000050	<0.000050	0.000326	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000055	<0.000050	-	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	n/v	0.0320	0.0282	0.0311	0.0345	0.0312	0.0270	0.0258	0.0278	0.0279	0.0259	0.0261	0.0327	0.0309	0.0309	0.0302	-	0.0306	0.0302
Magnesium	mg/L	n/v	n/v	n/v	47.7	44.5	51.2	49.7	45.3	39.8	38.5	37.0	42.4	38.2	34.3	49.6	49.9	46.9	52.1	-	49.9	47.4
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	**0.0218**[E]	0.00799	0.00856	0.00542	0.00468	0.00985	0.0106	0.0134	0.0128	0.0150	0.0155	0.0185	**0.0340**[E]	**0.0306**[E]	**0.0328**[E]	-	**0.0518**[E]	**0.0284**[E]
Molybdenum	mg/L	n/v	0.073[D]	n/v	0.000677	0.00139	0.000398	0.000354	0.000459	0.00104	0.00110	0.00103	0.00109	0.00114	0.00117	0.000709	0.00204	0.00180	0.00134 RV	-	0.00161	0.00110
Nickel	mg/L	n/v	0.14/1.27$_{s11}$[D]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00280	0.00327	0.00293	0.00096	-	0.00258	0.00097
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	-	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	9.69	9.98	9.91	10.1	9.03	7.89	7.61	8.51	7.65	7.26	7.24	6.19	6.01	6.62	6.16	-	5.99	5.72
Rubidium	mg/L	n/v	n/v	n/v	0.00588	0.00628	0.00622	0.00573	0.00561	0.00373	0.00323	0.00373	0.00354	0.00326	0.00330	0.00397	0.00340	0.00332	0.00286	-	0.00242	0.00263
Selenium	mg/L	n/v	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	5.16	4.75	5.22	5.16	4.59	5.04	5.15	5.06	5.37	4.83	5.15	5.64	5.51	5.35	5.73	-	5.21	5.06
Silver	mg/L	n/v	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	31.6	34.2	33.1	32.3	30.7	42.9	42.0	44.0	44.0	43.7	42.7	42.4	45.2	49.2	48.4	-	46.3	44.2
Strontium	mg/L	n/v	n/v	7.0[F]	0.482	0.521	0.537	0.510	0.485	0.450	0.438	0.465	0.444	0.425	0.406	0.421	0.453	0.591	0.610	-	0.599	0.625
Sulfur	mg/L	n/v	n/v	n/v	45.0	42.0	44.8	44.8	38.8	50.0	51.8	50.4	50.2	45.1	50.3	49.2	52.3	48.4	50.2	-	46.3	46.3
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	0.000010	0.000013	<0.000010	<0.000010	<0.000010	0.000034	0.000014	<0.000010	<0.000010	-	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00017	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00283	<0.00030	-	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00036	0.00088	0.00013	0.00087 RV	-	0.00072	0.00050
Uranium	mg/L	n/v	0.033/0.015$_{s4}$[D]	0.02[F]	0.000458	0.000560	0.000549	0.000473	0.000482	0.00104	0.000880	0.00120	0.00110	0.000942	0.00100	0.00167	0.00138	0.00188	0.00163	-	0.00148	0.00124
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050
Zinc	mg/L	0.037$_{EQ1}$[A] 0.007$_{EQ2}$[B]	0.32$_{s12}$[D]	≤5.0[E]	0.0043	0.0023	0.0019	0.0026	0.0028	0.0064	0.0036	0.0056	<0.0010	0.0012	0.0025	<0.0010	0.0051	0.0015	0.0026	-	0.0012	0.0042
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					BH19-12					BH19-29						CH19-08						
Sample Date					19-Aug-19	7-Oct-19	5-May-20	8-Jul-20	5-Oct-20	26-Jun-19	20-Aug-19	9-Oct-19	7-May-20	6-Jul-20	6-Oct-20	24-Jun-19	19-Aug-19	7-Oct-19	5-May-20	7-May-20	7-Jul-20	5-Oct-20
Sample ID					BH19-12	BH19-12	BH19-12	BH19-12	BH19-12	TH18-27	BH19-29	BH19-29	BH19-29	BH19-29	BH19-29	TH18-03	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08	CH19-08
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2472215	L2512953	L2301696	L2332554	L2362912	L2444978	L2470843	L2512953	L2297783	L2332554	L2362912	L2443834	L2444978	L2470843	L2512953
Laboratory Sample ID					L2332554-3	L2362912-5	L2443834-9	L2472215-3	L2512953-4	L2301696-2	L2332554-5	L2362912-19	L2444978-3	L2470843-7	L2512953-9	L2297783-1	L2332554-1	L2362912-2	L2443834-6	L2444978-8	L2470843-14	L2512953-1
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ																		
Metals, Total																						
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_{a}$[E]	0.0062	0.0259	**0.141**[BDE]	0.0344	**0.0198**[BD]	0.0119	0.0307	0.0052	<0.0030	0.0913	0.0891	0.532	**2.15**[BDE]	**2.13**[BDE]	**2.17**[BDE]	-	**6.34**[BDE]	**3.98**[BDE]
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.010[F]	0.00015	0.00011	0.00017	0.00024	0.00013	0.00212	0.00247	0.00209	0.00212	0.00200	0.00197	0.00041	0.00134	0.00119	0.00172	-	0.00236	0.00151
Barium	mg/L	n/v	n/v	2.0[F]	0.0200	0.0199	0.0203	0.0182	0.0186	0.0219	0.0248	0.0231	0.0225	0.0219	0.0214	0.0215	0.0527	0.0406	0.0498	-	0.0737	0.0493
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00018	0.00032	-	0.00059	0.00034
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000057	<0.000050	-	0.000142	0.000121
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	5[F]	0.536	0.545	0.568	0.470	0.517	0.60	0.59	0.63	0.603	0.563	0.589	0.452	0.412	0.443	0.480	-	0.467	0.444
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.007[F]	<0.0000050	<0.0000050	<0.0000050	0.0000172	0.0000079	<0.0000050	<0.0000050	0.0000052	<0.0000050	<0.0000050	0.0000081	0.0000065	0.0000251	0.0000266	0.0000916	-	0.0000793	0.0000438
Calcium	mg/L	n/v	n/v	n/v	76.4	73.8	79.6	74.6	74.3	57.7	56.1	59.1	57.3	54.5	58.0	78.7	176	184	500	-	240	232
Cesium	mg/L	n/v	n/v	n/v	0.000022	0.000023	0.000088	0.000037	0.000024	<0.000010	0.000013	<0.000010	<0.000010	0.000019	0.000017	0.000128	0.000504	0.000807	0.000596	-	0.00202	0.00156
Chromium	mg/L	n/v	n/v	0.05[F]	<0.00010	0.00018	0.00027	0.00016	<0.00010	0.00048	<0.00010	<0.00010	0.00034	0.00017	0.00022	0.00141	0.00485	0.00545	0.00825	-	0.0149	0.0102
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00024	0.00028	0.00023	0.00024	0.00028	0.00028	0.00052	0.00146	0.00164	0.00231	-	0.00406	0.00254
Copper	mg/L	0.004*[B]	n/v	≤1.0[E] 2[F]	<0.00050	0.00078	<0.00050	<0.00050	**0.00400**[B]	<0.00050	<0.00050	**0.00646**[B]	<0.00050	0.00075	**0.00487**[B]	0.00190	**0.00973**[B]	**0.00829**[B]	**0.0116**[B]	-	**0.0271**[B]	**0.0229**[B]
Iron	mg/L	0.3[B]	0.3[D]	≤0.3[E]	0.075	0.069	0.140	0.081	0.055	0.118	0.150	0.130	0.130	0.207	0.210	**0.412**[BDE]	**3.11**[BDE]	**2.94**[BDE]	**4.13**[BDE]	-	**6.69**[BDE]	**4.71**[BDE]
Lead	mg/L	0.007#[B]	n/v	0.005[F]	<0.000050	0.000275	0.000113	0.000076	0.00167	<0.000050	<0.000050	0.000991	<0.000050	0.000351	0.00118	0.000407	0.00224	0.0021	0.00406	-	**0.00661**[F]	**0.00568**[F]
Lithium	mg/L	n/v	n/v	n/v	0.0338	0.0303	0.0348	0.0334	0.0328	0.0254	0.0260	0.0296	0.0294	0.0273	0.0274	0.0343	0.0351	0.0326	0.0379	-	0.0429	0.0394
Magnesium	mg/L	n/v	n/v	n/v	52.6	43.6	53.9	44.4	44.3	41.9	45.8	40.6	41.3	38.9	35.7	61.7	120	102	320	-	153	129
Manganese	mg/L	3.6$_{EO3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	**0.0214**[E]	0.00829	0.00903	0.00631	0.00650	0.0105	0.0134	0.0136	0.0130	0.0167	0.0168	**0.0288**[E]	**0.121**[EF]	**0.125**[EF]	**0.438**[BEF]	-	**0.402**[EF]	**0.177**[EF]
Molybdenum	mg/L	0.073[B]	0.073[D]	n/v	0.000724	0.00131	0.000496	0.000329	0.000838	0.00108	0.00109	0.00108	0.00114	0.00105	0.00110	0.000557	0.00167	0.00165	0.000968	-	0.00187	0.000965
Nickel	mg/L	0.150**[B]	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	0.00352	0.00764	0.00830	0.0208	-	0.0239	0.0135
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	0.047	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.040	0.166	0.184	0.646	-	0.667	0.369
Potassium	mg/L	n/v	n/v	n/v	9.65	9.66	9.83	9.27	9.57	7.92	8.23	7.84	7.81	7.57	7.46	6.72	7.12	6.69	7.09	-	8.20	7.87
Rubidium	mg/L	n/v	n/v	n/v	0.00580	0.00621	0.00679	0.00590	0.00606	0.00369	0.00381	0.00359	0.00352	0.00351	0.00343	0.00483	0.00768	0.0108	0.00808	-	0.0182	0.0149
Selenium	mg/L	0.001[B]	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	0.000060	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000061	-	0.000085	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.93	5.22	5.65	4.52	5.34	5.06	5.09	5.27	5.57	5.25	5.39	6.92	9.56	9.93	9.93	-	16.2	13.5
Silver	mg/L	0.00025[B]	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000035	0.000023	0.000043	-	0.000084	0.000053
Sodium	mg/L	n/v	n/v	≤200[E]	33.4	33.1	33.0	28.0	32.9	42.6	47.3	43.9	46.1	43.1	42.3	44.2	49.2	45.1	48.2	-	50.7	45.1
Strontium	mg/L	n/v	n/v	7.0[F]	0.540	0.550	0.569	0.525	0.511	0.462	0.425	0.486	0.462	0.440	0.428	0.415	0.521	0.640	0.730	-	1.12	0.705
Sulfur	mg/L	n/v	n/v	n/v	40.7	46.6	44.5	37.6	43.2	51.6	48.6	50.7	53.0	46.9	48.1	53.1	51.7	53.5	53.1	-	50.4	51.8
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	0.000011	0.000011	<0.000010	<0.000010	0.000012	0.000041	0.000063	0.000079	0.000078	-	0.000208	0.000158
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00031	0.00174	0.00195	0.00342	-	0.00626	0.00442
Tin	mg/L	n/v	n/v	n/v	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	0.00071	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00030	0.00014	0.00012	0.00015	-	0.00028	0.00024
Titanium	mg/L	n/v	n/v	n/v	<0.00030	0.00098	0.00451	0.00152	0.00065	0.00062	0.00174	0.00034	<0.00030	0.00473	0.00483	0.0222	0.0845	0.0758	0.0612	-	0.165	0.142
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	0.00021	0.00086	0.00041	0.00035	-	0.00078	0.00037
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.02[F]	0.000553	0.000501	0.000622	0.000483	0.000551	0.000984	0.000961	0.00111	0.00111	0.000964	0.00101	0.00162	0.00201	0.00177	0.00247	-	0.00318	0.00214
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00057	<0.00050	0.00167	0.00634	0.00728	0.00838	-	0.0159	0.0117
Zinc	mg/L	n/v	n/v	≤5.0[E]	<0.0030	0.0031	<0.0030	0.0082	0.0278	0.0050	<0.0030	0.0082	<0.0030	0.0034	0.0169	0.0072	0.0158	0.018	0.0525	-	0.0621	0.0435
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	0.00028	0.00077	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00075	0.00139	0.00089	0.00197	-	0.00230	0.00193

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					CH19-11	CH19-37				OW19-05							OW19-16		OW19-18			
Sample Date					28-Jun-19	8-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Aug-19	8-Oct-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20	5-Oct-20	19-Aug-19	19-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID					TH18-13	CH19-37	CH19-37	CH19-37	CH19-37	OW19-05	OW19-05	QC-02	OW19-05	OW19-05	OW19-05	QC-1 (NOT ON COC)	OW19-16	QC-01	OW19-18	OW19-18	OW19-18	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2301696	L2362912	L2443834	L2470843	L2514453	L2332554	L2362912	L2362912	L2444978	L2470843	L2512953	L2512953	L2332554	L2332554	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID					L2301696-4	L2362912-13	L2443834-2	L2470843-3	L2514453-2	L2332554-4	L2362912-9	L2362912-15	L2444978-4	L2470843-8	L2512953-7	L2512953-11	L2332554-2	L2332554-7	L2362912-4	L2443834-8	L2470843-15	L2512953-3
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ								Field Duplicate				Field Duplicate		Field Duplicate				
Field Parameters																						
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	n/v	NM	**1.28**[B]	**1.20**[B]	**4.06**[B]	**1.8**[B]	**4.1**[B]	**1.25**[B]	-	**2.30**[B]	**4.28**[B]	**0.64**[B]	-	**4.82**[B]	-	**0.98**[B]	**1.23**[B]	6.07	**3.61**[B]
Electrical Conductivity, Field	µS/cm	n/v	n/v	n/v	781	646.2	495.6	624.0	689.7	527.7	518.7	-	481.9	505.6	612.5	-	677.5	-	664.5	512.1	662.0	788.7
Nitrite, Field	mg/L	n/v	n/v	n/v	0.02	NM	-	-	-	0.01	NM	-	-	-	-	-	0.00	-	NM	-	-	-
Oxidation Reduction Potential, field	mV	n/v	n/v	n/v	4.6	18.4	143.6	46.1	9.4	81.4	-88.5	-	98.6	30.1	-142	-	88.9	-	-3.3	103.8	18.3	-81.4
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	7.0-10.5[E]	7.48	7.82	7.25	7.26	7.12	8.04	7.79	-	7.36	7.46	7.22	-	7.8	-	7.36	7.02	7.12	**6.9**[E]
Pressure	kPa	n/v	n/v	n/v	NM	NM	-	-	98.63	NM	NM	-	-	-	97.46	-	NM	-	NM	-	-	97.29
Temperature, Field	deg C	n/v	n/v	≤15[E]	6.2	8	5.8	6.7	8.9	8.5	8.7	-	5.4	6.9	8	-	7.7	-	8.2	5.8	6.3	6.7
Total Dissolved Solids, Field	ppm	n/v	n/v	≤500[E]	-	-	**649**[E]	**575**[E]	440	-	-	-	488	475	330	-	-	-	-	**612**[E]	**600**[E]	460
Turbidity, Field	NTU	n/v	n/v	≤0.3/1.0/0.1[G]	**2.57**[G]	**2.50**[G]	**0.76**[G]	**2.32**[G]	**4.00**[G]	**24.23**[G]	**54.00**[G]	-	**1.17**[G]	**0.57**[G]	**54.00**[G]	-	**1.22**[G]	-	**10.46**[G]	**3.58**[G]	**10.27**[G]	**2.25**[G]
General Chemistry																						
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	n/v	415	311	324	309	272	279	268	260	1,200	268	245	246	432	422	423	431	423	344
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	n/v	<0.60	<0.60	<0.60	<0.60	9.72	<0.60	<0.60	<0.60	<0.60	<0.60	8.28	8.04	<0.60	<0.60	<0.60	<0.60	<0.60	2.28
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	n/v	340	255	266	253	239	229	220	214	983	220	215	215	354	346	347	353	347	286
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	n/v	0.121	0.215	0.137	0.138	0.131	0.103	0.096	0.133	<0.010	0.053	0.100	0.098	0.193	0.180	0.136	0.150	0.128	0.133
Chloride	mg/L	640[A] 120[B]	n/v	≤250[E]	5.62	14.8	9.91	14.9	15.3	11.0	10.8	10.9	11.1	10.7	10.9	10.9	6.06	6.08	6.12	6.05	6.46	6.38
Fluoride	mg/L	0.12[B]	n/v	1.5[F]	**0.554**[B]	**0.399**[B]	**0.273**[B]	**0.388**[B]	**0.428**[B]	**0.532**[B]	**0.477**[B]	**0.498**[B]	**0.580**[B]	**0.587**[B]	**0.574**[B]	**0.577**[B]	**0.740**[B]	**0.728**[B]	**0.744**[B]	**0.812**[B]	**0.796**[B]	**0.801**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	n/v	391	326	363	349	315	257	259	262	267	243	238	245	389	387	383	404	387	382
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	10[F]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	1[F]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	n/v	<0.20	-	<0.20	<0.20	<0.20	<0.20	-	-	<0.20	<0.20	<0.20	<0.20	0.25	0.23	-	<0.20	<0.20	<0.20
Phosphorus, Total	mg/L	n/v	0.025[C]	n/v	0.0034	<0.0030	0.0011	0.0039	<0.0010	0.0168	**0.0260**[C]	0.0218	0.0148	0.0077	**0.0310**[C]	**0.0307**[C]	0.0034	0.0033	<0.0030	0.0018	0.0073	0.0027
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	n/v	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	0.0031	0.0061	0.0072	0.0013	0.0029	0.0027	0.0032	<0.0030	<0.0030	<0.0030	0.0011	0.0041	0.0012
Phosphorus, Total Particulate	mg/L	n/v	n/v	n/v	<0.0042	<0.0042	<0.0028	0.0040	<0.0028	0.0138	0.0199	0.0146	0.0136	0.0048	0.0283	0.0276	<0.0042	<0.0042	<0.0042	<0.0028	0.0032	<0.0028
Sulfate	mg/L	n/v	n/v	≤500[E]	117	160	103	153	154	108	114	114	112	104	100	101	114	115	112	111	110	111
Total Dissolved Solids	mg/L	n/v	n/v	≤500[E]	471	485	467	405	453	405	390	401	385	356	342	365	492	485	499	454	429	483
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.25	0.23	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	SN[B]	n/v	n/v	5.3	<2.0	<2.0	4.6	<1.0	32.0	245	251	32.1	16.9	181	86.0	9.7	<2.0	3.1	6.4	10.9	3.7
Microbiological Parameters																						
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	0[G]	-	***<1***	***<1***	***<1***	***<1***	***<1 ZH***	***<1 ZH***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1 ZH***	***<1 ZH***	***<1 ZH***	***<1***	***<1***	***<1 SV***
Total Coliforms	mpn/100mL	n/v	n/v	0[G]	-	**14**[G]	***<1***	***<1***	***<1***	**24 ZH**[G]	***<1 ZH***	***<1***	***<1***	***<1***	***<1***	***<1***	**2 ZH**[G]	**196 ZH**[G]	**9 ZH**[G]	***<1***	***<1***	***<1 SV***
BTEX and Petroleum Hydrocarbons																						
Benzene	mg/L	0.37[B]	n/v	0.005[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	0.024[E] 0.06[F]	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	**0.0098**[B]	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	0.0016[E] 0.14[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	n/v	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	0.02[E] 0.09[F]	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	n/v	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	n/v	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.37	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	n/v	-	YES	-	-	-	-	YES	YES	-	-	-	-	-	-	YES	-	-	-

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					CH19-11	CH19-37				OW19-05							OW19-16		OW19-18			
Sample Date					28-Jun-19	8-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Aug-19	8-Oct-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20	5-Oct-20	19-Aug-19	19-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID					TH18-13	CH19-37	CH19-37	CH19-37	CH19-37	OW19-05	OW19-05	QC-02	OW19-05	OW19-05	OW19-05	QC-1 (NOT ON COC)	OW19-16	QC-01	OW19-18	OW19-18	OW19-18	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2301696	L2362912	L2443834	L2470843	L2514453	L2332554	L2362912	L2362912	L2444978	L2470843	L2512953	L2512953	L2332554	L2332554	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID					L2301696-4	L2362912-13	L2443834-2	L2470843-3	L2514453-2	L2332554-4	L2362912-9	L2362912-15	L2444978-4	L2470843-8	L2512953-7	L2512953-11	L2332554-2	L2332554-7	L2362912-4	L2443834-8	L2470843-15	L2512953-3
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ								Field Duplicate				Field Duplicate		Field Duplicate				
Metals, Dissolved																						
Aluminum	mg/L	n/v	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_{a}$[E]	0.0033	0.0020	<0.0010	<0.0010	0.0018	0.0023	0.0025	0.0021	<0.0010	<0.0010	<0.0010	0.0069	0.0020	<0.0010	0.0010	0.0012	<0.0010	<0.0010
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00052	0.00024	0.00025	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	n/v	0.15/0.34$_{s2}$[D]	0.010[F]	0.00048	0.00012	0.00014	0.00015	0.00030	0.00250	0.00203	0.00207	0.00100	0.00092	0.00172	0.00164	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	n/v	n/v	2.0[F]	0.0237	0.0236	0.0236	0.0215	0.0232	0.0400	0.0406	0.0408	0.0449	0.0413	0.0402	0.0370	0.0231	0.0183	0.0207	0.0240	0.0184	0.0206
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	29/1.5$_{s3}$[D]	5[F]	0.543	0.602	0.613	0.644	0.575	0.420	0.480	0.467	0.459	0.456	0.384	0.447	0.504	0.486	0.528	0.531	0.525	0.491
Cadmium	mg/L	n/v	0.00056/0.006$_{s8}$[D]	0.007[F]	<0.0000050	<0.0000050	0.0000097	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	68.1	58.2	60.6	60.0	60.2	43.9	50.5	50.2	44.5	41.2	43.5	47.0	69.8	67.3	75.2	72.9	70.4	72.8
Cesium	mg/L	n/v	n/v	n/v	0.000018	<0.000010	<0.000010	<0.000010	<0.000010	0.000025	0.000029	0.000033	0.000022	0.000020	0.000021	0.000027	0.000013	0.000013	0.000025	0.000026	0.000022	0.000021
Chromium	mg/L	n/v	0.195/1.5$_{s7}$[D]	0.05[F]	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010
Copper	mg/L	n/v	0.024/0.04$_{s10}$[D]	≤1.0[E] 2[F]	<0.00020	<0.00020	0.00074	0.00026	0.00121	0.00032	0.00069	0.00025	0.00036	<0.00020	0.00031	<0.00020	<0.00020	<0.00020	0.00050	0.00127	<0.00020	0.00068
Iron	mg/L	n/v	0.3[D]	≤0.3[E]	0.090	0.048	0.042	0.046	0.050	<0.010	0.216	0.230	0.187	0.220	0.182	0.160	0.015	<0.010	0.013	0.031	0.040	0.037
Lead	mg/L	n/v	0.008/0.227$_{s9}$[D]	0.005[F]	<0.000050	0.000499	0.00204	<0.000050	<0.000050	<0.000050	0.000050	0.000055	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000161	0.000087	<0.000050	<0.000050
Lithium	mg/L	n/v	n/v	n/v	0.0338	0.0303	0.0353	0.0366	0.0330	0.0192	0.0187	0.0192	0.0199	0.0189	0.0183	0.0188	0.0332	0.0349	0.0310	0.0347	0.0337	0.0344
Magnesium	mg/L	n/v	n/v	n/v	53.5	43.8	51.4	48.4	40.0	35.8	32.1	33.2	37.8	34.0	31.4	31.0	52.0	53.1	47.4	53.9	51.2	48.5
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	0.0190	0.00683	0.00734	0.00717	0.00622	**0.0546[E]**	**0.0309[E]**	**0.0319[E]**	**0.0330[E]**	**0.0506[E]**	**0.0309[E]**	**0.0328[E]**	0.0138	0.0128	**0.0266[E]**	0.0168	0.0193	0.0139
Molybdenum	mg/L	n/v	0.073[D]	n/v	0.000248	0.000500	0.000539	0.000623	0.000547	0.00651	0.00573	0.00572	0.00464	0.00359	0.00177	0.00189	0.000836	0.000280	0.000480 RV	0.000222	0.000221	0.000235
Nickel	mg/L	n/v	0.14/1.27$_{s11}$[D]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	10.3	8.20	8.11	7.93	7.80	6.82	6.62	7.03	6.71	6.50	6.10	6.22	10.3	10.0	11.2	10.9	10.9	10.2
Rubidium	mg/L	n/v	n/v	n/v	0.00515	0.00343	0.00326	0.00321	0.00316	0.00399	0.00419	0.00436	0.00372	0.00345	0.00379	0.00394	0.00602	0.00617	0.00677	0.00679	0.00641	0.00622
Selenium	mg/L	n/v	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000124	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	5.58	4.68	4.71	4.43	4.63	3.90	3.77	3.78	4.17	3.54	3.40	3.87	5.67	5.77	5.47	5.90	5.15	5.16
Silver	mg/L	n/v	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	33.9	41.3	43.2	41.3	40.0	36.6	40.5	41.5	43.8	44.0	36.8	37.7	32.0	32.5	34.3	34.9	33.3	32.8
Strontium	mg/L	n/v	n/v	7.0[F]	0.539	0.419	0.498	0.454	0.426	0.368	0.342	0.348	0.345	0.331	0.312	0.308	0.509	0.506	0.569	0.577	0.556	0.549
Sulfur	mg/L	n/v	n/v	n/v	41.9	55.8	54.3	52.1	51.5	38.7	39.1	38.5	41.4	34.1	31.1	36.7	40.1	40.0	38.1	39.4	35.3	35.8
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00033	0.00054	<0.00010	<0.00010	0.00012	<0.00010	0.00019	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00322	0.00201	0.00200	0.00323	0.00324	0.00143	0.00155	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	n/v	0.033/0.015$_{s4}$[D]	0.02[F]	0.000946	0.00205	0.00213	0.00194	0.00181	0.000202	0.000143	0.000140	0.000131	0.000107	0.000109	0.000126	0.000574	0.000522	0.000765	0.000719	0.000646	0.000638
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037$_{EQ1}$[A] 0.007$_{EQ2}$[B]	0.32$_{s12}$[D]	≤5.0[E]	0.0068	**0.0083[B]**	**0.0148[B]**	0.0017	0.0053	0.0012	0.0015	0.0024	0.0048	0.0011	0.0019	<0.0010	0.0043	<0.0010	**0.128[AB]**	**0.0076[B]**	0.0028	0.0054
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					CH19-11	CH19-37				OW19-05							OW19-16		OW19-18			
Sample Date					28-Jun-19	8-Oct-19	4-May-20	6-Jul-20	7-Oct-20	19-Aug-19	8-Oct-19	8-Oct-19	7-May-20	6-Jul-20	5-Oct-20	5-Oct-20	19-Aug-19	19-Aug-19	7-Oct-19	5-May-20	7-Jul-20	5-Oct-20
Sample ID					TH18-13	CH19-37	CH19-37	CH19-37	CH19-37	OW19-05	OW19-05	QC-02	OW19-05	OW19-05	OW19-05	QC-1 (NOT ON COC)	OW19-16	QC-01	OW19-18	OW19-18	OW19-18	OW19-18
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2301696	L2362912	L2443834	L2470843	L2514453	L2332554	L2362912	L2362912	L2444978	L2470843	L2512953	L2512953	L2332554	L2332554	L2362912	L2443834	L2470843	L2512953
Laboratory Sample ID					L2301696-4	L2362912-13	L2443834-2	L2470843-3	L2514453-2	L2332554-4	L2362912-9	L2362912-15	L2444978-4	L2470843-8	L2512953-7	L2512953-11	L2332554-2	L2332554-7	L2362912-4	L2443834-8	L2470843-15	L2512953-3
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ								Field Duplicate				Field Duplicate		Field Duplicate				
Metals, Total																						
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_a$[E]	0.0244	0.0097	0.0041	0.0404	**0.644**[BDE]	**0.483**[BDE]	**0.383**[BDE]	**0.382**[BDE]	0.0907	0.0482	**0.695**[BDE]	**0.485**[BDE]	0.0056	0.0068	0.0072	0.007	0.0305	**0.0113**[BD]
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00067	0.00027	0.00026	0.00017	0.00013	0.00014	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013
Arsenic	mg/L	0.005[B]	n/v	0.010[F]	0.00050	0.00022	0.00019	0.00023	0.00051	0.00346	0.00266	0.00257	0.00146	0.00114	0.00253	0.00226	0.00011	0.00012	0.00011	0.00012	0.00017	<0.00010
Barium	mg/L	n/v	n/v	2.0[F]	0.0184	0.0228	0.0233	0.0220	0.0247	0.0441	0.0419	0.0420	0.0436	0.0432	0.0409	0.0400	0.0196	0.0198	0.0191	0.0199	0.0193	0.0190
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	5[F]	0.59	0.68	0.713	0.619	0.675	0.469	0.450	0.502	0.455	0.485	0.447	0.447	0.544	0.533	0.551	0.600	0.580	0.544
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.007[F]	<0.0000050	0.0000183	0.0000086	<0.0000050	0.0000092	0.0000143	0.0000105	0.0000074	<0.0000050	<0.0000050	0.0000170	0.0000075	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	73.0	63.7	67.2	59.8	62.8	53.3	95.7	73.9	48.4	45.4	77.4	54.0	74.9	74.5	72.9	78.5	74.3	77.1
Cesium	mg/L	n/v	n/v	n/v	0.000020	<0.000010	<0.000010	0.000011	0.000012	0.000130	0.000101	0.000085	0.000034	0.000036	0.000187	0.000149	0.000018	0.000016	0.000022	0.000028	0.000028	0.000027
Chromium	mg/L	n/v	n/v	0.05[F]	0.00025	0.00013	<0.00010	<0.00010	0.00038	0.00087	0.00093	0.00077	0.00026	0.00014	0.00142	0.00091	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	n/v	n/v	n/v	0.00021	0.00011	<0.00010	<0.00010	0.00029	0.00109	0.00109	0.00080	0.00014	<0.00010	0.00162	0.00099	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.004*[B]	n/v	≤1.0[E] 2[F]	<0.00050	**0.0310**[B]	**0.00729**[B]	<0.00050	0.00296	0.00396	0.00132	0.00145	0.00067	<0.00050	**0.00489**[B]	0.00131	<0.00050	<0.00050	0.00081	<0.00050	0.00154	0.00096
Iron	mg/L	0.3[B]	0.3[D]	≤0.3[E]	0.097	0.050	0.047	0.066	**0.957**[BDE]	**1.07**[BDE]	**1.15**[BDE]	**0.952**[BDE]	**0.471**[BDE]	**0.460**[BDE]	**1.73**[BDE]	**1.16**[BDE]	0.024	0.023	0.020	0.026	0.065	0.049
Lead	mg/L	0.007#[B]	n/v	0.005[F]	<0.000050	0.00226	0.0021	0.000073	0.000682	0.000935	0.000666	0.000598	0.000252	0.000106	0.00219	0.000923	<0.000050	<0.000050	0.000261	0.000121	0.000366	0.000144
Lithium	mg/L	n/v	n/v	n/v	0.0319	0.0386	0.0388	0.0365	0.0352	0.0205	0.0209	0.0218	0.0206	0.0204	0.0204	0.0204	0.0358	0.0339	0.0344	0.0374	0.0357	0.0355
Magnesium	mg/L	n/v	n/v	n/v	56.1	51.4	52.0	47.6	47.2	43.0	68.0	51.7	40.0	37.2	48.3	34.7	59.8	45.6	44.3	55.1	54.5	46.8
Manganese	mg/L	3.6$_{EO3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	0.0187	0.00721	0.00765	0.00773	**0.0211**[E]	**0.0656**[E]	**0.0455**[E]	**0.0394**[E]	**0.0397**[E]	**0.0554**[E]	**0.0452**[E]	**0.0378**[E]	0.0153	0.0148	**0.0290**[E]	0.0163	0.0195	0.0155
Molybdenum	mg/L	0.073[B]	0.073[D]	n/v	0.000219	0.000579	0.000565	0.000484	0.000505	0.00664	0.00614	0.00621	0.00496	0.00388	0.00199	0.00191	0.000958	0.000703	0.000238	0.000226	0.000226	0.000244
Nickel	mg/L	0.150**[B]	n/v	n/v	<0.00050	0.00051	0.00056	<0.00050	0.00083	0.00225	0.00161	0.00128	<0.00050	<0.00050	0.00265	0.00165	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	0.049	<0.030	<0.030	<0.030	<0.030	0.038	0.042	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	10.3	7.99	8.17	8.13	7.83	7.22	6.93	6.98	6.89	6.75	6.68	6.51	10.7	9.88	10.2	11.0	11.0	11.0
Rubidium	mg/L	n/v	n/v	n/v	0.00512	0.00339	0.00332	0.00330	0.00324	0.00495	0.00509	0.00510	0.00399	0.00373	0.00565	0.00499	0.00649	0.00638	0.00728	0.00670	0.00665	0.00671
Selenium	mg/L	0.001[B]	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000228	0.000111	0.000090	<0.000050	<0.000050	0.000143	0.000094	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	5.68	4.79	5.14	4.78	6.61	4.60	4.59	4.58	4.32	4.20	5.13	4.78	6.01	5.56	5.83	6.13	5.72	5.91
Silver	mg/L	0.00025[B]	0.0001[D]	n/v	<0.000010	0.000017	<0.000010	<0.000010	<0.000010	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000046	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	33.5	42.7	41.9	41.0	41.7	38.9	41.8	42.3	46.9	45.3	37.3	37.4	35.4	31.0	32.3	33.9	34.3	32.4
Strontium	mg/L	n/v	n/v	7.0[F]	0.554	0.485	0.518	0.472	0.474	0.378	0.378	0.383	0.360	0.352	0.328	0.332	0.533	0.482	0.597	0.605	0.566	0.554
Sulfur	mg/L	n/v	n/v	n/v	44.1	56.4	60.1	54.4	55.3	37.0	44.3	42.8	43.5	39.8	37.1	37.0	41.0	40.2	42.4	42.4	39.0	41.2
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000016	0.000011	<0.000010	<0.000010	<0.000010	0.000024	0.000013	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00060	0.00045	0.00034	0.00015	<0.00010	0.00113	0.00082	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00012	0.00036	0.00010	<0.00010	0.00041	0.00039	0.00011	<0.00010	0.00113	0.00069	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	n/v	n/v	n/v	0.00090	0.00038	<0.00030	0.00092	0.0295	0.0126	0.0113	0.0106	0.00407	0.00176	0.0202	0.0146	<0.00030	0.00035	0.00036	<0.00030	0.00097	0.00057
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	0.00025	<0.00010	0.00337	0.00184	0.00185	0.00343	0.00351	0.00114	0.00125	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.02[F]	0.000896	0.00222	0.00225	0.00197	0.00194	0.000630	0.000449	0.000421	0.000223	0.000140	0.000779	0.000594	0.000613	0.000546	0.000637	0.000767	0.000677	0.000700
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	0.00102	0.00247	0.00225	0.00174	0.00080	<0.00050	0.00364	0.00239	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	n/v	n/v	≤5.0[E]	<0.0030	0.0271	0.015	<0.0030	0.0124	0.0045	0.0043	0.0040	<0.0030	<0.0030	0.0123	<0.0030	<0.0030	<0.0030	0.159	0.0045	0.0070	0.0065
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	0.00090	0.00082	0.00065	0.00069	0.00031	0.00028	0.00102	0.00114	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23						OW19-40				PW19-06	PW19-17	PW19-22	
Sample Date					19-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	8-Oct-20	8-Oct-19	6-Jul-20	6-Jul-20	8-Oct-20	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19
Sample ID					OW19-23	OW19-23	OW19-23	QC-02	OW19-23	OW19-23	OW19-40	OW19-40	QC-01	OW19-40	TH18-21	TH18-09	TH18-36	QC-02
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2443834	L2470843	L2514453	L2362912	L2470843	L2470843	L2514453	L2301696	L2301696	L2301696	L2301696
Laboratory Sample ID					L2332554-6	L2362912-14	L2443834-3	L2443834-11	L2470843-4	L2514453-10	L2362912-12	L2470843-1	L2470843-10	L2514453-9	L2301696-3	L2301696-1	L2301696-5	L2301696-6
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ				Field Duplicate					Field Duplicate					Field Duplicate
Field Parameters																		
Dissolved oxygen, Field	mg/L	>5.5/6/6.5/9.5$_{VAR}$[B]	n/v	n/v	**3.08**[B]	10.8	**1.85**[B]	-	5.78	**1.6**[B]	**1.21**[B]	5.64	-	**4.15**[B]	**4.7**[B]	**3.3**[B]	**5.45**[B]	-
Electrical Conductivity, Field	µS/cm	n/v	n/v	n/v	607	579.6	459.2	-	583.4	654.6	608.9	650.6	-	705.8	654.6	727	676.7	-
Nitrite, Field	mg/L	n/v	n/v	n/v	0.01	NM	-	-	-	-	NM	-	-	-	0.01	0.01	0.00	-
Oxidation Reduction Potential, field	mV	n/v	n/v	n/v	56.2	30.8	134.9	-	59.1	-28.7	29	36.4	-	-49.9	-26.5	61.4	-23	-
pH, Field	S.U.	6.5-9.0[B]	6.5-9.0[D]	7.0-10.5[E]	8.02	7.74	7.38	-	7.45	7.22	8.12	7.43	-	7.36	7.87	7.63	7.55	-
Pressure	kPa	n/v	n/v	n/v	NM	NM	-	-	-	98.73	NM	-	-	98.81	101.6	100.44	101.86	-
Temperature, Field	deg C	n/v	n/v	≤15[E]	7.9	8.3	6.5	-	6.9	7	7.4	6.5	-	5.9	6.9	7.2	7.8	-
Total Dissolved Solids, Field	ppm	n/v	n/v	≤500[E]	-	-	**542**[E]	-	**523**[E]	440	-	**608**[E]	-	480	-	-	-	-
Turbidity, Field	NTU	n/v	n/v	≤0.3/1.0/0.1[G]	**6.47**[G]	**1.85**[G]	**15.37**[G]	-	**31.63**[G]	**17.53**[G]	**7.65**[G]	**31.90**[G]	-	**47.63**[G]	**7.15**[G]	**1.19**[G]	**11.24**[G]	-
General Chemistry																		
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	n/v	287	278	293	291	287	260	309	317	322	300	315	369	278	273
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	n/v	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	n/v	n/v	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	n/v	n/v	n/v	235	228	240	239	235	213	253	260	264	246	258	302	228	224
Ammonia (as N)	mg/L	TBC2[B]	TBC1[D]	n/v	0.180	0.173	0.138	0.153	0.139	0.141	0.086	0.063	0.073	0.065	0.118	0.137	0.161	0.146
Chloride	mg/L	640[A] 120[B]	n/v	≤250[E]	20.9	20.1	19.4	20.2	21.0	21.1	16.5	17.9	17.0	17.7	8.47	6.53	20.6	20.4
Fluoride	mg/L	0.12[B]	n/v	1.5[F]	**0.840**[B]	**0.776**[B]	**0.798**[B]	**0.794**[B]	**0.819**[B]	**0.827**[B]	**0.372**[B]	**0.367**[B]	**0.353**[B]	**0.364**[B]	**0.419**[B]	**0.637**[B]	**0.757**[B]	**0.750**[B]
Hardness (as CaCO3)	mg/L	n/v	n/v	n/v	276	285	288	294	283	269	333	346	349	345	304	396	270	270
Nitrate (as N)	mg/L	124[A] 3.0[B]	13[D]	10[F]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.06[B]	0.06[D]	1[F]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	n/v	n/v	n/v	0.22	-	<0.20	0.21	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Phosphorus, Total	mg/L	n/v	0.025[C]	n/v	0.0096	0.0048	0.0135	0.0080	0.0138	**0.0304**[C]	0.0059	0.0070	0.0053	**0.0303**[C]	**0.0346**[C]	<0.0030	0.0131	0.0112
Phosphorus, Total (Dissolved)	mg/L	n/v	0.025[C]	n/v	<0.0030	<0.0030	0.0017	0.0013	0.0039	0.0023	<0.0030	0.0034	0.0012	0.0015	<0.0030	<0.0030	0.0034	<0.0030
Phosphorus, Total Particulate	mg/L	n/v	n/v	n/v	0.0071	<0.0042	0.0118	0.0067	0.0099	0.0281	<0.0042	0.0036	0.0041	0.0287	0.0325	<0.0042	0.0097	0.0096
Sulfate	mg/L	n/v	n/v	≤500[E]	135	131	128	132	130	134	157	162	158	163	106	108	124	123
Total Dissolved Solids	mg/L	n/v	n/v	≤500[E]	447	442	425	421	418	430	494	454	460	487	392	486	411	408
Total Kjeldahl Nitrogen	mg/L	n/v	n/v	n/v	0.22	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	$_{SN}$[B]	n/v	n/v	7.7	4.3	47.6	27.3	57.3	101	6.3	32.3	9.3	136	51.2	2.8	56.5	45.7
Microbiological Parameters																		
Escherichia coli (E.Coli)	mpn/100mL	n/v	n/v	0[G]	***<1 ZH***	**2**[G]	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	-	-	-	-
Total Coliforms	mpn/100mL	n/v	n/v	0[G]	**99 ZH**[G]	**3**[G]	***<1***	***<1***	***<1***	***<1***	**4**[G]	***<1***	***<1***	***<1***	-	-	-	-
BTEX and Petroleum Hydrocarbons																		
Benzene	mg/L	0.37[B]	n/v	0.005[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002[B]	n/v	0.024[E] 0.06[F]	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.09[B]	0.09[D]	0.0016[E] 0.14[F]	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	n/v	n/v	n/v	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	n/v	n/v	n/v	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	n/v	n/v	0.02[E] 0.09[F]	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	n/v	n/v	n/v	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	n/v	n/v	n/v	<0.10	<0.10	<0.10	<0.10	0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	n/v	n/v	n/v	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	n/v	n/v	n/v	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	n/v	n/v	n/v	-	YES	-	-	-	-	YES	-	-	-	-	-	-	-

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23						OW19-40				PW19-06	PW19-17	PW19-22	
Sample Date					19-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	8-Oct-20	8-Oct-19	6-Jul-20	6-Jul-20	8-Oct-20	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19
Sample ID					OW19-23	OW19-23	OW19-23	QC-02	OW19-23	OW19-23	OW19-40	OW19-40	QC-01	OW19-40	TH18-21	TH18-09	TH18-36	QC-02
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2443834	L2470843	L2514453	L2362912	L2470843	L2470843	L2514453	L2301696	L2301696	L2301696	L2301696
Laboratory Sample ID					L2332554-6	L2362912-14	L2443834-3	L2443834-11	L2470843-4	L2514453-10	L2362912-12	L2470843-1	L2470843-10	L2514453-9	L2301696-3	L2301696-1	L2301696-5	L2301696-6
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ				Field Duplicate					Field Duplicate					Field Duplicate
Metals, Dissolved																		
Aluminum	mg/L	n/v	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_{a}$[E]	0.0038	0.0016	<0.0010	<0.0010	0.0011	<0.0010	0.0023	0.0020	0.0024	0.0545	0.0039	0.0033	0.0017	0.0039
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	n/v	0.15/0.34$_{s2}$[D]	0.010[F]	0.00042	0.00041	0.00043	0.00039	0.00037	0.00039	0.00016	0.00035	0.00025	0.00044	0.00211	<0.00010	0.00084	0.00084
Barium	mg/L	n/v	n/v	2.0[F]	0.0293	0.0258	0.0258	0.0253	0.0265	0.0267	0.0253	0.0287	0.0238	0.0267	0.0421	0.0222	0.0263	0.0216
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	n/v	29/1.5$_{s3}$[D]	5[F]	0.61	0.73	0.612	0.604	0.673	0.576	0.599	0.614	0.621	0.576	0.475	0.528	0.63	0.64
Cadmium	mg/L	n/v	0.00056/0.006$_{s8}$[D]	0.007[F]	0.0000056	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000673	<0.0000050	<0.0000050	0.0000065	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	52.3	58.8	52.9	53.3	53.0	50.9	62.9	58.8	59.9	65.0	50.5	69.8	48.3	49.1
Cesium	mg/L	n/v	n/v	n/v	0.000011	0.000011	0.000013	0.000013	0.000013	0.000012	<0.000010	<0.000010	<0.000010	0.000016	0.000013	0.000030	0.000014	0.000017
Chromium	mg/L	n/v	0.195/1.5$_{s7}$[D]	0.05[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	0.00040	0.00024	0.00030	0.00012
Cobalt	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00015	<0.00010	<0.00010	<0.00010
Copper	mg/L	n/v	0.024/0.04$_{s10}$[D]	≤1.0[E] 2[F]	<0.00020	<0.00020	0.00042	0.00028	<0.00020	0.00064	0.00034	<0.00020	<0.00020	0.00082	0.00130	<0.00020	0.00135	<0.00020
Iron	mg/L	n/v	0.3[D]	≤0.3[E]	0.036	0.025	0.021	0.021	0.024	0.026	0.036	0.047	0.037	0.090	0.094	0.051	0.041	0.026
Lead	mg/L	n/v	0.008/0.227$_{s9}$[D]	0.005[F]	<0.000050	0.000390	0.000073	0.000072	0.000080	<0.000050	0.000098	0.000109	<0.000050	0.000059	0.000065	0.000119	0.000111	0.000077
Lithium	mg/L	n/v	n/v	n/v	0.0320	0.0330	0.0322	0.0333	0.0342	0.0330	0.0362	0.0401	0.0402	0.0381	0.0224	0.0343	0.0320	0.0314
Magnesium	mg/L	n/v	n/v	n/v	35.4	33.5	37.8	39.1	36.6	34.5	42.8	48.4	48.3	44.5	43.3	53.8	36.4	35.8
Manganese	mg/L	3.6$_{EQ3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	0.0112	0.0144	0.0116	0.0117	0.0129	0.0133	0.0142	0.0130	0.0135	0.0135	0.0106	0.00561	0.00855	0.00851
Molybdenum	mg/L	n/v	0.073[D]	n/v	0.00105	0.000966	0.000889	0.000926	0.000940	0.000853	0.000408	0.000422	0.000443	0.000494	0.000707	0.000219	0.000994	0.000898
Nickel	mg/L	n/v	0.14/1.27$_{s11}$[D]	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	n/v	n/v	n/v	8.91	9.01	8.99	9.32	9.29	8.65	9.78	9.26	9.60	9.04	6.58	10.4	8.72	8.61
Rubidium	mg/L	n/v	n/v	n/v	0.00413	0.00456	0.00457	0.00451	0.00437	0.00432	0.00668	0.00644	0.00642	0.00636	0.00320	0.00575	0.00386	0.00399
Selenium	mg/L	n/v	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.72	4.70	4.93	5.00	4.54	4.37	3.85	3.68	3.73	3.81	4.81	5.79	4.82	4.84
Silver	mg/L	n/v	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000019	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	48.8	51.4	51.8	52.8	51.6	49.5	45.7	44.7	44.9	43.6	36.5	33.4	50.2	49.1
Strontium	mg/L	n/v	n/v	7.0[F]	0.418	0.455	0.451	0.444	0.417	0.423	0.432	0.436	0.446	0.420	0.363	0.542	0.407	0.410
Sulfur	mg/L	n/v	n/v	n/v	45.7	46.4	47.5	47.3	43.5	41.2	56.3	54.0	53.2	56.0	37.9	39.9	44.6	43.8
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	n/v	0.0008[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	0.000018	<0.000010	<0.000010	<0.000010
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	n/v	n/v	n/v	0.00024	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
Titanium	mg/L	n/v	n/v	n/v	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00266	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010
Uranium	mg/L	n/v	0.033/0.015$_{s4}$[D]	0.02[F]	0.000882	0.00111	0.00104	0.00103	0.000929	0.000909	0.00128	0.00122	0.00120	0.00118	0.000928	0.000771	0.00120	0.00116
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.037$_{EQ1}$[A] 0.007$_{EQ2}$[B]	0.32$_{s12}$[D]	≤5.0[E]	<0.0010	**0.0116[B]**	<0.0010	<0.0010	0.0024	0.0022	0.0034	0.0029	0.0011	0.0023	**0.0074[B]**	**0.0085[B]**	**0.0106[B]**	0.0037
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Sample Location					OW19-23						OW19-40				PW19-06	PW19-17	PW19-22	
Sample Date					19-Aug-19	8-Oct-19	4-May-20	5-May-20	6-Jul-20	8-Oct-20	8-Oct-19	6-Jul-20	6-Jul-20	8-Oct-20	27-Jun-19	25-Jun-19	28-Jun-19	28-Jun-19
Sample ID					OW19-23	OW19-23	OW19-23	QC-02	OW19-23	OW19-23	OW19-40	OW19-40	QC-01	OW19-40	TH18-21	TH18-09	TH18-36	QC-02
Sampling Company					STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory					ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order					L2332554	L2362912	L2443834	L2443834	L2470843	L2514453	L2362912	L2470843	L2470843	L2514453	L2301696	L2301696	L2301696	L2301696
Laboratory Sample ID					L2332554-6	L2362912-14	L2443834-3	L2443834-11	L2470843-4	L2514453-10	L2362912-12	L2470843-1	L2470843-10	L2514453-9	L2301696-3	L2301696-1	L2301696-5	L2301696-6
Sample Type	Units	CWQG-FAL	MSOG-FAL	CDWQ				Field Duplicate					Field Duplicate					Field Duplicate
Metals, Total																		
Aluminum	mg/L	0.005/0.1$_{VAR1}$[B]	0.005/0.1$_{VAR1}$[D]	<0.1/0.2$_{a}$[E]	0.0833	0.0542	0.0997	0.0881	**0.206**[BDE]	**0.116**[BDE]	0.0634	**0.219**[BDE]	0.0665	0.938	**0.130**[BDE]	<0.0030	**0.137**[BDE]	**0.147**[BDE]
Antimony	mg/L	n/v	n/v	0.006[F]	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.005[B]	n/v	0.010[F]	0.00050	0.00052	0.00050	0.00047	0.00051	0.00041	0.00029	0.00041	0.00036	0.00063	0.00207	0.00013	0.00088	0.00090
Barium	mg/L	n/v	n/v	2.0[F]	0.0251	0.0250	0.0262	0.0256	0.0252	0.0245	0.0256	0.0255	0.0254	0.0299	0.0385	0.0173	0.0227	0.0224
Beryllium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	n/v	n/v	n/v	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	29[A] 1.5[B]	29/1.5$_{s3}$[D]	5[F]	0.68	0.67	0.720	0.718	0.630	0.693	0.72	0.614	0.684	0.668	0.516	0.55	0.66	0.66
Cadmium	mg/L	0.0077$_{STB}$[A] 0.00037$_{LTG}$[B]	n/v	0.007[F]	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000056	<0.0000050	<0.0000050	<0.0000050	0.0000063	<0.0000050	<0.0000050	0.0000066	<0.0000050
Calcium	mg/L	n/v	n/v	n/v	55.0	55.5	64.8	61.7	58.5	54.4	65.1	64.9	62.9	82.7	63.2	74.6	56.9	59.6
Cesium	mg/L	n/v	n/v	n/v	0.000030	0.000023	0.000032	0.000034	0.000056	0.000036	0.000027	0.000057	0.000019	0.000224	0.000031	0.000025	0.000041	0.000047
Chromium	mg/L	n/v	n/v	0.05[F]	0.00019	0.00023	0.00023	0.00019	0.00037	0.00021	0.00027	0.00041	0.00016	0.00196	0.00035	0.00145	0.00066	0.00036
Cobalt	mg/L	n/v	n/v	n/v	0.00013	0.00014	0.00016	0.00013	0.00018	0.00013	0.00014	0.00018	0.00012	0.00051	0.00023	<0.00010	0.00016	0.00017
Copper	mg/L	0.004*[B]	n/v	≤1.0[E] 2[F]	<0.00050	0.00321	<0.00050	<0.00050	0.00060	0.00145	**0.00927**[B]	0.00101	<0.00050	0.0029	<0.00050	<0.00050	<0.00050	<0.00050
Iron	mg/L	0.3[B]	0.3[D]	≤0.3[E]	0.083	0.070	0.126	0.107	0.197	0.128	0.107	0.243	0.087	**1.14**[BDE]	0.279	0.037	0.166	0.184
Lead	mg/L	0.007#[B]	n/v	0.005[F]	0.000063	0.000512	0.000240	0.000190	0.000183	0.000372	0.000931	0.000183	0.000085	0.000613	0.000220	0.000115	0.000314	0.000295
Lithium	mg/L	n/v	n/v	n/v	0.0337	0.0352	0.0360	0.0369	0.0344	0.0349	0.0420	0.0418	0.0429	0.0444	0.0213	0.0324	0.0304	0.0304
Magnesium	mg/L	n/v	n/v	n/v	40.7	38.8	43.6	42.3	40.8	38.7	50.7	51.7	52.8	65.9	48.6	55.9	40.7	41.1
Manganese	mg/L	3.6$_{EO3}$[A] 0.43$_{EQ4}$[B]	n/v	≤0.02[E] 0.12[F]	0.0139	0.0167	0.0183	0.0159	0.0193	0.0145	0.0166	0.0188	0.0163	**0.0375**[E]	0.0174	0.00536	0.0140	0.0150
Molybdenum	mg/L	0.073[B]	0.073[D]	n/v	0.00104	0.000888	0.000900	0.000962	0.000825	0.000857	0.000446	0.000338	0.000395	0.000400	0.000633	0.000196	0.000894	0.000865
Nickel	mg/L	0.150**[B]	n/v	n/v	0.00052	<0.00050	0.00070	0.00052	0.00059	<0.00050	<0.00050	<0.00050	<0.00050	0.00142	0.00060	<0.00050	0.00062	0.00061
Phosphorus	mg/L	n/v	n/v	n/v	<0.030	<0.030	0.034	<0.030	0.035	<0.030	<0.030	<0.030	<0.030	0.047	0.040	<0.030	0.032	<0.030
Potassium	mg/L	n/v	n/v	n/v	9.11	9.20	9.27	9.22	9.41	9.03	9.61	9.69	10.0	9.76	6.48	10.5	8.62	8.69
Rubidium	mg/L	n/v	n/v	n/v	0.00456	0.00464	0.00475	0.00483	0.00474	0.00474	0.00691	0.00701	0.00701	0.00884	0.00325	0.00591	0.00407	0.00417
Selenium	mg/L	0.001[B]	0.001[D]	0.05[F]	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	n/v	n/v	n/v	4.86	4.78	5.37	5.32	5.17	5.08	4.11	4.30	4.16	5.91	5.05	5.82	5.14	5.18
Silver	mg/L	0.00025[B]	0.0001[D]	n/v	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	n/v	n/v	≤200[E]	53.1	52.3	52.8	53.1	51.6	50.2	46.7	45.7	47.2	45.0	35.5	34.1	49.4	49.8
Strontium	mg/L	n/v	n/v	7.0[F]	0.407	0.448	0.466	0.462	0.437	0.428	0.488	0.471	0.465	0.466	0.377	0.561	0.412	0.419
Sulfur	mg/L	n/v	n/v	n/v	46.3	46.9	50.6	50.2	45.2	47.1	56.2	55.4	58.9	59.0	39.0	42.5	45.3	46.1
Tellurium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.0008[B]	0.0008[D]	n/v	<0.000010	0.000010	0.000011	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000014	0.000019	<0.000010	0.000011	0.000011
Thorium	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00010	<0.00010	0.00040	<0.00010	<0.00010	<0.00010	0.00010
Tin	mg/L	n/v	n/v	n/v	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00134	<0.00010
Titanium	mg/L	n/v	n/v	n/v	0.00353	0.00208	0.00374	0.00345	0.00888	0.00551	0.00294	0.00850	0.00230	0.0395	0.00705	<0.00030	0.00739	0.00810
Tungsten	mg/L	n/v	n/v	n/v	<0.00010	<0.00010	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	0.00034	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.033[A] 0.015[B]	0.033/0.015$_{s4}$[D]	0.02[F]	0.000938	0.00104	0.00110	0.00109	0.00100	0.000939	0.00132	0.00125	0.00116	0.00125	0.000880	0.000736	0.00111	0.00114
Vanadium	mg/L	n/v	n/v	n/v	<0.00050	<0.00050	<0.00050	<0.00050	0.00082	<0.00050	<0.00050	0.00096	<0.00050	0.00350	0.00075	<0.00050	0.00063	0.00070
Zinc	mg/L	n/v	n/v	≤5.0[E]	<0.0030	0.0158	<0.0030	<0.0030	<0.0030	0.0036	0.0139	<0.0030	<0.0030	0.0053	0.0155	0.0039	0.0107	0.0078
Zirconium	mg/L	n/v	n/v	n/v	<0.00020	<0.00020	0.00020	<0.00020	0.00025	<0.00020	<0.00020	0.00025	<0.00020	0.00078	<0.00020	<0.00020	0.00020	0.00021

See notes on last page

Table B-3
Summary of Groundwater Analytical Results
Lake Manitoba Outlet

Notes:

CWQG-FAL	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
MSOG-FAL	Manitoba Provincial Water Quality Guidelines
C	Tier I - Water Quality Guidelines - Freshwater Aquatic Life
D	Tier III - Water Quality Guidelines - Freshwater Aquatic Life
CDWQ	Health Canada (September 2020). Guidelines for Canadian Drinking Water Quality—Summary Table. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.
E	Guidelines for Canadian Drinking Water Quality - Aesthetic Objectives/ Operational Guidelines
F	Guidelines for Canadian Drinking Water Quality - Maximum Acceptable Concentration
G	Guidelines for Canadian Drinking Water Quality - Microbial Parameters
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This is an operational guidance value, designed to apply only to drinking water treatment plants using aluminum-based coagulants; it does not apply to naturally occuring aluminum found in groundwater. The operational guidance values of 0.1 mg/L applies to conventional treatment plants, and 0.2 mg/L applies to other types of treatment systems.
j	High levels (above 500 mg/L) can cause physiological effects such as diarrhoea or dehydration.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1.
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1.
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L.
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4.
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness. At hardness≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10{0.83(log[hardness]) – 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L.
STB	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation: (Short-term benchmark (µg/L) = 10{1.016(log[hardness]) – 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L.
*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness≥82 to ≤180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness)]-1.465}. At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L
#	The CWQG for lead is related to water hardness. When the hardness is 0 to≤ 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e{1.273[ln(hardness)]-4.705}. At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L
**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to≤ 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L
s2	15 mg/L for a 4 day averaging duration, 3.40 mg/L for a 1 hour averaging duration (from Tier II - Water Quality Objectives)
s3	29 mg/L short term exposure; 1.5 mg/L long term exposure.
s4	0.033 mg/L short term exposure; 0.15 mg/L long term exposure.
s7	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Chromium, 0.195 mg/L is for 4 day averaging duration and 1.5 mg/L is for 1 hour averaging duration.
s8	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Cadmium, 0.00056 mg/L is for 4 day averaging duration and 0.006 mg/L is for 1 hour averaging duration.
s9	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Lead, 0.008 mg/L is for 4 day averaging duration and 0.227 mg/L is for 1 hour averaging duration.
s10	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Copper, 0.024 mg/L is for 4 day averaging duration and 0.04 mg/L is for 1 hour averaging duration.
S11	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Nickel, 0.14 mg/L is for 4 day averaging duration and 1.27 mg/L is for 1 hour averaging duration.
s12	Site-specific guidelines calculated based on average site-hardness. See Tier II - Water Quality Objectives for equation. For Dissolved Zinc, 0.32 mg/L is for both the 4 day averaging duration and the 1 hour averaging duration.
SN	see Narrative
TBC1	Value is minimum value available. Sample-specific value to be calculated (equation).
TBC2	To be calculated (equation), then the present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
NM	Result is non calculable due to matrix interference.
RV	Reported result verified by repeat analysis.
SV	Sample was analyzed past the hold time.
XB	Re-analysis was completed past recommended hold time.
ZH	Sample analysed past recommended hold time.most probable number.

Table B-4
Summary of Groundwater RPDs - Field Duplicates
Lake Manitoba Outlet

Sample Location		OW19-05						OW19-16			OW19-23		
Sample Date		8-Oct-19	8-Oct-19		5-Oct-20	5-Oct-20		19-Aug-19	19-Aug-19		4-May-20	5-May-20	
Sample ID		OW19-05	QC-02		OW19-05	QC-1 (NOT ON COC)		OW19-16	QC-01		OW19-23	QC-02	
Sampling Company		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory		ALS	ALS		ALS	ALS		ALS	ALS		ALS	ALS	
Laboratory Work Order		L2362912	L2362912		L2512953	L2512953		L2332554	L2332554		L2443834	L2443834	
Laboratory Sample ID		L2362912-9	L2362912-15	RPD	L2512953-7	L2512953-11	RPD	L2332554-2	L2332554-7	RPD	L2443834-3	L2443834-11	RPD
Sample Type	Units		Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)		Field Duplicate	(%)
General Chemistry													
Alkalinity, Bicarbonate (as CaCO3)	mg/L	268	260	3%	245	246	0%	432	422	2%	293	291	1%
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	nc	8.28	8.04	3%	<0.60	<0.60	nc	<0.60	<0.60	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc	<0.34	<0.34	nc
Alkalinity, Total	mg/L	220	214	3%	215	215	0%	354	346	2%	240	239	0%
Ammonia (as N)	mg/L	0.096	0.133	**32%**	0.100	0.098	2%	0.193	0.180	7%	0.138	0.153	10%
Chloride	mg/L	10.8	10.9	1%	10.9	10.9	0%	6.06	6.08	0%	19.4	20.2	4%
Fluoride	mg/L	0.477	0.498	4%	0.574	0.577	1%	0.740	0.728	2%	0.798	0.794	1%
Hardness (as CaCO3)	mg/L	259	262	1%	238	245	3%	389	387	1%	288	294	2%
Nitrate (as N)	mg/L	<0.020	<0.020	nc	<0.020	<0.020	nc	<0.020	<0.020	nc	<0.020	<0.020	nc
Nitrite (as N)	mg/L	<0.010	<0.010	nc	<0.010	<0.010	nc	<0.010	<0.010	nc	<0.010	<0.010	nc
Nitrogen (Total)	mg/L	-	-	-	<0.20	<0.20	nc	0.25	0.23	nc	<0.20	0.21	nc
Phosphorus, Total (Dissolved)	mg/L	0.0061	0.0072	nc	0.0027	0.0032	nc	<0.0030	<0.0030	nc	0.0017	0.0013	nc
Phosphorus, Total	mg/L	0.0260	0.0218	18%	0.0310	0.0307	1%	0.0034	0.0033	nc	0.0135	0.0080	nc
Phosphorus, Total Particulate	mg/L	0.0199	0.0146	nc	0.0283	0.0276	3%	<0.0042	<0.0042	nc	0.0118	0.0067	nc
Sulfate	mg/L	114	114	0%	100	101	1%	114	115	1%	128	132	3%
Total Dissolved Solids	mg/L	390	401	3%	342	365	7%	492	485	1%	425	421	1%
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	nc	<0.20	<0.20	nc	0.25	0.23	nc	<0.20	0.21	nc
Total Suspended Solids	mg/L	245	251	2%	181	86.0	**71%**	9.7	<2.0	nc	47.6	27.3	**54%**
Microbiological Parameters													
Escherichia coli (E.Coli)	mpn/100mL	<1 ZH	<1	nc	<1	<1	nc	<1 ZH	<1 ZH	nc	<1	<1	nc
Total Coliforms	mpn/100mL	<1 ZH	<1	nc	<1	<1	nc	2 ZH	196 ZH	nc	<1	<1	nc
BTEX and Petroleum Hydrocarbons													
Benzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Toluene	mg/L	<0.00050	<0.00050	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Ethylbenzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylene, m & p-	mg/L	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc
Xylene, o-	mg/L	<0.00030	<0.00030	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylenes, Total	mg/L	<0.00050	<0.00050	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc
PHC F1 (C6-C10 range)	mg/L	<0.025	<0.025	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.025	<0.025	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc	<0.25	<0.25	nc
Total Hydrocarbons (C6-C50)	mg/L	<0.37	<0.37	nc	<0.38	<0.38	nc	<0.38	<0.38	nc	<0.38	<0.38	nc
Chromatogram to baseline at C50	none	YES	YES	nc	-	-	-	-	-	-	-	-	-
Metals, Dissolved													
Aluminum	mg/L	0.0025	0.0021	nc	<0.0010	0.0069	nc	0.0020	<0.0010	nc	<0.0010	<0.0010	nc
Antimony	mg/L	0.00024	0.00025	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00203	0.00207	2%	0.00172	0.00164	5%	<0.00010	<0.00010	nc	0.00043	0.00039	nc
Barium	mg/L	0.0406	0.0408	0%	0.0402	0.0370	8%	0.0231	0.0183	**23%**	0.0258	0.0253	2%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.480	0.467	3%	0.384	0.447	15%	0.504	0.486	4%	0.612	0.604	1%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	50.5	50.2	1%	43.5	47.0	8%	69.8	67.3	4%	52.9	53.3	1%
Cesium	mg/L	0.000029	0.000033	nc	0.000021	0.000027	nc	0.000013	0.000013	nc	0.000013	0.000013	nc
Chromium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Copper	mg/L	0.00069	0.00025	nc	0.00031	<0.00020	nc	<0.00020	<0.00020	nc	0.00042	0.00028	nc
Iron	mg/L	0.216	0.230	6%	0.182	0.160	13%	0.015	<0.010	nc	0.021	0.021	nc
Lead	mg/L	0.000050	0.000055	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	0.000073	0.000072	nc
Lithium	mg/L	0.0187	0.0192	3%	0.0183	0.0188	3%	0.0332	0.0349	5%	0.0322	0.0333	3%
Magnesium	mg/L	32.1	33.2	3%	31.4	31.0	1%	52.0	53.1	2%	37.8	39.1	3%
Manganese	mg/L	0.0309	0.0319	3%	0.0309	0.0328	6%	0.0138	0.0128	8%	0.0116	0.0117	1%
Molybdenum	mg/L	0.00573	0.00572	0%	0.00177	0.00189	7%	0.000836	0.000280	**100%**	0.000889	0.000926	4%
Nickel	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	<0.030	nc	<0.030	<0.030	nc	<0.030	<0.030	nc
Potassium	mg/L	6.62	7.03	6%	6.10	6.22	2%	10.3	10.0	3%	8.99	9.32	4%
Rubidium	mg/L	0.00419	0.00436	4%	0.00379	0.00394	4%	0.00602	0.00617	2%	0.00457	0.00451	1%
Selenium	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	3.77	3.78	0%	3.40	3.87	13%	5.67	5.77	2%	4.93	5.00	1%
Silver	mg/L	<0.000010	0.000017	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	40.5	41.5	2%	36.8	37.7	2%	32.0	32.5	2%	51.8	52.8	2%
Strontium	mg/L	0.342	0.348	2%	0.312	0.308	1%	0.509	0.506	1%	0.451	0.444	2%
Sulfur	mg/L	39.1	38.5	2%	31.1	36.7	17%	40.1	40.0	0%	47.5	47.3	0%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc	0.00012	<0.00010	nc	<0.00010	<0.00010	nc
Titanium	mg/L	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc
Tungsten	mg/L	0.00201	0.00200	0%	0.00143	0.00155	8%	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.000143	0.000140	2%	0.000109	0.000126	14%	0.000574	0.000522	9%	0.00104	0.00103	1%
Vanadium	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Zinc	mg/L	0.0015	0.0024	nc	0.0019	<0.0010	nc	0.0043	<0.0010	nc	<0.0010	<0.0010	nc
Zirconium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Metals, Total													
Aluminum	mg/L	0.383	0.382	0%	0.695	0.485	**36%**	0.0056	0.0068	nc	0.0997	0.0881	12%
Antimony	mg/L	0.00027	0.00026	nc	0.00014	0.00011	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00266	0.00257	3%	0.00253	0.00226	11%	0.00011	0.00012	nc	0.00050	0.00047	nc
Barium	mg/L	0.0419	0.0420	0%	0.0409	0.0400	2%	0.0196	0.0198	1%	0.0262	0.0256	2%
Beryllium	mg/L	<0.00010	<0.00010	nc	0.00014	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.450	0.502	11%	0.447	0.447	0%	0.544	0.533	2%	0.720	0.718	0%
Cadmium	mg/L	0.0000105	0.0000074	nc	0.0000170	0.0000075	nc	<0.0000050	<0.0000050	nc	<0.0000050	<0.0000050	nc
Calcium	mg/L	95.7	73.9	**26%**	77.4	54.0	**36%**	74.9	74.5	1%	64.8	61.7	5%
Cesium	mg/L	0.000101	0.000085	17%	0.000187	0.000149	**23%**	0.000018	0.000016	nc	0.000032	0.000034	nc
Chromium	mg/L	0.00093	0.00077	19%	0.00142	0.00091	**44%**	<0.00010	<0.00010	nc	0.00023	0.00019	nc
Cobalt	mg/L	0.00109	0.00080	**31%**	0.00162	0.00099	**48%**	<0.00010	<0.00010	nc	0.00016	0.00013	nc
Copper	mg/L	0.00132	0.00145	nc	0.00489	0.00131	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Iron	mg/L	1.15	0.952	19%	1.73	1.16	**39%**	0.024	0.023	nc	0.126	0.107	16%
Lead	mg/L	0.000666	0.000598	11%	0.00219	0.000923	**81%**	<0.000050	<0.000050	nc	0.000240	0.000190	nc
Lithium	mg/L	0.0209	0.0218	4%	0.0204	0.0204	0%	0.0358	0.0339	5%	0.0360	0.0369	2%
Magnesium	mg/L	68.0	51.7	**27%**	48.3	34.7	**33%**	59.8	45.6	**27%**	43.6	42.3	3%
Manganese	mg/L	0.0455	0.0394	14%	0.0452	0.0378	18%	0.0153	0.0148	3%	0.0183	0.0159	14%
Molybdenum	mg/L	0.00614	0.00621	1%	0.00199	0.00191	4%	0.000958	0.000703	**31%**	0.000900	0.000962	7%
Nickel	mg/L	0.00161	0.00128	nc	0.00265	0.00165	nc	<0.00050	<0.00050	nc	0.00070	0.00052	nc
Phosphorus	mg/L	<0.030	<0.030	nc	0.038	0.042	nc	<0.030	<0.030	nc	0.034	<0.030	nc
Potassium	mg/L	6.93	6.98	1%	6.68	6.51	3%	10.7	9.88	8%	9.27	9.22	1%
Rubidium	mg/L	0.00509	0.00510	0%	0.00565	0.00499	12%	0.00649	0.00638	2%	0.00475	0.00483	2%
Selenium	mg/L	0.000111	0.000090	nc	0.000143	0.000094	nc	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	4.59	4.58	0%	5.13	4.78	7%	6.01	5.56	8%	5.37	5.32	1%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc	<0.000010	0.000046	nc	<0.000010	<0.000010	nc
Sodium	mg/L	41.8	42.3	1%	37.3	37.4	0%	35.4	31.0	13%	52.8	53.1	1%
Strontium	mg/L	0.378	0.383	1%	0.328	0.332	1%	0.533	0.482	10%	0.466	0.462	1%
Sulfur	mg/L	44.3	42.8	3%	37.1	37.0	0%	41.0	40.2	2%	50.6	50.2	1%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	0.000011	<0.000010	nc	0.000024	0.000013	nc	0.000010	<0.000010	nc	0.000011	0.000012	nc
Thorium	mg/L	0.00045	0.00034	nc	0.00113	0.00082	**32%**	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	0.00011	<0.00010	nc	0.00012	<0.00010	nc	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Titanium	mg/L	0.0113	0.0106	6%	0.0202	0.0146	**32%**	<0.00030	0.00035	nc	0.00374	0.00345	8%
Tungsten	mg/L	0.00184	0.00185	1%	0.00114	0.00125	9%	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.000449	0.000421	6%	0.000779	0.000594	**27%**	0.000613	0.000546	12%	0.00110	0.00109	1%
Vanadium	mg/L	0.00225	0.00174	nc	0.00364	0.00239	nc	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Zinc	mg/L	0.0043	0.0040	nc	0.0123	<0.0030	nc	<0.0030	<0.0030	nc	<0.0030	<0.0030	nc
Zirconium	mg/L	0.00065	0.00069	nc	0.00102	0.00114	11%	<0.00020	<0.00020	nc	0.00020	<0.00020	nc

See notes on last page

Table B-4
Summary of Groundwater RPDs - Field Duplicates
Lake Manitoba Outlet

Sample Location		OW19-40			PW19-22		
Sample Date		6-Jul-20	6-Jul-20		28-Jun-19	28-Jun-19	
Sample ID		OW19-40	QC-01		TH18-36	QC-02	
Sampling Company		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory		ALS	ALS		ALS	ALS	
Laboratory Work Order		L2470843	L2470843		L2301696	L2301696	
Laboratory Sample ID		L2470843-1	L2470843-10	RPD	L2301696-5	L2301696-6	RPD
Sample Type	Units		Field Duplicate	(%)		Field Duplicate	(%)
General Chemistry							
Alkalinity, Bicarbonate (as CaCO3)	mg/L	317	322	2%	278	273	2%
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	nc	<0.60	<0.60	nc
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	nc	<0.34	<0.34	nc
Alkalinity, Total	mg/L	260	264	2%	228	224	2%
Ammonia (as N)	mg/L	0.063	0.073	15%	0.161	0.146	10%
Chloride	mg/L	17.9	17.0	5%	20.6	20.4	1%
Fluoride	mg/L	0.367	0.353	4%	0.757	0.750	1%
Hardness (as CaCO3)	mg/L	346	349	1%	270	270	0%
Nitrate (as N)	mg/L	<0.020	<0.020	nc	<0.020	<0.020	nc
Nitrite (as N)	mg/L	<0.010	<0.010	nc	<0.010	<0.010	nc
Nitrogen (Total)	mg/L	<0.20	<0.20	nc	<0.20	<0.20	nc
Phosphorus, Total (Dissolved)	mg/L	0.0034	0.0012	nc	0.0034	<0.0030	nc
Phosphorus, Total	mg/L	0.0070	0.0053	nc	0.0131	0.0112	nc
Phosphorus, Total Particulate	mg/L	0.0036	0.0041	nc	0.0097	0.0096	nc
Sulfate	mg/L	162	158	3%	124	123	1%
Total Dissolved Solids	mg/L	454	460	1%	411	408	1%
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	nc	<0.20	<0.20	nc
Total Suspended Solids	mg/L	32.3	9.3	**111%**	56.5	45.7	**21%**
Microbiological Parameters							
Escherichia coli (E.Coli)	mpn/100mL	<1	<1	nc	-	-	-
Total Coliforms	mpn/100mL	<1	<1	nc	-	-	-
BTEX and Petroleum Hydrocarbons							
Benzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Toluene	mg/L	<0.0010	<0.0010	nc	<0.0010	<0.0010	nc
Ethylbenzene	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylene, m & p-	mg/L	<0.00040	<0.00040	nc	<0.00040	<0.00040	nc
Xylene, o-	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Xylenes, Total	mg/L	<0.00064	<0.00064	nc	<0.00064	<0.00064	nc
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	nc	<0.10	<0.10	nc
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	nc	<0.25	<0.25	nc
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	nc	<0.38	<0.38	nc
Chromatogram to baseline at C50	none	-	-	-	-	-	-
Metals, Dissolved							
Aluminum	mg/L	0.0020	0.0024	nc	0.0017	0.0039	nc
Antimony	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00035	0.00025	nc	0.00084	0.00084	0%
Barium	mg/L	0.0287	0.0238	19%	0.0263	0.0216	20%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.614	0.621	1%	0.63	0.64	2%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	0.0000065	<0.0000050	nc
Calcium	mg/L	58.8	59.9	2%	48.3	49.1	2%
Cesium	mg/L	<0.000010	<0.000010	nc	0.000014	0.000017	nc
Chromium	mg/L	<0.00010	<0.00010	nc	0.00030	0.00012	nc
Cobalt	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Copper	mg/L	<0.00020	<0.00020	nc	0.00135	<0.00020	nc
Iron	mg/L	0.047	0.037	nc	0.041	0.026	nc
Lead	mg/L	0.000109	<0.000050	nc	0.000111	0.000077	nc
Lithium	mg/L	0.0401	0.0402	0%	0.0320	0.0314	2%
Magnesium	mg/L	48.4	48.3	0%	36.4	35.8	2%
Manganese	mg/L	0.0130	0.0135	4%	0.00855	0.00851	0%
Molybdenum	mg/L	0.000422	0.000443	5%	0.000994	0.000898	10%
Nickel	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Phosphorus	mg/L	<0.030	<0.030	nc	<0.030	<0.030	nc
Potassium	mg/L	9.26	9.60	4%	8.72	8.61	1%
Rubidium	mg/L	0.00644	0.00642	0%	0.00386	0.00399	3%
Selenium	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	3.68	3.73	1%	4.82	4.84	0%
Silver	mg/L	0.000019	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	44.7	44.9	0%	50.2	49.1	2%
Strontium	mg/L	0.436	0.446	2%	0.407	0.410	1%
Sulfur	mg/L	54.0	53.2	1%	44.6	43.8	2%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Thorium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	0.00011	<0.00010	nc
Titanium	mg/L	<0.00030	<0.00030	nc	<0.00030	<0.00030	nc
Tungsten	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00122	0.00120	2%	0.00120	0.00116	3%
Vanadium	mg/L	<0.00050	<0.00050	nc	<0.00050	<0.00050	nc
Zinc	mg/L	0.0029	0.0011	nc	0.0106	0.0037	nc
Zirconium	mg/L	<0.00020	0.00027	nc	<0.00020	<0.00020	nc
Metals, Total							
Aluminum	mg/L	0.219	0.0665	**107%**	0.137	0.147	7%
Antimony	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Arsenic	mg/L	0.00041	0.00036	nc	0.00088	0.00090	2%
Barium	mg/L	0.0255	0.0254	0%	0.0227	0.0224	1%
Beryllium	mg/L	<0.00010	<0.00010	nc	<0.00010	<0.00010	nc
Bismuth	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Boron	mg/L	0.614	0.684	11%	0.66	0.66	0%
Cadmium	mg/L	<0.0000050	<0.0000050	nc	0.0000066	<0.0000050	nc
Calcium	mg/L	64.9	62.9	3%	56.9	59.6	5%
Cesium	mg/L	0.000057	0.000019	nc	0.000041	0.000047	nc
Chromium	mg/L	0.00041	0.00016	nc	0.00066	0.00036	nc
Cobalt	mg/L	0.00018	0.00012	nc	0.00016	0.00017	nc
Copper	mg/L	0.00101	<0.00050	nc	<0.00050	<0.00050	nc
Iron	mg/L	0.243	0.087	**95%**	0.166	0.184	10%
Lead	mg/L	0.000183	0.000085	nc	0.000314	0.000295	6%
Lithium	mg/L	0.0418	0.0429	3%	0.0304	0.0304	0%
Magnesium	mg/L	51.7	52.8	2%	40.7	41.1	1%
Manganese	mg/L	0.0188	0.0163	14%	0.0140	0.0150	7%
Molybdenum	mg/L	0.000338	0.000395	16%	0.000894	0.000865	3%
Nickel	mg/L	<0.00050	<0.00050	nc	0.00062	0.00061	nc
Phosphorus	mg/L	<0.030	<0.030	nc	0.032	<0.030	nc
Potassium	mg/L	9.69	10.0	3%	8.62	8.69	1%
Rubidium	mg/L	0.00701	0.00701	0%	0.00407	0.00417	2%
Selenium	mg/L	<0.000050	<0.000050	nc	<0.000050	<0.000050	nc
Silicon	mg/L	4.30	4.16	3%	5.14	5.18	1%
Silver	mg/L	<0.000010	<0.000010	nc	<0.000010	<0.000010	nc
Sodium	mg/L	45.7	47.2	3%	49.4	49.8	1%
Strontium	mg/L	0.471	0.465	1%	0.412	0.419	2%
Sulfur	mg/L	55.4	58.9	6%	45.3	46.1	2%
Tellurium	mg/L	<0.00020	<0.00020	nc	<0.00020	<0.00020	nc
Thallium	mg/L	<0.000010	<0.000010	nc	0.000011	0.000011	nc
Thorium	mg/L	0.00010	<0.00010	nc	<0.00010	0.00010	nc
Tin	mg/L	<0.00010	<0.00010	nc	0.00134	<0.00010	nc
Titanium	mg/L	0.00850	0.00230	**115%**	0.00739	0.00810	9%
Tungsten	mg/L	0.00034	<0.00010	nc	<0.00010	<0.00010	nc
Uranium	mg/L	0.00125	0.00116	7%	0.00111	0.00114	3%
Vanadium	mg/L	0.00096	<0.00050	nc	0.00063	0.00070	nc
Zinc	mg/L	<0.0030	<0.0030	nc	0.0107	0.0078	nc
Zirconium	mg/L	0.00025	<0.00020	nc	0.00020	0.00021	nc

Notes:

15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
ZH	Sample analysed past recommended hold time.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 20%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table B-5
Summary of QAQC Blanks
Lake Manitoba Outlet

Sample Location		FIELD BLANK				
Sample Date		19-Jun-19	22-Aug-19	9-Oct-19	8-Jul-20	8-Oct-20
Sample ID		FB	FB	FIELD BLANK	FIELD BLANK	FIELD BLANK
Sampling Company		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory		ALS	ALS	ALS	ALS	ALS
Laboratory Work Order		L2296166	L2334482	L2362912	L2472215	L2514453
Laboratory Sample ID		L2296166-10	L2334482-11	L2362912-16	L2472215-5	L2514453-7
Sample Type	Units	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank
General Chemistry						
Alkalinity, Bicarbonate (as CaCO3)	mg/L	2.2	1.9	1.5	<1.2	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	<0.60	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	<0.34	<0.34	<0.34
Alkalinity, Total	mg/L	1.8	1.5	1.2	<1.0	<1.0
Ammonia (as N)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Hardness (as CaCO3)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Nitrate (as N)	mg/L	<0.020	0.030	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Total)	mg/L	<0.20	<0.20	-	<0.20	<0.20
Phosphorus, Total	mg/L	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010
Phosphorus, Total (Dissolved)	mg/L	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010
Phosphorus, Total Particulate	mg/L	<0.0042	<0.0042	<0.0042	<0.0028	<0.0028
Sulfate	mg/L	<0.30	0.72	<0.30	<0.30	<0.30
Total Dissolved Solids	mg/L	<4.0	200	<4.0	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	<2.0	<2.0	<2.0	<1.0	<1.0
Microbiological Parameters						
Escherichia coli (E.Coli)	mpn/100mL	-	-	<1	<1	<1
Total Coliforms	mpn/100mL	-	-	<1	<1	<1
BTEX and Petroleum Hydrocarbons						
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00099
Toluene	mg/L	<0.0010	<0.0010	<0.00050	<0.0010	0.0048
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00053
Xylene, o-	mg/L	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050
Xylenes, Total	mg/L	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	<0.025	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	<0.025	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	<0.37	<0.38	<0.38
Chromatogram to baseline at C50	none	-	-	YES	-	-
Metals, Dissolved						
Aluminum	mg/L	<0.0010	0.0016	<0.0010	<0.0010	<0.0010
Antimony	mg/L	<0.00010	0.00020	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	<0.00010	0.00027	<0.00010	<0.00010	<0.00010
Barium	mg/L	<0.00010	0.00034	<0.00010	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.019	<0.010	<0.010	<0.010	0.018 RV
Cadmium	mg/L	<0.0000050	0.0000097	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.056	<0.050	<0.050	<0.050	<0.050
Cesium	mg/L	<0.000010	0.000016	<0.000010	<0.000010	<0.000010
Chromium	mg/L	<0.00010	0.00046	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00020	0.00204	<0.00020	0.00105	<0.00020
Iron	mg/L	0.023	0.013	<0.010	<0.010	<0.010
Lead	mg/L	<0.000050	0.000069	<0.000050	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.0111	0.0098	<0.0050	<0.0050	0.0104 RV
Manganese	mg/L	0.00025	0.00023	<0.00010	<0.00010	<0.00010
Molybdenum	mg/L	0.000098	<0.000050	<0.000050	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	<0.050	0.137	<0.050	<0.050	0.226 RV
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	0.220	<0.050	<0.050	<0.050
Strontium	mg/L	<0.00010	0.00010	<0.00010	<0.00010	<0.00010
Sulfur	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.00021	0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0048	0.0037	<0.0010	0.0042	<0.0010
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Metals, Total						
Aluminum	mg/L	<0.0030	<0.0030	<0.0030	0.0048	<0.0030
Antimony	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.00012	0.00040	<0.00010	0.00014	<0.00010
Barium	mg/L	<0.00010	0.00063	<0.00010	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.014	<0.010	<0.010	<0.010	0.018
Cadmium	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000588	<0.0000050
Calcium	mg/L	0.128	0.092	<0.050	0.080	<0.050
Cesium	mg/L	<0.000010	0.000021	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.00020	0.00077	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00050	0.00123	<0.00050	<0.00050	<0.00050
Iron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.0125	-	<0.0050	0.0068	<0.0050
Manganese	mg/L	0.00010	0.00017	<0.00010	0.00027	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	0.000128	<0.000050
Silicon	mg/L	<0.10	0.17	<0.10	<0.10	0.25
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	0.261	<0.050	0.055	<0.050
Strontium	mg/L	<0.00020	0.00038	<0.00020	<0.00020	<0.00020
Sulfur	mg/L	0.53	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.00024	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	0.00061	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0033	<0.0030	<0.0030	<0.0030	0.0037
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Notes:

15.2	Measured concentration
<0.03	Analyte was not detected at a concentration greater than the laborato
-	Parameter not analyzed / not available.

Table B-5
Summary of QAQC Blanks
Lake Manitoba Outlet

Sample Location		TRIP BLANK					
Sample Date		19-Jun-19	22-Aug-19	8-Oct-19	7-May-20	6-Jul-20	8-Oct-20
Sample ID		BLANK	BLANK	TRIP	TRIP BLANK	TRIP BLANK (NOT ON COFC)	TRIP BLANK
Sampling Company		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory		ALS	ALS	ALS	ALS	ALS	ALS
Laboratory Work Order		L2296166	L2334482	L2362912	L2444978	L2470843	L2514453
Laboratory Sample ID		L2296166-11	L2334482-12	L2362912-17	L2444978-10	L2470843-17	L2514453-8
Sample Type	Units	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
General Chemistry							
Alkalinity, Bicarbonate (as CaCO3)	mg/L	<1.2	<1.2	<1.2	-	<1.2	<1.2
Alkalinity, Carbonate (as CaCO3)	mg/L	<0.60	<0.60	<0.60	-	<0.60	<0.60
Alkalinity, Hydroxide (as CaCO3)	mg/L	<0.34	<0.34	<0.34	-	<0.34	<0.34
Alkalinity, Total	mg/L	<1.0	<1.0	<1.0	-	<1.0	<1.0
Ammonia (as N)	mg/L	<0.010	0.020	0.051	<0.010	<0.010	<0.010
Chloride	mg/L	<0.50	<0.50	<0.50	-	<0.50	<0.50
Fluoride	mg/L	<0.020	<0.020	<0.020	-	<0.020	<0.020
Hardness (as CaCO3)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nitrate (as N)	mg/L	<0.020	<0.020	<0.020	-	<0.020	<0.020
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	-	<0.010	<0.010
Nitrogen (Total)	mg/L	<0.20	<0.20	-	-	<0.20	<0.20
Phosphorus, Total	mg/L	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010
Phosphorus, Total (Dissolved)	mg/L	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010
Phosphorus, Total Particulate	mg/L	<0.0042	<0.0042	<0.0042	<0.0028	<0.0028	<0.0028
Sulfate	mg/L	<0.30	<0.30	<0.30	-	<0.30	<0.30
Total Dissolved Solids	mg/L	<4.0	<4.0	<4.0	-	<4.0	<4.0
Total Kjeldahl Nitrogen	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L	<2.0	<2.0	<2.0	-	<1.0	<1.0
Microbiological Parameters							
Escherichia coli (E.Coli)	mpn/100mL	-	<1	<1	<1	<1	<1
Total Coliforms	mpn/100mL	-	<1	<1	<1	<1	<1
BTEX and Petroleum Hydrocarbons							
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	0.0014
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene, m & p-	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Xylene, o-	mg/L	<0.00050	<0.00050	<0.00030	<0.00050	<0.00050	<0.00050
Xylenes, Total	mg/L	<0.00064	<0.00064	<0.00050	<0.00064	<0.00064	<0.00064
PHC F1 (C6-C10 range)	mg/L	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F1 (C6-C10 range) minus BTEX	mg/L	<0.10	<0.10	<0.025	<0.10	<0.10	<0.10
PHC F2 (>C10-C16 range)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PHC F3 (>C16-C34 range)	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
PHC F4 (>C34-C50 range)	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	<0.38	<0.38	<0.37	<0.38	<0.38	<0.38
Chromatogram to baseline at C50	none	-	-	YES	-	-	-
Metals, Dissolved							
Aluminum	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Antimony	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.015	<0.010	<0.010	<0.010	<0.010	0.019
Cadmium	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cesium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Iron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.196
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	<0.050	<0.050	0.086	<0.050	<0.050
Strontium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sulfur	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Metals, Total							
Aluminum	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	0.0099	<0.0030
Antimony	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	<0.00010	0.00011	<0.00010	<0.00010	0.00064	<0.00010
Beryllium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.012	<0.010	<0.010	<0.010	<0.010	0.017
Cadmium	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000075	<0.0000050
Calcium	mg/L	<0.050	<0.050	<0.050	<0.050	4.30	<0.050
Cesium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.00038	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	<0.00050
Iron	mg/L	<0.010	<0.010	<0.010	<0.010	0.014	<0.010
Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000101	<0.000050
Lithium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.0079	<0.0050	<0.0050	<0.0050	0.159	<0.0050
Manganese	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00182	<0.00010
Molybdenum	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000098	<0.000050
Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Potassium	mg/L	<0.050	<0.050	<0.050	<0.050	0.322	<0.050
Rubidium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Selenium	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	<0.10	0.14	<0.10	<0.10	<0.10	0.24
Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	mg/L	<0.050	<0.050	<0.050	<0.050	0.465	<0.050
Strontium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00265	<0.00020
Sulfur	mg/L	0.54	0.81	<0.50	<0.50	0.80	<0.50
Tellurium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010
Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium	mg/L	0.00057	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	0.0454	<0.0030
Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Notes:

15.2	Measured concentration
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
-	Parameter not analyzed / not available.

Appendix C LABORATORY RESULTS

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 05-MAY-20
Report Date: 26-MAY-20 15:36 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2443834

Project P.O. #: 111475107
Job Reference: 111475107
C of C Numbers:
Legal Site Desc:

Comments: NOTE: FRac -6 CH19-08 Missing unpreserved Routine portion for ALK, ANIONS, TDS , TSS, CL AND F.

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2443834-1 D2							
Sampled By: BE/AR on 04-MAY-20 @ 11:47							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	259		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	212		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.9		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.081		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	0.044		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	53.2		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	108.0		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	105.3		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.027		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	292		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.189		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.171		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Particulate	0.0182		0.0042	mg/L		07-MAY-20	
Total Dissolved Solids	372		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	1.67		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	1.67		0.20	mg/L		12-MAY-20	
Total Suspended Solids	3.3		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	317		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	3		1	MPN/100mL		05-MAY-20	R5077906

* 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
L2443834-1 D2							
Sampled By: BE/AR on 04-MAY-20 @ 11:47							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0491		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	0.00018		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00133		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0253		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.072		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	46.4		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00036		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00018		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.00064		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.108		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000054		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0141		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	45.4		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0283		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000778		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00111		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	15.9		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.209		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00555		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000139		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	3.35		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	10.7		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.118		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	31.4		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00225		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00145		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00060		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0040		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	0.00011		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00109		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0248		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.066		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	43.2		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-1 D2							
Sampled By: BE/AR on 04-MAY-20 @ 11:47							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00068		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.063		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0127		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	44.8		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0252		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000740		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	0.00071		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	0.186		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	15.4		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00505		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	0.000116		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	3.24		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	10.8		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.113		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	30.3		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00145		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0017		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-2 CH19-37							
Sampled By: BE/AR on 04-MAY-20 @ 14:43							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	324		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	266		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	9.91		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.273		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							

* 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
L2443834-2 CH19-37							
Sampled By: BE/AR on 04-MAY-20 @ 14:43							
Matrix: WATER							
Sulfate in Water by IC							
Sulfate (SO4)	103		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	106.4		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	100.9		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.137		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	363		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0011		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		11-MAY-20	
Total Dissolved Solids	467		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	<0.20		0.20	mg/L		12-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0041		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00019		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0233		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.713		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	0.0000086		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	67.2		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.00729		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.047		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.00210		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0388		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	52.0		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-2 CH19-37							
Sampled By: BE/AR on 04-MAY-20 @ 14:43							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.00765		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000565		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00056		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	8.17		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00332		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	5.14		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	41.9		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.518		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	60.1		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00225		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	0.0150		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00014		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0236		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.613		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	0.0000097		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	60.6		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00074		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.042		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	0.00204		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0353		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	51.4		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.00734		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000539		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	8.11		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00326		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	4.71		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	43.2		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-2 CH19-37							
Sampled By: BE/AR on 04-MAY-20 @ 14:43							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.498		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	54.3		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00213		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0148		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-3 OW19-23							
Sampled By: BE/AR on 04-MAY-20 @ 15:40							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	293		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	240		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	19.4		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.798		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	128		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	104.2		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	103.0		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	

* 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
L2443834-3 OW19-23							
Sampled By: BE/AR on 04-MAY-20 @ 15:40							
Matrix: WATER							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.138		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	288		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0135		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0017		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	0.0118		0.0032	mg/L		26-MAY-20	
Total Dissolved Solids	425		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	<0.20		0.20	mg/L		12-MAY-20	
Total Suspended Solids	47.6		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0997		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00050		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0262		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.720		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	64.8		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	0.000032		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00023		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00016		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.126		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000240		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0360		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	43.6		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0183		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000900		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00070		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	9.27		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.034		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00475		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	5.37		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	52.8		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.466		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	50.6		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	0.000011		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00374		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00110		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-3 OW19-23							
Sampled By: BE/AR on 04-MAY-20 @ 15:40							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00043		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0258		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.612		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	52.9		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00042		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.021		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	0.000073		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0322		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	37.8		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0116		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000889		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	8.99		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00457		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	4.93		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	51.8		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.451		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	47.5		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00104		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-4 D4							
Sampled By: BE/AR on 04-MAY-20 @ 16:40							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	176		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							

* 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
L2443834-4 D4							
Sampled By: BE/AR on 04-MAY-20 @ 16:40							
Matrix: WATER							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	144		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	4.67		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.112		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	18.2		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	109.2		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	104.8		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.023		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	166		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0704		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0217		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Particulate	0.0488		0.0042	mg/L		07-MAY-20	
Total Dissolved Solids	181		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	1.19		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	1.19		0.20	mg/L		12-MAY-20	
Total Suspended Solids	12.3		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	77		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.262		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-4 D4							
Sampled By: BE/AR on 04-MAY-20 @ 16:40							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00064		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0228		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.050		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	0.0000090		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	28.4		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	0.000028		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00050		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00016		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.00090		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.221		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000179		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0077		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	24.5		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0161		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000658		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00085		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	4.78		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.124		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00253		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000116		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	3.66		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	4.29		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.0715		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	7.51		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00888		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00142		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00139		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	0.0035		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0039		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00057		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0255		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.046		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	24.0		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-4 D4							
Sampled By: BE/AR on 04-MAY-20 @ 16:40							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00172		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.026		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	0.000056		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0068		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	25.9		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.00415		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000640		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	4.78		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00220		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	0.000073		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	3.04		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	4.83		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.0679		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	7.35		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	0.00040		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00144		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	0.00093		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0031		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-5 D11							
Sampled By: BE/AR on 04-MAY-20 @ 17:45							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	202		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	2.16		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	169		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.79		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.140		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	0.021		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	56.9		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							

* 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
L2443834-5 D11							
Sampled By: BE/AR on 04-MAY-20 @ 17:45							
Matrix: WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	108.6		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	111.0		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.018		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	226		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0436		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0205		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Particulate	0.0230		0.0042	mg/L		07-MAY-20	
Total Dissolved Solids	269		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	1.13		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	1.13		0.20	mg/L		12-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	66		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0059		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00079		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0200		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.057		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	35.4		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00012		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.045		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0115		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	35.3		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.00630		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000890		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00060		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-5 D11							
Sampled By: BE/AR on 04-MAY-20 @ 17:45							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	7.13		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.042		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00288		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000164		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	2.97		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	6.24		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.101		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	21.4		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00038		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00148		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00066		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0013		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00073		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0200		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.060		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	33.0		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00062		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.037		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0105		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	35.0		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.00238		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000844		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	7.07		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00282		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	0.000112		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	2.92		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	6.42		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.101		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	21.1		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-5 D11							
Sampled By: BE/AR on 04-MAY-20 @ 17:45							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00149		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	0.00054		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-6 CH19-08							
Sampled By: BE/AR on 05-MAY-20 @ 09:09							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	107.1		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	104.4		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.157		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	369		0.20	mg/L		25-MAY-20	
Phosphorus (P)-Total	0.578		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0024		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	0.576		0.0032	mg/L		26-MAY-20	
Total Kjeldahl Nitrogen	<2.0		2.0	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	2.17		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	0.00014		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00172		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0498		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	0.00032		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.480		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	0.0000916		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	500		0.50	mg/L	08-MAY-20	22-MAY-20	R5095756

* 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
L2443834-6 CH19-08							
Sampled By: BE/AR on 05-MAY-20 @ 09:09							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Cesium (Cs)-Total	0.000596		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00825		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00231		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.0116		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	4.13		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.00406		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0379		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	320		0.050	mg/L	08-MAY-20	22-MAY-20	R5095756
Manganese (Mn)-Total	0.438		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000968		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.0208		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	7.09		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.646		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00808		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000061		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	9.93		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	0.000043		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	48.2		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.730		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	53.1		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	0.000078		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	0.00342		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	0.00015		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.0612		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	0.00035		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00247		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00838		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	0.0525		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	0.00197		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0018		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00044		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0303		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.408		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	61.8		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	0.000017		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	0.00018		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00106		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.262		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0302		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	52.1		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0328		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.00134	RRV	0.000050	mg/L	07-MAY-20	13-MAY-20	R5083321

* 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
L2443834-6 CH19-08							
Sampled By: BE/AR on 05-MAY-20 @ 09:09							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Nickel (Ni)-Dissolved	0.00096		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	6.16		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00286		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	5.73		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	48.4		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.610		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	50.2		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	0.00087	RRV	0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00163		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0026		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-7 D8							
Sampled By: BE/AR on 05-MAY-20 @ 09:44							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	359		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	295		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.05		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.227		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	39.1		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217

* 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
L2443834-7 D8							
Sampled By: BE/AR on 05-MAY-20 @ 09:44							
Matrix: WATER							
BTX plus F1 by GCMS							
Surrogate: 4-Bromofluorobenzene (SS)	101.4		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	102.1		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.023		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	334		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0571		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0459		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Particulate	0.0112		0.0042	mg/L		07-MAY-20	
Total Dissolved Solids	349		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	1.21		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	1.21		0.20	mg/L		12-MAY-20	
Total Suspended Solids	3.9		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	461		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	13		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.106		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	0.00011		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00088		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0328		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.070		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	54.2		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00030		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00013		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.00082		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.118		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000072		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0135		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	53.5		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0189		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000854		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00091		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	5.25		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.068		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00285		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000143		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	4.89		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-7 D8							
Sampled By: BE/AR on 05-MAY-20 @ 09:44							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Sodium (Na)-Total	8.26		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.134		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	15.5		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00448		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00344		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00105		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	0.00023		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0022		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00077	RRV	0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0355		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.075		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	48.6		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00182		0.00020	mg/L	07-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	0.030		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0121		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	51.7		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0137		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000782		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	0.00063		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	0.047		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	5.00		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00260		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	0.000145		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	4.47		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	8.19		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.128		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	14.7		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00320		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-7 D8							
Sampled By: BE/AR on 05-MAY-20 @ 09:44							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Vanadium (V)-Dissolved	0.00065		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-8 OW19-18							
Sampled By: BE/AR on 05-MAY-20 @ 10:23							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	431		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	353		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.05		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.812		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	111		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	103.7		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	101.7		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.150		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	404		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0018		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Dissolved	0.0011		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		11-MAY-20	

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2443834-8 OW19-18							
Sampled By: BE/AR on 05-MAY-20 @ 10:23							
Matrix: WATER							
Total Dissolved Solids	454		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	<0.20		0.20	mg/L		12-MAY-20	
Total Suspended Solids	6.4		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0070		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00012		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0199		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.600		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	78.5		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	0.000028		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.026		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000121		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0374		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	55.1		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0163		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000226		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	11.0		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00670		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	6.13		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	33.9		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.605		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	42.4		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.000767		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	0.0045		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0012		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321

* 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
L2443834-8 OW19-18							
Sampled By: BE/AR on 05-MAY-20 @ 10:23							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Barium (Ba)-Dissolved	0.0240		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.531		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	72.9		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	0.000026		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00127		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.031		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	0.000087		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0347		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	53.9		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0168		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000222		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	10.9		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00679		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	5.90		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	34.9		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.577		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	39.4		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.000719		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0076		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-9 BH19-12							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	399		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	327		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	3.75		0.50	mg/L		07-MAY-20	R5081890

* 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
L2443834-9 BH19-12							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Fluoride in Water by IC							
Fluoride (F)	0.374		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	76.1		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	108.1		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	102.2		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.127		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	389		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0376		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0012		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	0.0364		0.0032	mg/L		26-MAY-20	
Total Dissolved Solids	451		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	0.21		0.20	mg/L		12-MAY-20	
Total Suspended Solids	13.3		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.141		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00017		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0203		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.568		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	79.6		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	0.000088		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00027		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2443834-9 BH19-12							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.140		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000113		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0348		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	53.9		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.00903		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000496		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	9.83		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.047		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00679		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	5.65		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	33.0		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.569		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	44.5		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	0.00017		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00451		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.000622		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	0.00028		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00015		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0233		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.501		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	71.3		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	0.000023		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00023		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.063		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0311		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	51.2		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.00856		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000398		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-9 BH19-12							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Potassium (K)-Dissolved	9.91		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00622		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	5.22		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	33.1		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.537		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	44.8		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.000549		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0019		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
L2443834-10 QC-01							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	253		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	208		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	15.4		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.115		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	81.8		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		06-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		06-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		06-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		06-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	105.0		70-130	%		06-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2443834-10 QC-01							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
CCME PHC F2-F4 in Water							
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	102.4		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.030		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	289		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.192		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.172		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Particulate	0.0199		0.0042	mg/L		07-MAY-20	
Total Dissolved Solids	360		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	1.77		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	1.77		0.20	mg/L		12-MAY-20	
Total Suspended Solids	2.1		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	308		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	1		1	MPN/100mL		05-MAY-20	R5077906
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0495		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	0.00014		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00121		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0244		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.079		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	0.0000056		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	45.8		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00024		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00019		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	0.00059		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.110		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000059		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0140		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	44.5		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0287		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000788		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00080		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	16.2		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	0.205		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00555		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	0.000146		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	3.24		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	10.4		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.113		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	33.4		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164

* 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
L2443834-10 QC-01							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00198		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00108		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	0.00063		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	0.0037		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	0.0070		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	0.00011		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00113		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0279		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.079		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	42.6		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00193	RRV	0.00020	mg/L	07-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	0.060		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0128		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	44.3		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0252		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000719		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	0.00066		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	0.177		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	15.7		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00520		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	0.000138		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	3.22		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	10.7		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.111		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	30.6		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00134		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	0.0043		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-11 QC-02							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	291		1.2	mg/L		07-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	239		1.0	mg/L		06-MAY-20	R5079762
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	20.2		0.50	mg/L		07-MAY-20	R5081890
Fluoride in Water by IC							
Fluoride (F)	0.794		0.020	mg/L		07-MAY-20	R5081890
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-MAY-20	R5081890
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-MAY-20	R5081890
Sulfate in Water by IC							
Sulfate (SO4)	132		0.30	mg/L		07-MAY-20	R5081890
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		07-MAY-20	R5079217
Toluene	<0.0010		0.0010	mg/L		07-MAY-20	R5079217
Ethyl benzene	<0.00050		0.00050	mg/L		07-MAY-20	R5079217
o-Xylene	<0.00050		0.00050	mg/L		07-MAY-20	R5079217
m+p-Xylenes	<0.00040		0.00040	mg/L		07-MAY-20	R5079217
F1 (C6-C10)	<0.10		0.10	mg/L		07-MAY-20	R5079217
Surrogate: 4-Bromofluorobenzene (SS)	99.8		70-130	%		07-MAY-20	R5079217
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-MAY-20	07-MAY-20	R5080583
F3 (C16-C34)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
F4 (C34-C50)	<0.25		0.25	mg/L	07-MAY-20	07-MAY-20	R5080583
Surrogate: 2-Bromobenzotrifluoride	103.4		60-140	%	07-MAY-20	07-MAY-20	R5080583
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		09-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		07-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.153		0.010	mg/L		12-MAY-20	R5082541
Hardness (as CaCO3)	294		0.20	mg/L		14-MAY-20	
Phosphorus (P)-Total	0.0080		0.0030	mg/L		07-MAY-20	R5079685
Phosphorus (P)-Total Dissolved	0.0013		0.0010	mg/L		11-MAY-20	R5081133
Phosphorus (P)-Total Particulate	0.0067		0.0032	mg/L		26-MAY-20	
Total Dissolved Solids	421		20	mg/L		06-MAY-20	R5080079
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	08-MAY-20	11-MAY-20	R5081559
Total Nitrogen	0.21		0.20	mg/L		12-MAY-20	
Total Suspended Solids	27.3		2.0	mg/L		07-MAY-20	R5081715
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		05-MAY-20	R5077906
Escherichia Coli	<1		1	MPN/100mL		05-MAY-20	R5077906

* 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
L2443834-11 QC-02							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0881		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Arsenic (As)-Total	0.00047		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Barium (Ba)-Total	0.0256		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Boron (B)-Total	0.718		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Calcium (Ca)-Total	61.7		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Cesium (Cs)-Total	0.000034		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Chromium (Cr)-Total	0.00019		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Cobalt (Co)-Total	0.00013		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Copper (Cu)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Iron (Fe)-Total	0.107		0.010	mg/L	08-MAY-20	12-MAY-20	R5082164
Lead (Pb)-Total	0.000190		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Lithium (Li)-Total	0.0369		0.0010	mg/L	08-MAY-20	12-MAY-20	R5082164
Magnesium (Mg)-Total	42.3		0.0050	mg/L	08-MAY-20	12-MAY-20	R5082164
Manganese (Mn)-Total	0.0159		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Molybdenum (Mo)-Total	0.000962		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Nickel (Ni)-Total	0.00052		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Potassium (K)-Total	9.22		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Phosphorus (P)-Total	<0.030		0.030	mg/L	08-MAY-20	12-MAY-20	R5082164
Rubidium (Rb)-Total	0.00483		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Selenium (Se)-Total	<0.000050		0.000050	mg/L	08-MAY-20	12-MAY-20	R5082164
Silicon (Si)-Total	5.32		0.10	mg/L	08-MAY-20	12-MAY-20	R5082164
Silver (Ag)-Total	<0.000010		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Sodium (Na)-Total	53.1		0.050	mg/L	08-MAY-20	12-MAY-20	R5082164
Strontium (Sr)-Total	0.462		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Sulfur (S)-Total	50.2		0.50	mg/L	08-MAY-20	12-MAY-20	R5082164
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Thallium (Tl)-Total	0.000012		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Tin (Sn)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Titanium (Ti)-Total	0.00345		0.00030	mg/L	08-MAY-20	12-MAY-20	R5082164
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-MAY-20	12-MAY-20	R5082164
Uranium (U)-Total	0.00109		0.000010	mg/L	08-MAY-20	12-MAY-20	R5082164
Vanadium (V)-Total	<0.00050		0.00050	mg/L	08-MAY-20	12-MAY-20	R5082164
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	08-MAY-20	12-MAY-20	R5082164
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	08-MAY-20	12-MAY-20	R5082164
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					07-MAY-20	R5079597
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Arsenic (As)-Dissolved	0.00039		0.00010	mg/L	07-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0253		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Boron (B)-Dissolved	0.604		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Calcium (Ca)-Dissolved	53.3		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139

* 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
L2443834-11 QC-02							
Sampled By: BE/AR on 05-MAY-20 @ 12:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Copper (Cu)-Dissolved	0.00028		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Iron (Fe)-Dissolved	0.021		0.010	mg/L	07-MAY-20	07-MAY-20	R5080139
Lead (Pb)-Dissolved	0.000072		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Lithium (Li)-Dissolved	0.0333		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Magnesium (Mg)-Dissolved	39.1		0.0050	mg/L	07-MAY-20	07-MAY-20	R5080139
Manganese (Mn)-Dissolved	0.0117		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Molybdenum (Mo)-Dissolved	0.000926		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	07-MAY-20	07-MAY-20	R5080139
Potassium (K)-Dissolved	9.32		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Rubidium (Rb)-Dissolved	0.00451		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silicon (Si)-Dissolved	5.00		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sodium (Na)-Dissolved	52.8		0.050	mg/L	07-MAY-20	07-MAY-20	R5080139
Strontium (Sr)-Dissolved	0.444		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Sulfur (S)-Dissolved	47.3		0.50	mg/L	07-MAY-20	07-MAY-20	R5080139
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	07-MAY-20	07-MAY-20	R5080139
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	07-MAY-20	07-MAY-20	R5080139
Uranium (U)-Dissolved	0.00103		0.000010	mg/L	07-MAY-20	07-MAY-20	R5080139
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	07-MAY-20	07-MAY-20	R5080139
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	07-MAY-20	07-MAY-20	R5080139
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	07-MAY-20	07-MAY-20	R5080139

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
HARDNESS-CALC-WP	Water	Hardness Calculated	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
P-T-L-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.			
P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TD-L-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
P-TPART-L-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW
Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97

This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5079762								
WG3319501-14 LCS								
Alkalinity, Total (as CaCO3)			104.9		%		85-115	06-MAY-20
WG3319501-11 MB								
Alkalinity, Total (as CaCO3)			1.0		mg/L		1	06-MAY-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5079217								
WG3318519-2 LCS								
Benzene			100.1		%		70-130	06-MAY-20
Toluene			99.8		%		70-130	06-MAY-20
Ethyl benzene			105.0		%		70-130	06-MAY-20
o-Xylene			106.4		%		70-130	06-MAY-20
m+p-Xylenes			103.6		%		70-130	06-MAY-20
WG3318519-3 LCS								
F1 (C6-C10)			107.7		%		70-130	06-MAY-20
WG3318519-1 MB								
Benzene			<0.00050		mg/L		0.0005	06-MAY-20
Toluene			<0.0010		mg/L		0.001	06-MAY-20
Ethyl benzene			<0.00050		mg/L		0.0005	06-MAY-20
o-Xylene			<0.00050		mg/L		0.0005	06-MAY-20
m+p-Xylenes			<0.00040		mg/L		0.0004	06-MAY-20
F1 (C6-C10)			<0.10		mg/L		0.1	06-MAY-20
Surrogate: 4-Bromofluorobenzene (SS)			108.9		%		70-130	06-MAY-20
CL-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-2 LCS								
Chloride (Cl)			98.4		%		90-110	07-MAY-20
WG3319636-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	07-MAY-20
F-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-2 LCS								
Fluoride (F)			97.1		%		90-110	07-MAY-20
WG3319636-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	07-MAY-20
F2-F4-FID-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	**Water**							
Batch R5080583								
WG3319387-2 LCS								
F2 (C10-C16)			107.5		%		70-130	07-MAY-20
F3 (C16-C34)			95.2		%		70-130	07-MAY-20
F4 (C34-C50)			101.9		%		70-130	07-MAY-20
WG3319387-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	07-MAY-20
F3 (C16-C34)			<0.25		mg/L		0.25	07-MAY-20
F4 (C34-C50)			<0.25		mg/L		0.25	07-MAY-20
Surrogate: 2-Bromobenzotrifluoride			99.4		%		60-140	07-MAY-20
MET-D-CCMS-WP	**Water**							
Batch R5080139								
WG3319373-2 LCS								
Aluminum (Al)-Dissolved			103.0		%		80-120	07-MAY-20
Antimony (Sb)-Dissolved			104.7		%		80-120	07-MAY-20
Barium (Ba)-Dissolved			108.0		%		80-120	07-MAY-20
Beryllium (Be)-Dissolved			99.3		%		80-120	07-MAY-20
Bismuth (Bi)-Dissolved			102.9		%		80-120	07-MAY-20
Boron (B)-Dissolved			95.1		%		80-120	07-MAY-20
Cadmium (Cd)-Dissolved			106.0		%		80-120	07-MAY-20
Calcium (Ca)-Dissolved			103.1		%		80-120	07-MAY-20
Cesium (Cs)-Dissolved			110.5		%		80-120	07-MAY-20
Chromium (Cr)-Dissolved			105.0		%		80-120	07-MAY-20
Cobalt (Co)-Dissolved			105.8		%		80-120	07-MAY-20
Copper (Cu)-Dissolved			106.5		%		80-120	07-MAY-20
Iron (Fe)-Dissolved			99.8		%		80-120	07-MAY-20
Lead (Pb)-Dissolved			106.4		%		80-120	07-MAY-20
Lithium (Li)-Dissolved			97.4		%		80-120	07-MAY-20
Magnesium (Mg)-Dissolved			103.1		%		80-120	07-MAY-20
Manganese (Mn)-Dissolved			104.1		%		80-120	07-MAY-20
Molybdenum (Mo)-Dissolved			105.4		%		80-120	07-MAY-20
Nickel (Ni)-Dissolved			103.5		%		80-120	07-MAY-20
Phosphorus (P)-Dissolved			102.1		%		80-120	07-MAY-20
Potassium (K)-Dissolved			98.6		%		80-120	07-MAY-20
Rubidium (Rb)-Dissolved			107.1		%		80-120	07-MAY-20
Selenium (Se)-Dissolved			103.2		%		80-120	07-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5080139								
WG3319373-2 LCS								
Silicon (Si)-Dissolved			108.3		%		80-120	07-MAY-20
Silver (Ag)-Dissolved			108.6		%		80-120	07-MAY-20
Sodium (Na)-Dissolved			104.3		%		80-120	07-MAY-20
Strontium (Sr)-Dissolved			112.4		%		80-120	07-MAY-20
Sulfur (S)-Dissolved			103.8		%		80-120	07-MAY-20
Tellurium (Te)-Dissolved			106.9		%		80-120	07-MAY-20
Thallium (Tl)-Dissolved			102.8		%		80-120	07-MAY-20
Thorium (Th)-Dissolved			103.2		%		80-120	07-MAY-20
Tin (Sn)-Dissolved			102.9		%		80-120	07-MAY-20
Titanium (Ti)-Dissolved			97.2		%		80-120	07-MAY-20
Tungsten (W)-Dissolved			105.8		%		80-120	07-MAY-20
Uranium (U)-Dissolved			105.8		%		80-120	07-MAY-20
Vanadium (V)-Dissolved			105.1		%		80-120	07-MAY-20
Zinc (Zn)-Dissolved			101.0		%		80-120	07-MAY-20
Zirconium (Zr)-Dissolved			101.6		%		80-120	07-MAY-20
WG3319373-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	07-MAY-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	07-MAY-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	07-MAY-20
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	07-MAY-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	07-MAY-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	07-MAY-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	07-MAY-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	07-MAY-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	07-MAY-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	07-MAY-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	07-MAY-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	07-MAY-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5080139								
WG3319373-1 MB								
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	07-MAY-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	07-MAY-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	07-MAY-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	07-MAY-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	07-MAY-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	07-MAY-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	07-MAY-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	07-MAY-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	07-MAY-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	07-MAY-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	07-MAY-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	07-MAY-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	07-MAY-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	07-MAY-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	07-MAY-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	07-MAY-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	07-MAY-20
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319360-2 LCS								
Aluminum (Al)-Total			106.2		%		80-120	12-MAY-20
Antimony (Sb)-Total			107.8		%		80-120	12-MAY-20
Arsenic (As)-Total			105.4		%		80-120	12-MAY-20
Barium (Ba)-Total			106.0		%		80-120	12-MAY-20
Beryllium (Be)-Total			105.5		%		80-120	12-MAY-20
Bismuth (Bi)-Total			107.4		%		80-120	12-MAY-20
Boron (B)-Total			103.6		%		80-120	12-MAY-20
Cadmium (Cd)-Total			106.6		%		80-120	12-MAY-20
Calcium (Ca)-Total			105.0		%		80-120	12-MAY-20
Cesium (Cs)-Total			107.7		%		80-120	12-MAY-20
Chromium (Cr)-Total			105.6		%		80-120	12-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319360-2 LCS								
Cobalt (Co)-Total			105.2		%		80-120	12-MAY-20
Copper (Cu)-Total			106.6		%		80-120	12-MAY-20
Iron (Fe)-Total			101.1		%		80-120	12-MAY-20
Lead (Pb)-Total			104.6		%		80-120	12-MAY-20
Lithium (Li)-Total			105.6		%		80-120	12-MAY-20
Magnesium (Mg)-Total			109.9		%		80-120	12-MAY-20
Manganese (Mn)-Total			106.1		%		80-120	12-MAY-20
Molybdenum (Mo)-Total			105.9		%		80-120	12-MAY-20
Nickel (Ni)-Total			105.3		%		80-120	12-MAY-20
Potassium (K)-Total			102.4		%		80-120	12-MAY-20
Phosphorus (P)-Total			107.7		%		80-120	12-MAY-20
Rubidium (Rb)-Total			103.9		%		80-120	12-MAY-20
Selenium (Se)-Total			105.6		%		80-120	12-MAY-20
Silicon (Si)-Total			106.4		%		80-120	12-MAY-20
Silver (Ag)-Total			104.3		%		80-120	12-MAY-20
Sodium (Na)-Total			108.8		%		80-120	12-MAY-20
Strontium (Sr)-Total			109.3		%		80-120	12-MAY-20
Sulfur (S)-Total			104.0		%		80-120	12-MAY-20
Tellurium (Te)-Total			105.0		%		80-120	12-MAY-20
Thallium (Tl)-Total			104.9		%		80-120	12-MAY-20
Thorium (Th)-Total			107.1		%		80-120	12-MAY-20
Tin (Sn)-Total			104.2		%		80-120	12-MAY-20
Titanium (Ti)-Total			101.4		%		80-120	12-MAY-20
Tungsten (W)-Total			104.8		%		80-120	12-MAY-20
Uranium (U)-Total			109.9		%		80-120	12-MAY-20
Vanadium (V)-Total			106.6		%		80-120	12-MAY-20
Zinc (Zn)-Total			105.8		%		80-120	12-MAY-20
Zirconium (Zr)-Total			100.0		%		80-120	12-MAY-20
WG3319368-2 LCS								
Aluminum (Al)-Total			108.9		%		80-120	12-MAY-20
Antimony (Sb)-Total			108.5		%		80-120	12-MAY-20
Arsenic (As)-Total			106.0		%		80-120	12-MAY-20
Barium (Ba)-Total			105.3		%		80-120	12-MAY-20
Beryllium (Be)-Total			105.1		%		80-120	12-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319368-2 LCS								
Bismuth (Bi)-Total			105.2		%		80-120	12-MAY-20
Boron (B)-Total			104.1		%		80-120	12-MAY-20
Cadmium (Cd)-Total			105.2		%		80-120	12-MAY-20
Calcium (Ca)-Total			103.6		%		80-120	12-MAY-20
Cesium (Cs)-Total			108.0		%		80-120	12-MAY-20
Chromium (Cr)-Total			106.9		%		80-120	12-MAY-20
Cobalt (Co)-Total			104.3		%		80-120	12-MAY-20
Copper (Cu)-Total			103.1		%		80-120	12-MAY-20
Iron (Fe)-Total			97.8		%		80-120	12-MAY-20
Lead (Pb)-Total			105.3		%		80-120	12-MAY-20
Lithium (Li)-Total			106.1		%		80-120	12-MAY-20
Magnesium (Mg)-Total			103.6		%		80-120	12-MAY-20
Manganese (Mn)-Total			106.6		%		80-120	12-MAY-20
Molybdenum (Mo)-Total			108.3		%		80-120	12-MAY-20
Nickel (Ni)-Total			104.0		%		80-120	12-MAY-20
Potassium (K)-Total			98.0		%		80-120	12-MAY-20
Phosphorus (P)-Total			109.8		%		80-120	12-MAY-20
Rubidium (Rb)-Total			106.3		%		80-120	12-MAY-20
Selenium (Se)-Total			104.8		%		80-120	12-MAY-20
Silicon (Si)-Total			106.4		%		80-120	12-MAY-20
Silver (Ag)-Total			105.9		%		80-120	12-MAY-20
Sodium (Na)-Total			106.0		%		80-120	12-MAY-20
Strontium (Sr)-Total			109.3		%		80-120	12-MAY-20
Sulfur (S)-Total			107.7		%		80-120	12-MAY-20
Tellurium (Te)-Total			106.6		%		80-120	12-MAY-20
Thallium (Tl)-Total			105.5		%		80-120	12-MAY-20
Thorium (Th)-Total			104.7		%		80-120	12-MAY-20
Tin (Sn)-Total			104.3		%		80-120	12-MAY-20
Titanium (Ti)-Total			100.1		%		80-120	12-MAY-20
Tungsten (W)-Total			106.1		%		80-120	12-MAY-20
Uranium (U)-Total			106.7		%		80-120	12-MAY-20
Vanadium (V)-Total			106.7		%		80-120	12-MAY-20
Zinc (Zn)-Total			103.4		%		80-120	12-MAY-20
Zirconium (Zr)-Total			104.1		%		80-120	12-MAY-20

[redacted]

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319360-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	12-MAY-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Boron (B)-Total			<0.010		mg/L		0.01	12-MAY-20
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	12-MAY-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	12-MAY-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Iron (Fe)-Total			<0.010		mg/L		0.01	12-MAY-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	12-MAY-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	12-MAY-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Potassium (K)-Total			<0.050		mg/L		0.05	12-MAY-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	12-MAY-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	12-MAY-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Silicon (Si)-Total			<0.10		mg/L		0.1	12-MAY-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Sodium (Na)-Total			<0.050		mg/L		0.05	12-MAY-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	12-MAY-20
Sulfur (S)-Total			<0.50		mg/L		0.5	12-MAY-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	12-MAY-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	12-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319360-1 MB								
Tungsten (W)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	12-MAY-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	12-MAY-20
WG3319368-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	12-MAY-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Boron (B)-Total			<0.010		mg/L		0.01	12-MAY-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	12-MAY-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	12-MAY-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Iron (Fe)-Total			<0.010		mg/L		0.01	12-MAY-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	12-MAY-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	12-MAY-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Potassium (K)-Total			<0.050		mg/L		0.05	12-MAY-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	12-MAY-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	12-MAY-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	12-MAY-20
Silicon (Si)-Total			<0.10		mg/L		0.1	12-MAY-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Sodium (Na)-Total			<0.050		mg/L		0.05	12-MAY-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	12-MAY-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5082164								
WG3319368-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	12-MAY-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	12-MAY-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	12-MAY-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	12-MAY-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	12-MAY-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	12-MAY-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	12-MAY-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	12-MAY-20
N-TOTKJ-WP	**Water**							
Batch R5081559								
WG3321226-11 DUP		**L2443834-1**						
Total Kjeldahl Nitrogen		1.67	1.88		mg/L	12	20	11-MAY-20
WG3321226-10 LCS								
Total Kjeldahl Nitrogen			97.0		%		75-125	11-MAY-20
WG3321226-6 LCS								
Total Kjeldahl Nitrogen			96.5		%		75-125	11-MAY-20
WG3321226-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	11-MAY-20
WG3321226-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	11-MAY-20
WG3321226-12 MS		**L2443834-1**						
Total Kjeldahl Nitrogen			113.5		%		70-130	11-MAY-20
NH3-COL-WP	**Water**							
Batch R5082541								
WG3322759-10 LCS								
Ammonia, Total (as N)			103.0		%		85-115	12-MAY-20
WG3322759-9 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	12-MAY-20
NO2-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-2 LCS								
Nitrite (as N)			97.5		%		90-110	07-MAY-20
WG3319636-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	07-MAY-20
NO3-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-2 LCS								
Nitrate (as N)			98.8		%		90-110	07-MAY-20
WG3319636-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	07-MAY-20
P-T-COL-WP	**Water**							
Batch R5079685								
WG3319139-11 DUP		**L2443834-9**						
Phosphorus (P)-Total		N/A	0.0374		mg/L	0.4	20	07-MAY-20
WG3319139-10 LCS								
Phosphorus (P)-Total			94.0		%		80-120	07-MAY-20
WG3319139-6 LCS								
Phosphorus (P)-Total			93.5		%		80-120	07-MAY-20
WG3319139-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	07-MAY-20
WG3319139-9 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	07-MAY-20
WG3319139-12 MS		**L2443834-10**						
Phosphorus (P)-Total			94.2		%		70-130	07-MAY-20
P-T-L-COL-WP	**Water**							
Batch R5081133								
WG3320846-3 DUP		**L2443834-2**						
Phosphorus (P)-Total		0.0011	0.0011		mg/L	1.8	20	11-MAY-20
WG3320846-2 LCS								
Phosphorus (P)-Total			83.9		%		80-120	11-MAY-20
WG3320846-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	11-MAY-20
WG3320846-4 MS		**L2443834-8**						
Phosphorus (P)-Total			93.3		%		70-130	11-MAY-20
P-TD-COL-WP	**Water**							
Batch R5079685								
WG3319138-7 DUP		**L2443834-10**						
Phosphorus (P)-Total	Dissolved	0.172	0.171		mg/L	1.0	20	07-MAY-20
WG3319138-2 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-WP	**Water**							
Batch R5079685								
WG3319138-2 LCS								
Phosphorus (P)-Total	Dissolved		93.6		%		80-120	07-MAY-20
WG3319138-6 LCS								
Phosphorus (P)-Total	Dissolved		93.7		%		80-120	07-MAY-20
WG3319138-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	07-MAY-20
WG3319138-5 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	07-MAY-20
P-TD-L-COL-WP	**Water**							
Batch R5081133								
WG3320850-3 DUP		**L2443834-2**						
Phosphorus (P)-Total	Dissolved	<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	11-MAY-20
WG3320850-2 LCS								
Phosphorus (P)-Total	Dissolved		83.0		%		80-120	11-MAY-20
WG3320850-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	11-MAY-20
WG3320850-4 MS		**L2443834-3**						
Phosphorus (P)-Total	Dissolved		90.5		%		70-130	11-MAY-20
SO4-IC-N-WP	**Water**							
Batch R5081890								
WG3319636-2 LCS								
Sulfate (SO4)			99.97		%		90-110	07-MAY-20
WG3319636-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	07-MAY-20
SOLIDS-TOTSUS-WP	**Water**							
Batch R5081715								
WG3319261-15 DUP		**L2443834-9**						
Total Suspended Solids		13.3	11.3		mg/L	16	20	07-MAY-20
WG3319261-10 LCS								
Total Suspended Solids			107.5		%		85-115	07-MAY-20
WG3319261-14 LCS								
Total Suspended Solids			101.7		%		85-115	07-MAY-20
WG3319261-13 MB								
Total Suspended Solids			<2.0		mg/L		2	07-MAY-20
WG3319261-9 MB								
Total Suspended Solids			<2.0		mg/L		2	07-MAY-20
TC,EC-QT97-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC-QT97-WP	**Water**							
Batch R5077906								
WG3318286-2 DUP		**L2443834-2**						
Total Coliforms		<1	<1	RPD-NA	MPN/100mL	N/A	65	05-MAY-20
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	05-MAY-20
WG3318286-1 MB								
Total Coliforms			<1		MPN/100mL		1	05-MAY-20
Escherichia Coli			<1		MPN/100mL		1	05-MAY-20
TDS-WP	**Water**							
Batch R5080079								
WG3318503-7 DUP		**L2443834-7**						
Total Dissolved Solids		349	348		mg/L	0.3	20	06-MAY-20
WG3318503-2 LCS								
Total Dissolved Solids			96.8		%		85-115	06-MAY-20
WG3318503-6 LCS								
Total Dissolved Solids			97.4		%		85-115	06-MAY-20
WG3318503-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	06-MAY-20
WG3318503-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	06-MAY-20

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
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

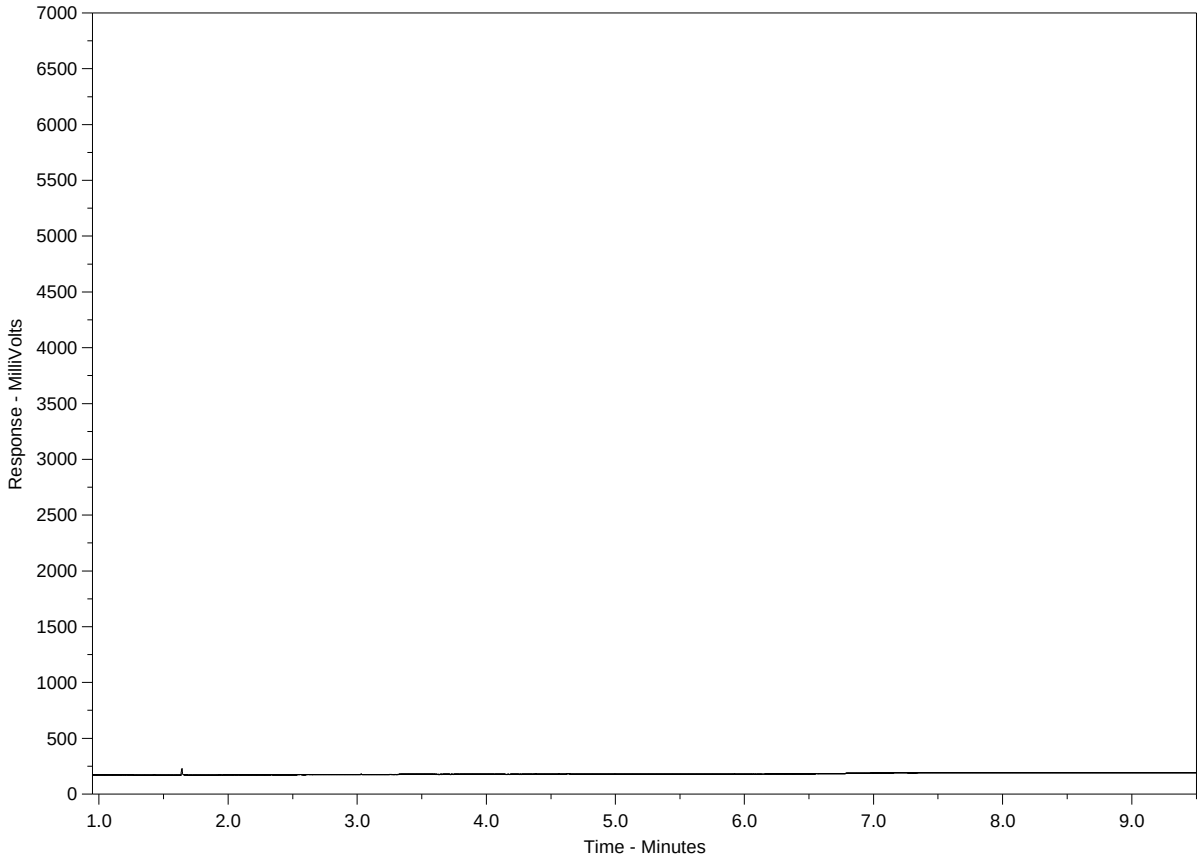
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

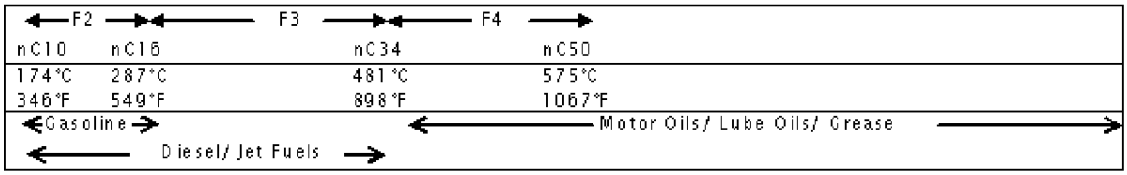
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2443834-1
Client Sample ID: D2





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

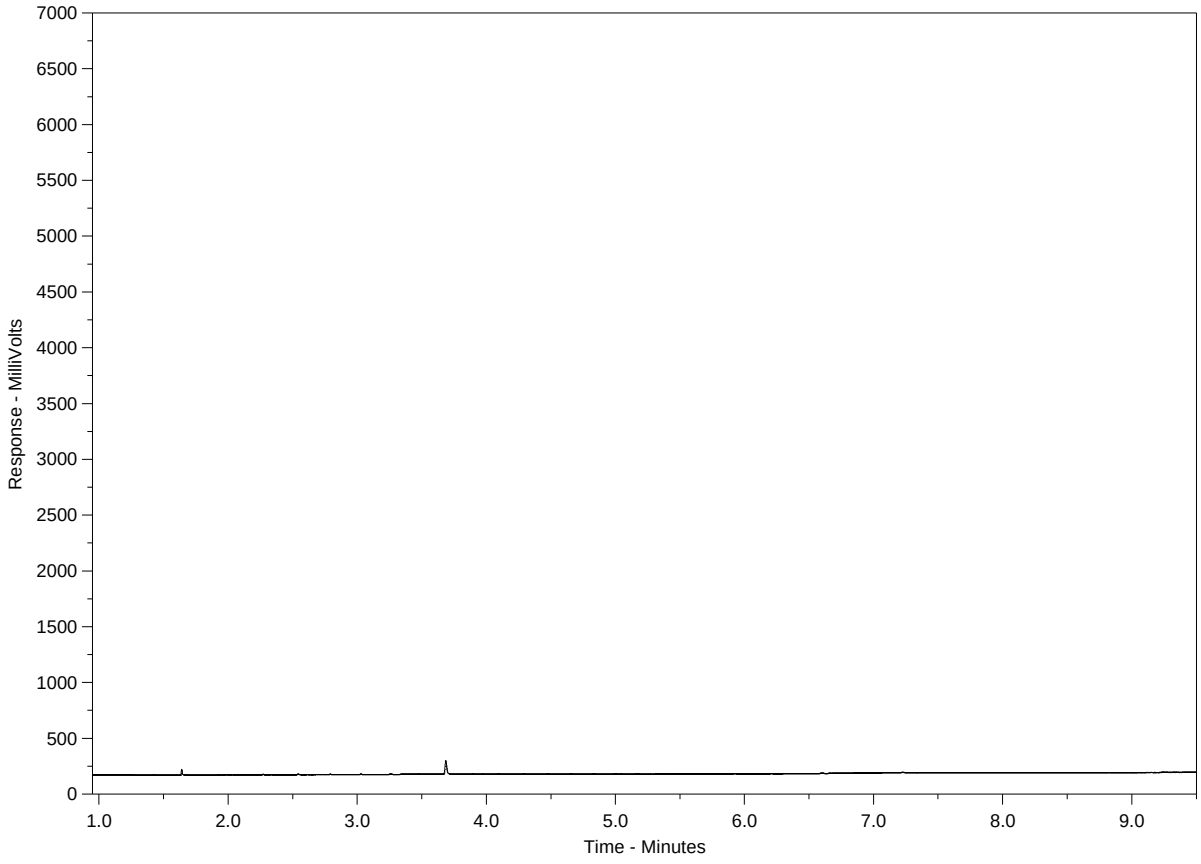
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

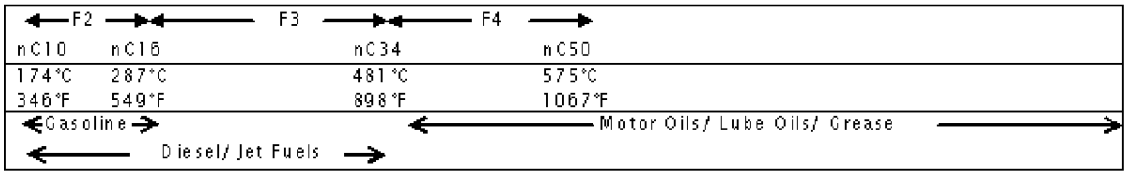
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2443834-2
Client Sample ID: CH19-37





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

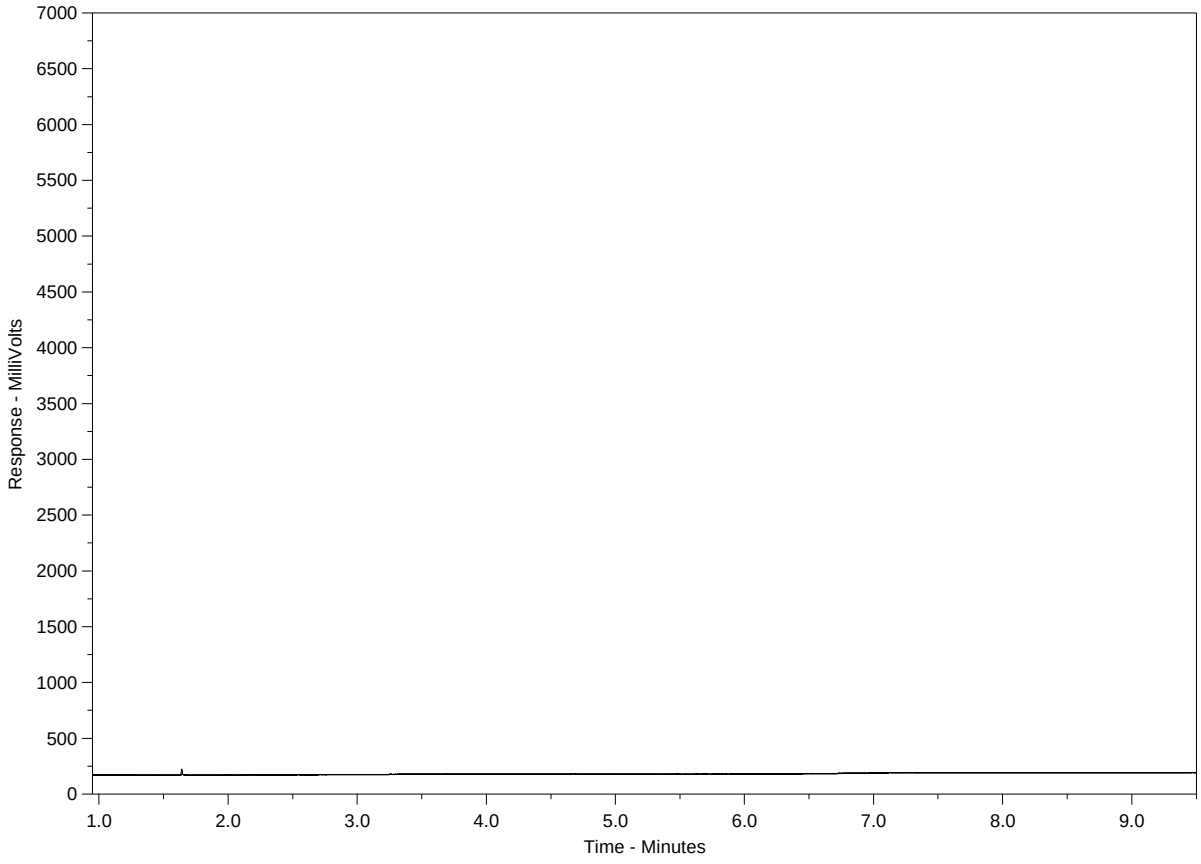
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

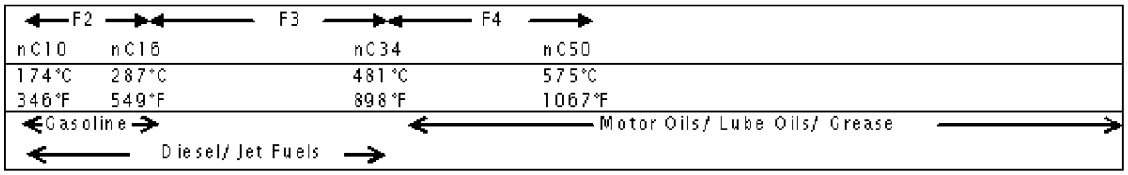
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2443834-3
Client Sample ID: OW19-23





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

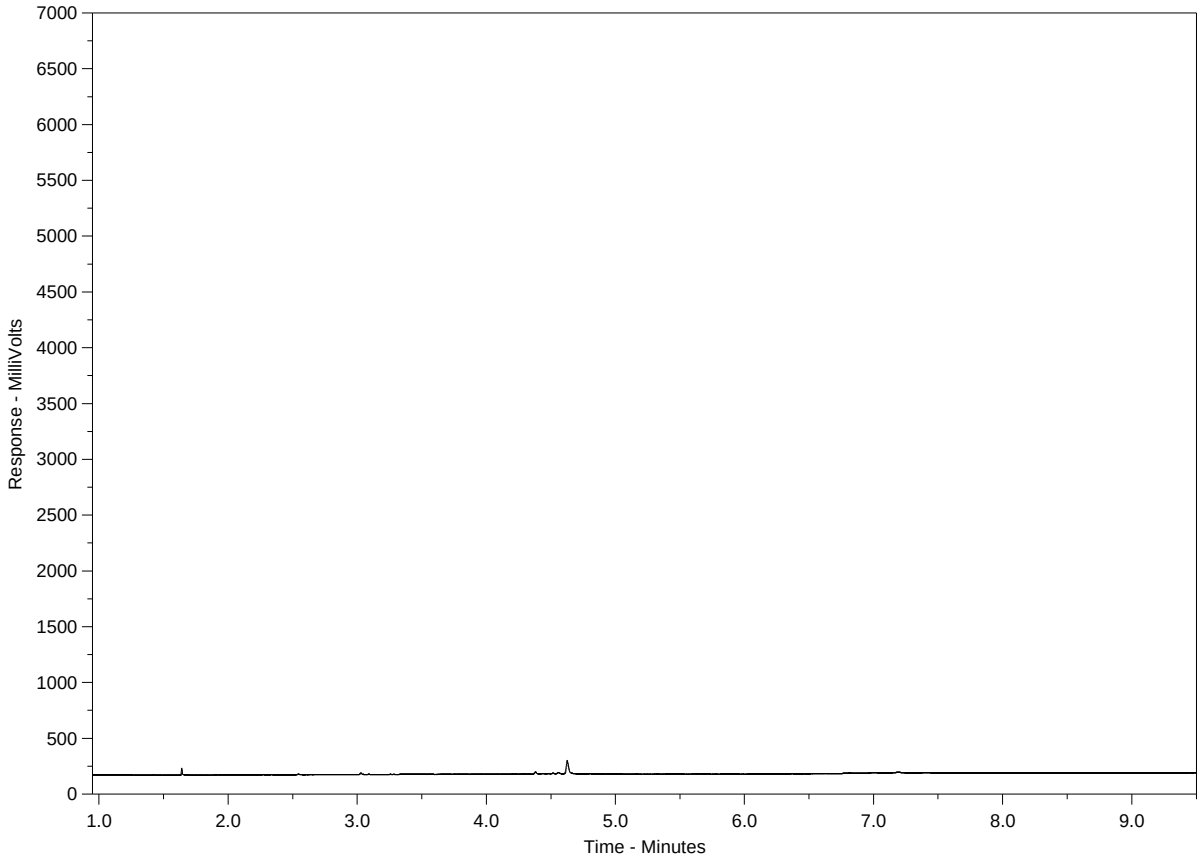
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

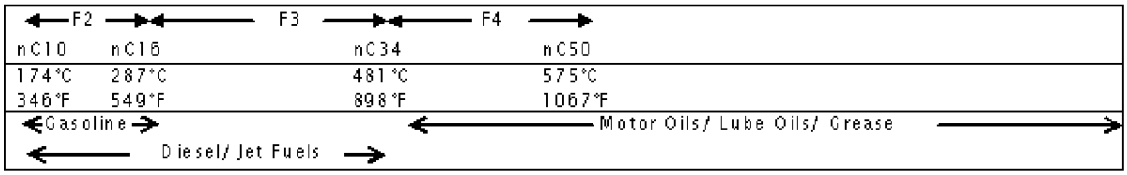
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2443834-4
Client Sample ID: D4





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

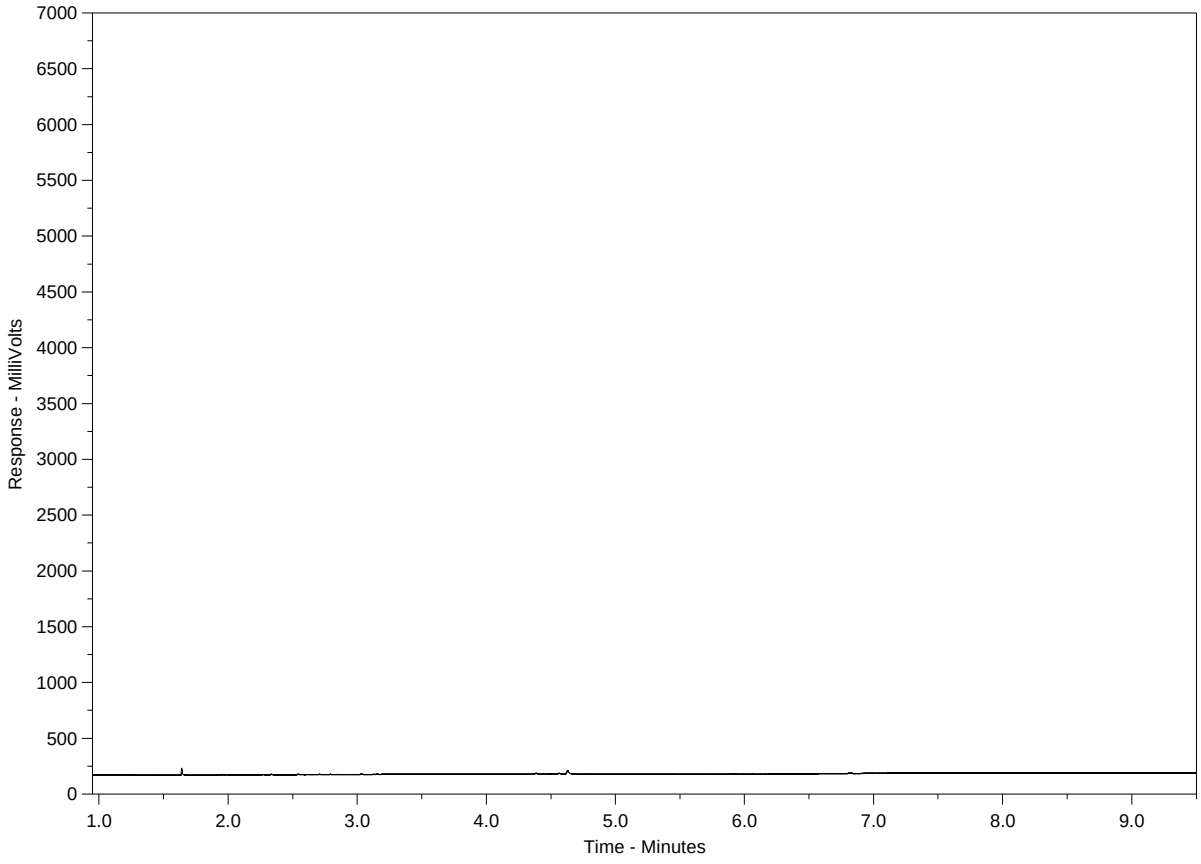
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

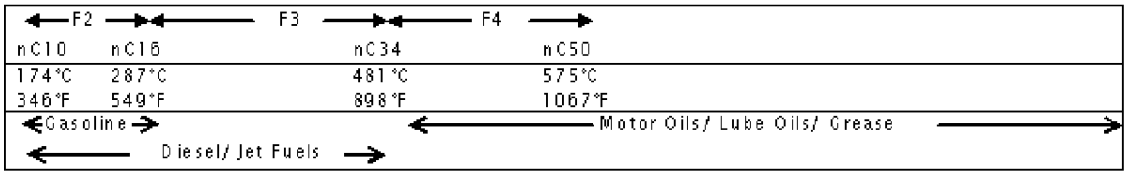
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2443834-5
Client Sample ID: D11





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

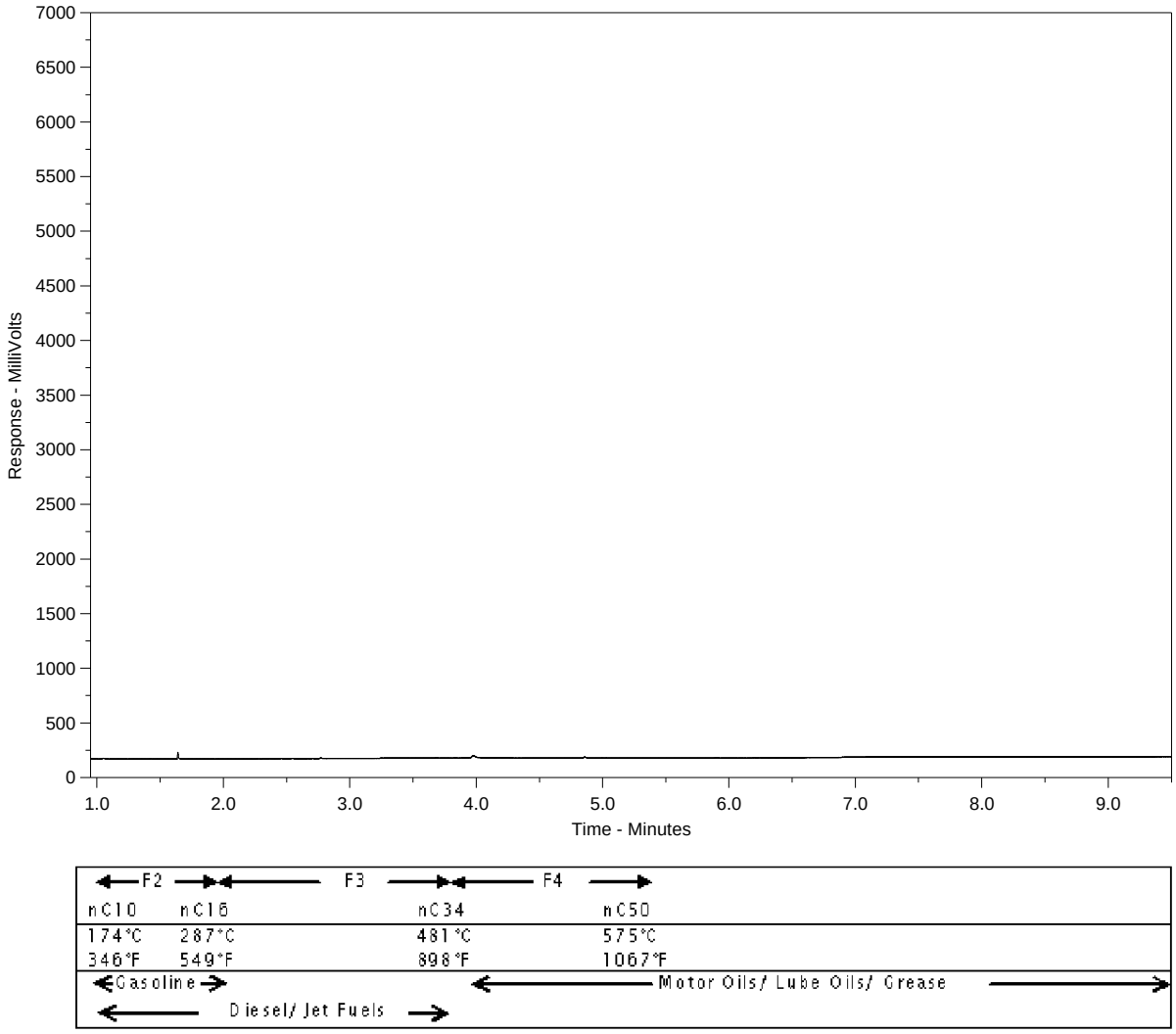
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2443834-6
Client Sample ID: CH19-08



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

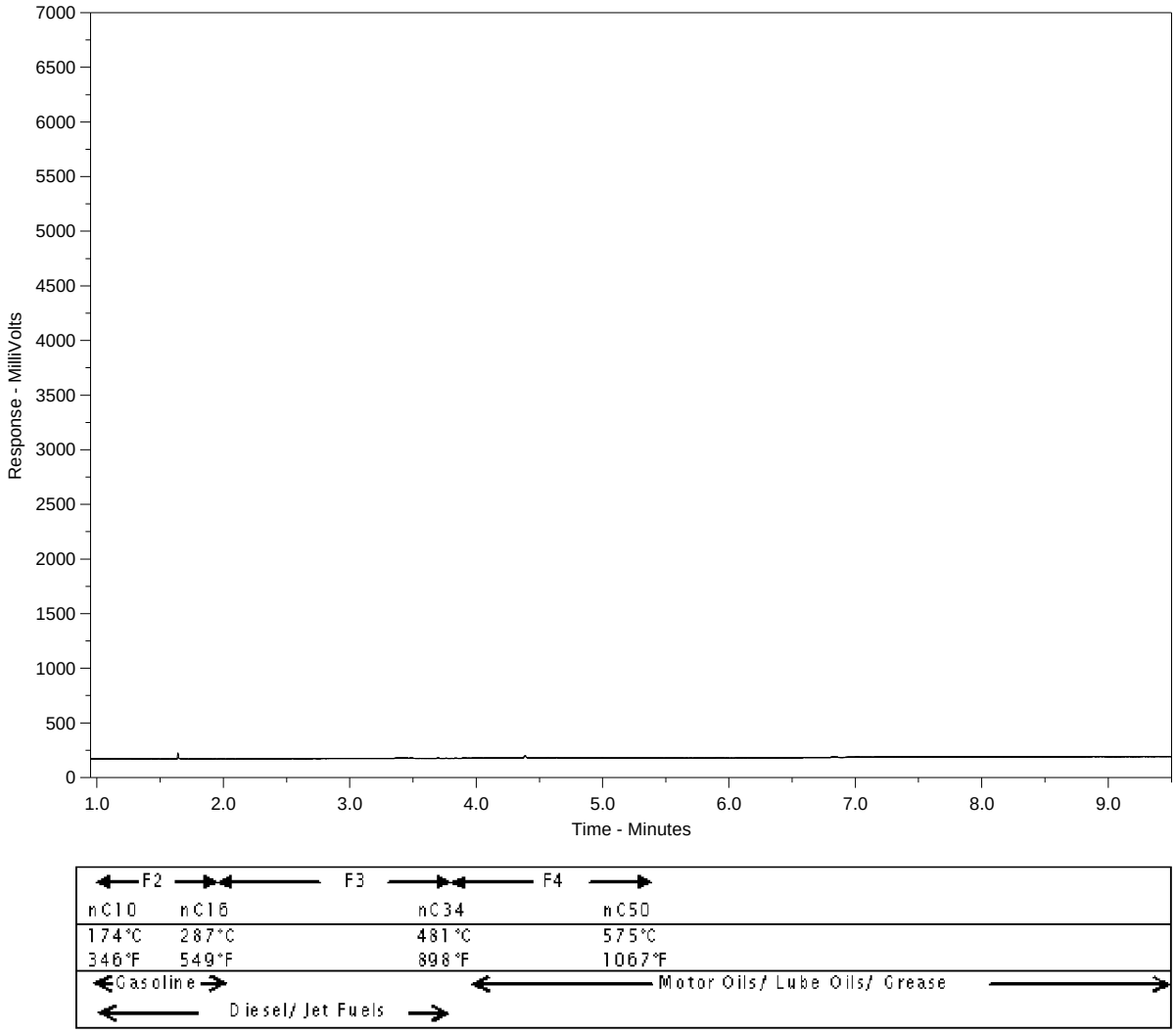
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2443834-7
Client Sample ID: D8



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

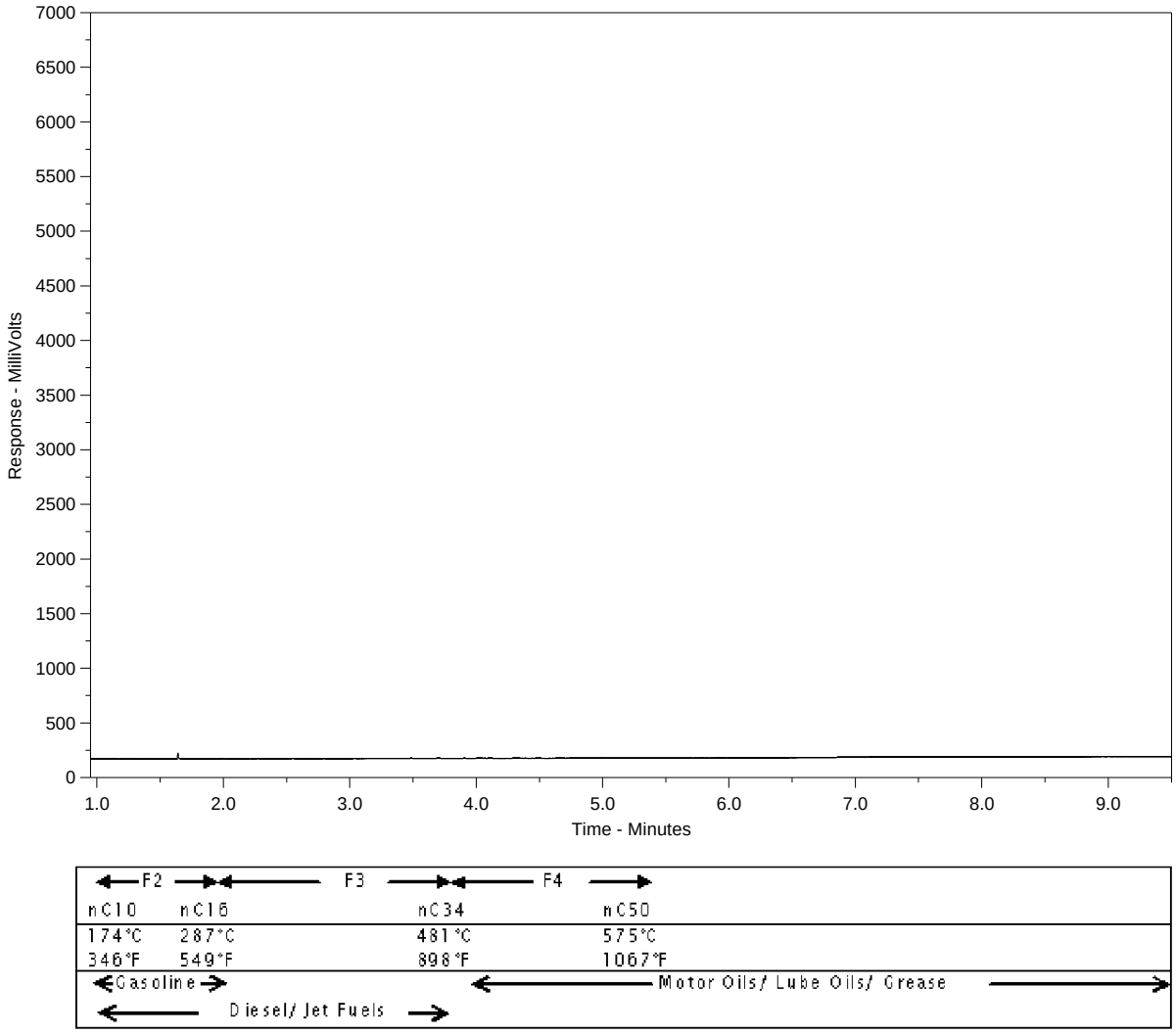
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2443834-8
Client Sample ID: OW19-18



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

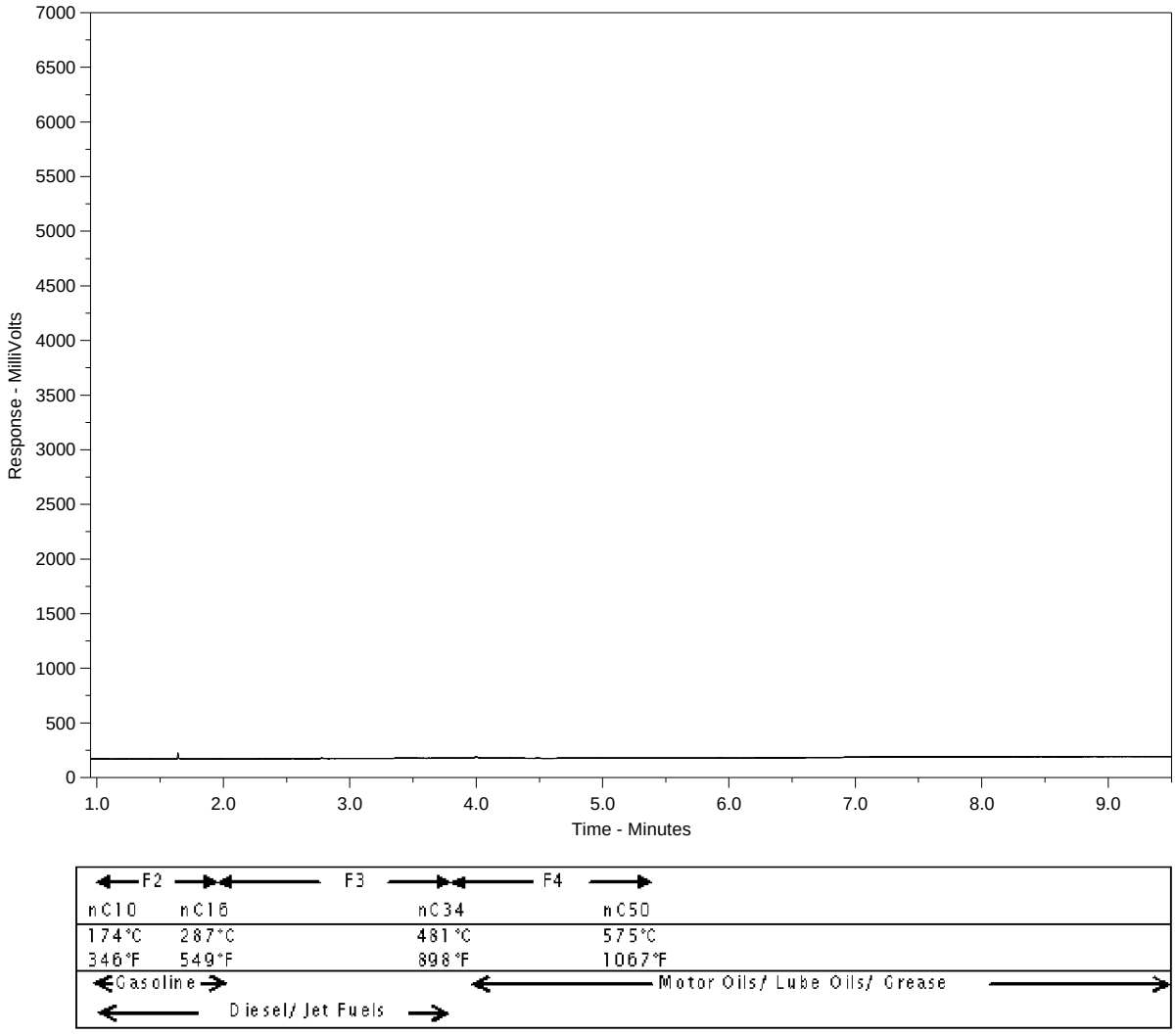
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2443834-9
Client Sample ID: BH19-12



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

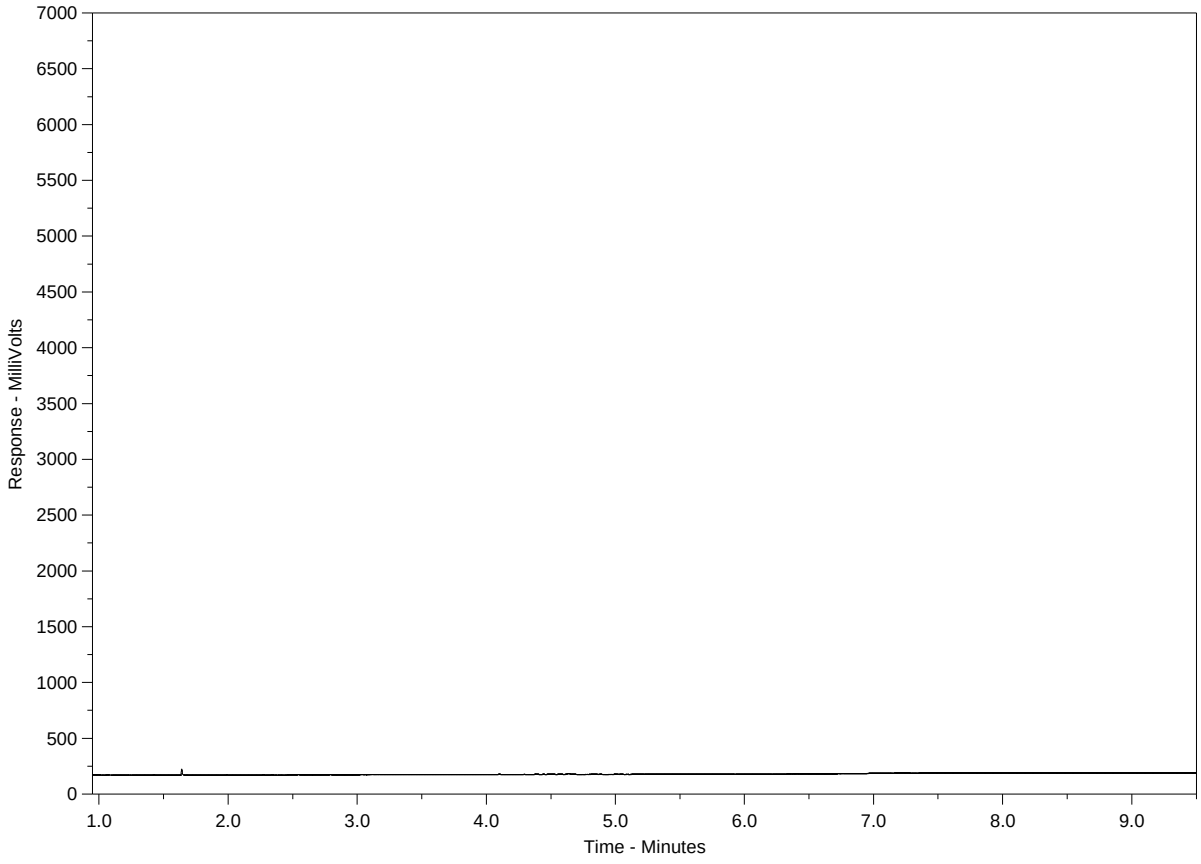
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

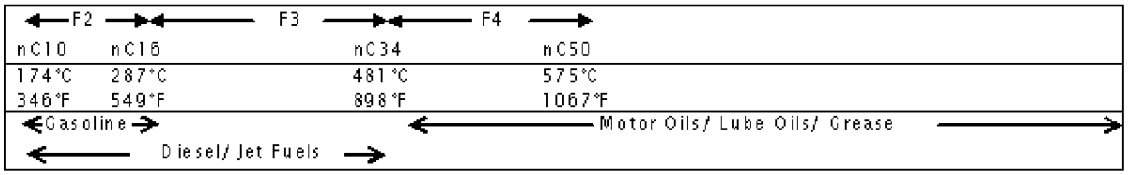
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2443834-10
Client Sample ID: QC-01





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

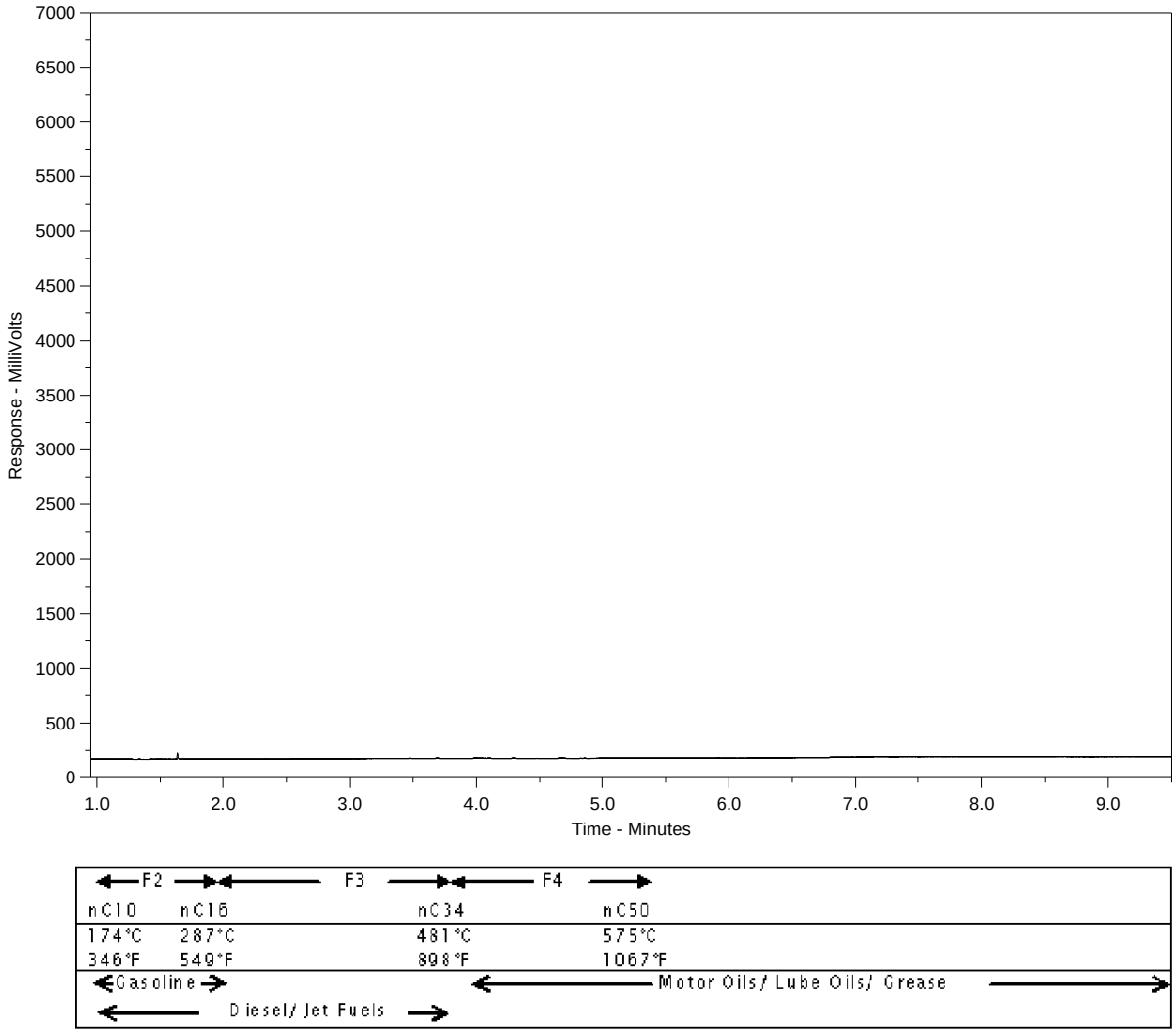
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2443834-11
Client Sample ID: QC-02



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.

ALS Environmental

Chain of Custody / Analytical Req
Canada Toll Free: 1 800 668
www.alsglobal.com

L2443834-COFC

Page 1 of 1

Report To		Report Format / Distribution	Service requested (Rush/Emergency analysis subject to availability)
Company:	Stantec - W2077	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON	☑ PDF ☑ Excel ☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave	Email 1: tassia.stainton@stantec.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9	Email 2: karen.mathers@stantec.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615 Fax:	Email 3:	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 111475107	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q74061	
Lab Work Order # (lab use only)		ALS Contact:	Sampler: BE/AR

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	NH3-COL-WP + N-TOTKJ-W	P-T-COL-WP + P-TD-COL-W	P-TPART-CALC-WP	TSS + TDS	TC,EC-QT97-WP	Number of Containers
							P	P		F/P	P	P	P	P		P	
	D2	04-MAY-20	11:47	~~Water~~ Tissue	X	X	X	X	X	X	X	X	X	X	X	X	11
	CH19-37	04-MAY-20	14:43	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	OW19-23	04-MAY-20	15:40	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	D4	04-MAY-20	16:40	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	D11	04-MAY-20	17:45	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	CH19-09	05-MAY-20	09:09	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	D8	05-MAY-20	09:44	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	OW19-18	05-MAY-20	10:23	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	BH19-12	05-MAY-20	12:00	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	QC-01	04-MAY-20	—	water	X	X	X	X	X	X	X	X	X	X	X	X	11
	QC-02	04-MAY-20	—	water	X	X	X	X	X	X	X	X	X	X	X	X	11

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Adam Rockall	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	05-MAY-20	16:05		May 5	455	8.1 °C				

GENF 18.01 Front

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 07-MAY-20
Report Date: 25-MAY-20 11:01 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2444978

Project P.O. #: 111475107
Job Reference: 111475107
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2444978-1 D3							
Sampled By: BE/AR on 06-MAY-20 @ 15:09							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	297		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	244		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.54		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.106		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	0.032		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	55.7		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		12-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		12-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		12-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	103.2		70-130	%		12-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	94.4		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.022		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	319		0.20	mg/L		15-MAY-20	
Phosphorus (P)-Total	0.0519		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0184		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Particulate	0.0335		0.0042	mg/L		11-MAY-20	
Total Dissolved Solids	352		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	1.70		0.20	mg/L	21-MAY-20	22-MAY-20	R5095077
Total Nitrogen	1.70		0.20	mg/L		22-MAY-20	
Total Suspended Solids	2.9		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	105	MBHT	1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1	MBHT	1	MPN/100mL		08-MAY-20	R5080985

* 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
L2444978-1 D3							
Sampled By: BE/AR on 06-MAY-20 @ 15:09							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0157		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00109		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0190		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.053		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	31.4		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.027		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	0.000063		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0162		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	58.6		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.0169		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.000500		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	10.7		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	0.052		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00387		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	0.000061		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	2.75		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	11.5		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.0725		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	22.7		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00065		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.000707		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00069		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0019		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	0.00012		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00104		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0216		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.062		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	30.0		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-1 D3							
Sampled By: BE/AR on 06-MAY-20 @ 15:09							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00143		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	0.018		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	0.000053		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0157		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	59.3		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.0105		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.000532		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	10.9		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00396		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000081		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	2.66		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	11.2		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.0697		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	22.2		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.000747		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	0.00052		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0030		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-2 D10							
Sampled By: BE/AR on 06-MAY-20 @ 16:07							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	186		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	153		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.44		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.135		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							

* 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
L2444978-2 D10							
Sampled By: BE/AR on 06-MAY-20 @ 16:07							
Matrix: WATER							
Sulfate in Water by IC							
Sulfate (SO4)	48.7		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	97.2		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	97.7		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	225		0.20	mg/L		21-MAY-20	
Phosphorus (P)-Total	0.0505		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0207		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Particulate	0.0299		0.0042	mg/L		11-MAY-20	
Total Dissolved Solids	257		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	1.09		0.20	mg/L	21-MAY-20	22-MAY-20	R5095077
Total Nitrogen	1.09		0.20	mg/L		22-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	866	MBHT	1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	2	MBHT	1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0165		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00084		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0223		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.058		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	34.8		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	0.00011		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	0.00056		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.055		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0113		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	34.4		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257

* 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
L2444978-2 D10							
Sampled By: BE/AR on 06-MAY-20 @ 16:07							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.0182		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.000872		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	0.00059		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	7.27		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	0.083		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00293		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	0.000123		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	2.73		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	6.45		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.104		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	20.1		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00080		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00129		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00078		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00071		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0247		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.062		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	33.2		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00177	RRV	0.00020	mg/L	12-MAY-20	20-MAY-20	R5094087
Iron (Fe)-Dissolved	0.030		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0108		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	34.4		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.00309		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.000793		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	0.00052		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	7.22		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00290		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000109		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	2.94		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	6.08		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-2 D10							
Sampled By: BE/AR on 06-MAY-20 @ 16:07							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.0980		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	21.4		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00129		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	0.00055		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0141	RRV	0.0010	mg/L	12-MAY-20	20-MAY-20	R5094087
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-3 BH19-29							
Sampled By: BE/AR on 07-MAY-20 @ 08:25							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	103		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	84.1		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.2		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.803		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	129		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	100.3		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	92.1		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	

* 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
L2444978-3 BH19-29							
Sampled By: BE/AR on 07-MAY-20 @ 08:25							
Matrix: WATER							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.160		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	315		0.20	mg/L		15-MAY-20	
Phosphorus (P)-Total	0.0024		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Dissolved	0.0023		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		22-MAY-20	
Total Dissolved Solids	428		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	21-MAY-20	22-MAY-20	R5095077
Total Nitrogen	<0.20		0.20	mg/L		22-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	MBHT	1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1	MBHT	1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00212		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0225		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.603		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	57.3		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	0.00034		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	0.00024		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.130		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0294		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	41.3		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.0130		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.00114		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	7.81		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00352		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	5.57		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	46.1		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.462		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	53.0		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00111		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2444978-3 BH19-29							
Sampled By: BE/AR on 07-MAY-20 @ 08:25							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00199		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0224		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.585		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	56.1		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	0.000012		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	0.00022		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	0.113		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0279		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	42.4		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.0128		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.00109		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	7.65		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00354		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	5.37		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	44.0		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.444		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	50.2		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	0.00015		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00110		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-4 OW19-05							
Sampled By: BE/AR on 07-MAY-20 @ 10:05							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1200		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2444978-4 OW19-05							
Sampled By: BE/AR on 07-MAY-20 @ 10:05							
Matrix: WATER							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	983		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.1		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.580		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	112		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		12-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		12-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		12-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		12-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	100.7		70-130	%		12-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	91.7		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	267		0.20	mg/L		15-MAY-20	
Phosphorus (P)-Total	0.0148		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0013		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Particulate	0.0136		0.0032	mg/L		25-MAY-20	
Total Dissolved Solids	385		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-MAY-20	15-MAY-20	R5087320
Total Nitrogen	<0.20		0.20	mg/L		15-MAY-20	
Total Suspended Solids	32.1		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1		1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0907		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	0.00017		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2444978-4 OW19-05							
Sampled By: BE/AR on 07-MAY-20 @ 10:05							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00146		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0436		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.455		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	48.4		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	0.000034		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	0.00026		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	0.00014		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	0.00067		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.471		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	0.000252		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0206		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	40.0		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.0397		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.00496		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	6.89		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00399		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	4.32		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	46.9		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.360		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	43.5		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	0.00015		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	0.00113		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00407		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	0.00343		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.000223		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00080		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	0.00031		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00100		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0449		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.459		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	44.5		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	0.000022		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-4 OW19-05							
Sampled By: BE/AR on 07-MAY-20 @ 10:05							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00036		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	0.187		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0199		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	37.8		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.0330		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.00464		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	6.71		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00372		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	4.17		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	43.8		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.345		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	41.4		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	0.00033		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	0.00323		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.000131		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0048		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-5 D12							
Sampled By: BE/AR on 07-MAY-20 @ 10:33							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	321		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	263		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	9.54		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.206		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	48.8		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							

* 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
L2444978-5 D12							
Sampled By: BE/AR on 07-MAY-20 @ 10:33							
Matrix: WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	95.4		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	93.5		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.013		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	338		0.20	mg/L		21-MAY-20	
Phosphorus (P)-Total	0.0181		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0117		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Particulate	0.0064		0.0042	mg/L		11-MAY-20	
Total Dissolved Solids	364		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	0.47		0.20	mg/L	14-MAY-20	15-MAY-20	R5087320
Total Nitrogen	0.47		0.20	mg/L		15-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1410		1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	5		1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0045		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00076		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0282		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.066		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	49.5		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.023		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0147		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	53.6		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.00630		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.000814		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	0.00057		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257

* 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
L2444978-5 D12							
Sampled By: BE/AR on 07-MAY-20 @ 10:33							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	6.20		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00259		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	0.000125		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	4.38		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	9.22		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.137		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	21.4		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00252		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00051		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0011		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00069		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0305		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.082		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	47.5		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00178	RRV	0.00020	mg/L	12-MAY-20	20-MAY-20	R5094087
Iron (Fe)-Dissolved	0.027		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0138		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	53.3		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.00544		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.000752		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	0.00053		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	6.22		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00254		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000095		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	4.25		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	8.79		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.129		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	20.2		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-5 D12							
Sampled By: BE/AR on 07-MAY-20 @ 10:33							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00243		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0055		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-6 D6							
Sampled By: BE/AR on 07-MAY-20 @ 10:48							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1070		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	878		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.62		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.211		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	50.0		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	97.9		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	98.7		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							

* 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
L2444978-6 D6							
Sampled By: BE/AR on 07-MAY-20 @ 10:48							
Matrix: WATER							
Ammonia, Total (as N)	0.015		0.010	mg/L		20-MAY-20	R5092849
Hardness (as CaCO3)	349		0.20	mg/L		21-MAY-20	
Phosphorus (P)-Total	0.0118		0.0030	mg/L		14-MAY-20	R5083637
Phosphorus (P)-Total Dissolved	0.0268	RRV	0.0030	mg/L		20-MAY-20	R5092671
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		20-MAY-20	
Total Dissolved Solids	358		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	0.42		0.20	mg/L	14-MAY-20	15-MAY-20	R5087320
Total Nitrogen	0.42		0.20	mg/L		15-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	649		1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	3		1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0289		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00080		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0290		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.064		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	0.0000644		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	50.1		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	0.00014		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	0.00053		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.051		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0148		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	53.6		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.0172		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.000809		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	0.00064		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	6.09		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00270		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	0.000115		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	4.42		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	9.10		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.137		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	21.4		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00138		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00252		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00060		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257

* 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
L2444978-6 D6							
Sampled By: BE/AR on 07-MAY-20 @ 10:48							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0014		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00073		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0311		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.076		0.010	mg/L	12-MAY-20	20-MAY-20	R5094087
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	47.3		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00163	RRV	0.00020	mg/L	12-MAY-20	20-MAY-20	R5094087
Iron (Fe)-Dissolved	0.038		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0153		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	56.1		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.0229		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.000789		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	0.00061		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	6.16		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00259		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000135		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	4.11		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	9.84		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.135		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	19.8		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00267		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0036		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-7 D9							
Sampled By: BE/AR on 07-MAY-20 @ 11:21							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	423		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							

* 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
L2444978-7 D9							
Sampled By: BE/AR on 07-MAY-20 @ 11:21							
Matrix: WATER							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	346		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	103		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.091		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	0.045		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	47.9		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	99.3		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	112.0		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.031		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	160		0.20	mg/L		21-MAY-20	
Phosphorus (P)-Total	0.0089		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0038		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Particulate	0.0051		0.0032	mg/L		25-MAY-20	
Total Dissolved Solids	334		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-MAY-20	15-MAY-20	R5087320
Total Nitrogen	<0.20		0.20	mg/L		15-MAY-20	
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	4		1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1		1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0427		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00091		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0233		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257

* 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
L2444978-7 D9							
Sampled By: BE/AR on 07-MAY-20 @ 11:21							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.053		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	27.9		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	0.00012		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.054		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	0.000067		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0181		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	22.0		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.00525		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.00133		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	0.00054		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	5.20		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00199		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	2.43		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	74.2		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.155		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	18.7		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00164		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00132		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00081		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0013		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00082		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0261		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	0.057		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	27.5		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00187	RRV	0.00020	mg/L	12-MAY-20	20-MAY-20	R5094087
Iron (Fe)-Dissolved	0.047		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0169		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-7 D9							
Sampled By: BE/AR on 07-MAY-20 @ 11:21							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	22.2		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.00426		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.00127		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	5.27		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00188		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000053		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	2.31		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	69.8		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.146		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	18.8		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00133		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	0.00051		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0030		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-8 CH19-08							
Sampled By: BE/AR on 07-MAY-20 @ 11:43							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	366		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	300		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	9.82		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.236		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	131		0.30	mg/L		08-MAY-20	R5082045
Miscellaneous Parameters							
Phosphorus (P)-Total	0.0027		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		22-MAY-20	
Total Dissolved Solids	475		20	mg/L		11-MAY-20	R5082478

* 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
L2444978-8 CH19-08							
Sampled By: BE/AR on 07-MAY-20 @ 11:43							
Matrix: WATER							
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
L2444978-9 D1							
Sampled By: BE/AR on 06-MAY-20 @ 11:35							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	161		1.2	mg/L		11-MAY-20	
Alkalinity, Carbonate							
Carbonate (CO3)	2.16		0.60	mg/L		11-MAY-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-MAY-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	135		1.0	mg/L		08-MAY-20	R5081287
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	134		0.50	mg/L		08-MAY-20	R5082045
Fluoride in Water by IC							
Fluoride (F)	0.113		0.020	mg/L		08-MAY-20	R5082045
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-MAY-20	R5082045
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-MAY-20	R5082045
Sulfate in Water by IC							
Sulfate (SO4)	53.3		0.30	mg/L		08-MAY-20	R5082045
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	97.2		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	101.9		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	189		0.20	mg/L		21-MAY-20	
Phosphorus (P)-Total	0.0179		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Dissolved	0.0051		0.0030	mg/L		11-MAY-20	R5081157
Phosphorus (P)-Total Particulate	0.0128		0.0042	mg/L		11-MAY-20	
Total Dissolved Solids	435		20	mg/L		11-MAY-20	R5082478
Total Kjeldahl Nitrogen	1.01		0.20	mg/L	21-MAY-20	22-MAY-20	R5095077
Total Nitrogen	1.01		0.20	mg/L		22-MAY-20	

* 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
L2444978-9 D1							
Sampled By: BE/AR on 06-MAY-20 @ 11:35							
Matrix: WATER							
Total Suspended Solids	<2.0		2.0	mg/L		11-MAY-20	R5081743
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	PEHT	1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1	PEHT	1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0236		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	0.00012		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	0.00125		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	0.0298		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	0.069		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	0.0000056		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	31.9		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	0.026		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	0.000067		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	0.0241		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	27.4		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	0.00417		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	0.00161		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	0.00056		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	7.05		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	0.00288		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	0.000062		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	2.76		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	95.8		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	0.195		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	21.1		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	0.00085		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	0.00134		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Vanadium (V)-Total	0.00099		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	0.0031		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	0.00117		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	0.0308		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321

* 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
L2444978-9 D1							
Sampled By: BE/AR on 06-MAY-20 @ 11:35							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	0.072		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	30.3		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	0.00217	RRV	0.00020	mg/L	12-MAY-20	20-MAY-20	R5094087
Iron (Fe)-Dissolved	0.012		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	0.0224		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	27.5		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	0.00065		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	0.00146		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	7.08		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	0.00285		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	0.000064		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	2.67		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	90.9		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	0.185		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	20.2		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	0.00128		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	0.00069		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	0.0043		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
L2444978-10 TRIP BLANK							
Sampled By: BE/AR							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
Toluene	<0.0010		0.0010	mg/L		08-MAY-20	R5083587
Ethyl benzene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
o-Xylene	<0.00050		0.00050	mg/L		08-MAY-20	R5083587
m+p-Xylenes	<0.00040		0.00040	mg/L		08-MAY-20	R5083587
F1 (C6-C10)	<0.10		0.10	mg/L		08-MAY-20	R5083587
Surrogate: 4-Bromofluorobenzene (SS)	103.8		70-130	%		08-MAY-20	R5083587
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-MAY-20	09-MAY-20	R5081518
F3 (C16-C34)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
F4 (C34-C50)	<0.25		0.25	mg/L	08-MAY-20	09-MAY-20	R5081518
Surrogate: 2-Bromobenzotrifluoride	92.4		60-140	%	08-MAY-20	09-MAY-20	R5081518
CCME Total 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
L2444978-10 TRIP BLANK							
Sampled By: BE/AR							
Matrix: WATER							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		14-MAY-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		14-MAY-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		14-MAY-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		15-MAY-20	R5087336
Hardness (as CaCO3)	<0.20		0.20	mg/L		15-MAY-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		22-MAY-20	R5095040
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		22-MAY-20	
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-MAY-20	15-MAY-20	R5087320
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-MAY-20	R5080985
Escherichia Coli	<1		1	MPN/100mL		08-MAY-20	R5080985
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Arsenic (As)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Barium (Ba)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Boron (B)-Total	<0.010		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Calcium (Ca)-Total	<0.050		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Iron (Fe)-Total	<0.010		0.010	mg/L	13-MAY-20	14-MAY-20	R5086257
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Lithium (Li)-Total	<0.0010		0.0010	mg/L	13-MAY-20	14-MAY-20	R5086257
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	13-MAY-20	14-MAY-20	R5086257
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Potassium (K)-Total	<0.050		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-MAY-20	14-MAY-20	R5086257
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-MAY-20	14-MAY-20	R5086257
Silicon (Si)-Total	<0.10		0.10	mg/L	13-MAY-20	14-MAY-20	R5086257
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Sodium (Na)-Total	<0.050		0.050	mg/L	13-MAY-20	14-MAY-20	R5086257
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Sulfur (S)-Total	<0.50		0.50	mg/L	13-MAY-20	14-MAY-20	R5086257
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	13-MAY-20	14-MAY-20	R5086257
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-MAY-20	14-MAY-20	R5086257
Uranium (U)-Total	<0.000010		0.000010	mg/L	13-MAY-20	14-MAY-20	R5086257

* 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
L2444978-10 TRIP BLANK							
Sampled By: BE/AR							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	13-MAY-20	14-MAY-20	R5086257
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-MAY-20	14-MAY-20	R5086257
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-MAY-20	14-MAY-20	R5086257
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					12-MAY-20	R5082223
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Boron (B)-Dissolved	<0.010		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	12-MAY-20	13-MAY-20	R5083321
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	12-MAY-20	13-MAY-20	R5083321
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	12-MAY-20	13-MAY-20	R5083321
Potassium (K)-Dissolved	<0.050		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sodium (Na)-Dissolved	0.086		0.050	mg/L	12-MAY-20	13-MAY-20	R5083321
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	12-MAY-20	13-MAY-20	R5083321
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	12-MAY-20	13-MAY-20	R5083321
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	12-MAY-20	13-MAY-20	R5083321
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	12-MAY-20	13-MAY-20	R5083321
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	12-MAY-20	13-MAY-20	R5083321
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	12-MAY-20	13-MAY-20	R5083321
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	12-MAY-20	13-MAY-20	R5083321

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP	Water	Hardness Calculated	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.

MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-T-L-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TD-L-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

P-TPART-L-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5081287								
WG3321263-19 LCS								
Alkalinity, Total (as CaCO3)			98.5		%		85-115	08-MAY-20
WG3321263-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	08-MAY-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5083587								
WG3320311-2 LCS								
Benzene			74.1		%		70-130	08-MAY-20
Toluene			71.8		%		70-130	08-MAY-20
Ethyl benzene			70.9		%		70-130	08-MAY-20
o-Xylene			74.4		%		70-130	08-MAY-20
m+p-Xylenes			76.7		%		70-130	08-MAY-20
WG3320311-3 LCS								
F1 (C6-C10)			79.9		%		70-130	08-MAY-20
WG3320311-1 MB								
Benzene			<0.00050		mg/L		0.0005	08-MAY-20
Toluene			<0.0010		mg/L		0.001	08-MAY-20
Ethyl benzene			<0.00050		mg/L		0.0005	08-MAY-20
o-Xylene			<0.00050		mg/L		0.0005	08-MAY-20
m+p-Xylenes			<0.00040		mg/L		0.0004	08-MAY-20
F1 (C6-C10)			<0.10		mg/L		0.1	08-MAY-20
Surrogate: 4-Bromofluorobenzene (SS)			89.6		%		70-130	08-MAY-20
CL-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-10 LCS								
Chloride (Cl)			95.5		%		90-110	08-MAY-20
WG3320284-6 LCS								
Chloride (Cl)			100.5		%		90-110	08-MAY-20
WG3320284-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	08-MAY-20
WG3320284-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	08-MAY-20
F-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-10 LCS								
Fluoride (F)			93.6		%		90-110	08-MAY-20
WG3320284-6 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-6 LCS								
Fluoride (F)			100.2		%		90-110	08-MAY-20
WG3320284-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	08-MAY-20
WG3320284-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	08-MAY-20
F2-F4-FID-WP	**Water**							
Batch R5081518								
WG3320558-2 LCS								
F2 (C10-C16)			110.2		%		70-130	09-MAY-20
F3 (C16-C34)			95.2		%		70-130	09-MAY-20
F4 (C34-C50)			91.3		%		70-130	09-MAY-20
WG3320558-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	09-MAY-20
F3 (C16-C34)			<0.25		mg/L		0.25	09-MAY-20
F4 (C34-C50)			<0.25		mg/L		0.25	09-MAY-20
Surrogate: 2-Bromobenzotrifluoride			102.4		%		60-140	09-MAY-20
MET-D-CCMS-WP	**Water**							
Batch R5083321								
WG3322480-2 LCS								
Aluminum (Al)-Dissolved			104.1		%		80-120	13-MAY-20
Antimony (Sb)-Dissolved			100.6		%		80-120	13-MAY-20
Arsenic (As)-Dissolved			101.0		%		80-120	13-MAY-20
Barium (Ba)-Dissolved			103.1		%		80-120	13-MAY-20
Beryllium (Be)-Dissolved			102.8		%		80-120	13-MAY-20
Bismuth (Bi)-Dissolved			101.6		%		80-120	13-MAY-20
Boron (B)-Dissolved			99.3		%		80-120	13-MAY-20
Cadmium (Cd)-Dissolved			102.6		%		80-120	13-MAY-20
Calcium (Ca)-Dissolved			101.5		%		80-120	13-MAY-20
Cesium (Cs)-Dissolved			107.5		%		80-120	13-MAY-20
Chromium (Cr)-Dissolved			101.6		%		80-120	13-MAY-20
Cobalt (Co)-Dissolved			100.5		%		80-120	13-MAY-20
Copper (Cu)-Dissolved			102.7		%		80-120	13-MAY-20
Iron (Fe)-Dissolved			97.0		%		80-120	13-MAY-20
Lead (Pb)-Dissolved			101.7		%		80-120	13-MAY-20
Lithium (Li)-Dissolved			103.3		%		80-120	13-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5083321								
WG3322480-2 LCS								
Magnesium (Mg)-Dissolved			107.7		%		80-120	13-MAY-20
Manganese (Mn)-Dissolved			102.2		%		80-120	13-MAY-20
Molybdenum (Mo)-Dissolved			103.2		%		80-120	13-MAY-20
Nickel (Ni)-Dissolved			100.1		%		80-120	13-MAY-20
Phosphorus (P)-Dissolved			107.2		%		80-120	13-MAY-20
Potassium (K)-Dissolved			98.9		%		80-120	13-MAY-20
Rubidium (Rb)-Dissolved			100.0		%		80-120	13-MAY-20
Selenium (Se)-Dissolved			106.2		%		80-120	13-MAY-20
Silicon (Si)-Dissolved			104.4		%		80-120	13-MAY-20
Silver (Ag)-Dissolved			100.3		%		80-120	13-MAY-20
Sodium (Na)-Dissolved			103.9		%		80-120	13-MAY-20
Strontium (Sr)-Dissolved			104.3		%		80-120	13-MAY-20
Sulfur (S)-Dissolved			95.7		%		80-120	13-MAY-20
Tellurium (Te)-Dissolved			99.3		%		80-120	13-MAY-20
Thallium (Tl)-Dissolved			100.4		%		80-120	13-MAY-20
Thorium (Th)-Dissolved			101.3		%		80-120	13-MAY-20
Tin (Sn)-Dissolved			102.2		%		80-120	13-MAY-20
Titanium (Ti)-Dissolved			100.3		%		80-120	13-MAY-20
Tungsten (W)-Dissolved			99.9		%		80-120	13-MAY-20
Uranium (U)-Dissolved			107.7		%		80-120	13-MAY-20
Vanadium (V)-Dissolved			101.4		%		80-120	13-MAY-20
Zinc (Zn)-Dissolved			97.8		%		80-120	13-MAY-20
Zirconium (Zr)-Dissolved			101.0		%		80-120	13-MAY-20
WG3322480-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	13-MAY-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	13-MAY-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	13-MAY-20
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	13-MAY-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	13-MAY-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	13-MAY-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5083321								
WG3322480-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	13-MAY-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	13-MAY-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	13-MAY-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	13-MAY-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	13-MAY-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	13-MAY-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	13-MAY-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	13-MAY-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	13-MAY-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	13-MAY-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	13-MAY-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	13-MAY-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	13-MAY-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	13-MAY-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	13-MAY-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	13-MAY-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	13-MAY-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	13-MAY-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	13-MAY-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	13-MAY-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	13-MAY-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	13-MAY-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	13-MAY-20
MET-T-CCMS-WP	**Water**							
Batch R5086257								
WG3322548-2 LCS								
Aluminum (Al)-Total			105.3		%		80-120	14-MAY-20
Antimony (Sb)-Total			106.5		%		80-120	14-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5086257								
WG3322548-2 LCS								
Arsenic (As)-Total			103.4		%		80-120	14-MAY-20
Barium (Ba)-Total			104.4		%		80-120	14-MAY-20
Beryllium (Be)-Total			104.0		%		80-120	14-MAY-20
Bismuth (Bi)-Total			104.3		%		80-120	14-MAY-20
Boron (B)-Total			102.0		%		80-120	14-MAY-20
Cadmium (Cd)-Total			105.1		%		80-120	14-MAY-20
Calcium (Ca)-Total			104.7		%		80-120	14-MAY-20
Cesium (Cs)-Total			108.9		%		80-120	14-MAY-20
Chromium (Cr)-Total			104.6		%		80-120	14-MAY-20
Cobalt (Co)-Total			103.6		%		80-120	14-MAY-20
Copper (Cu)-Total			104.7		%		80-120	14-MAY-20
Iron (Fe)-Total			99.5		%		80-120	14-MAY-20
Lead (Pb)-Total			104.5		%		80-120	14-MAY-20
Lithium (Li)-Total			105.7		%		80-120	14-MAY-20
Magnesium (Mg)-Total			104.7		%		80-120	14-MAY-20
Manganese (Mn)-Total			103.8		%		80-120	14-MAY-20
Molybdenum (Mo)-Total			104.2		%		80-120	14-MAY-20
Nickel (Ni)-Total			103.1		%		80-120	14-MAY-20
Potassium (K)-Total			98.3		%		80-120	14-MAY-20
Phosphorus (P)-Total			111.2		%		80-120	14-MAY-20
Rubidium (Rb)-Total			102.0		%		80-120	14-MAY-20
Selenium (Se)-Total			104.7		%		80-120	14-MAY-20
Silicon (Si)-Total			103.0		%		80-120	14-MAY-20
Silver (Ag)-Total			103.3		%		80-120	14-MAY-20
Sodium (Na)-Total			106.2		%		80-120	14-MAY-20
Strontium (Sr)-Total			108.3		%		80-120	14-MAY-20
Sulfur (S)-Total			101.0		%		80-120	14-MAY-20
Tellurium (Te)-Total			99.9		%		80-120	14-MAY-20
Thallium (Tl)-Total			104.5		%		80-120	14-MAY-20
Thorium (Th)-Total			102.1		%		80-120	14-MAY-20
Tin (Sn)-Total			102.8		%		80-120	14-MAY-20
Titanium (Ti)-Total			100.9		%		80-120	14-MAY-20
Tungsten (W)-Total			104.3		%		80-120	14-MAY-20
Uranium (U)-Total			110.1		%		80-120	14-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5086257								
WG3322548-2 LCS								
Vanadium (V)-Total			104.9		%		80-120	14-MAY-20
Zinc (Zn)-Total			102.4		%		80-120	14-MAY-20
Zirconium (Zr)-Total			100.8		%		80-120	14-MAY-20
WG3322548-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	14-MAY-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	14-MAY-20
Boron (B)-Total			<0.010		mg/L		0.01	14-MAY-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	14-MAY-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	14-MAY-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	14-MAY-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	14-MAY-20
Iron (Fe)-Total			<0.010		mg/L		0.01	14-MAY-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	14-MAY-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	14-MAY-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	14-MAY-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	14-MAY-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	14-MAY-20
Potassium (K)-Total			<0.050		mg/L		0.05	14-MAY-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	14-MAY-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	14-MAY-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	14-MAY-20
Silicon (Si)-Total			<0.10		mg/L		0.1	14-MAY-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	14-MAY-20
Sodium (Na)-Total			<0.050		mg/L		0.05	14-MAY-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	14-MAY-20
Sulfur (S)-Total			<0.50		mg/L		0.5	14-MAY-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	14-MAY-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5086257								
WG3322548-1 MB								
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	14-MAY-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	14-MAY-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	14-MAY-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	14-MAY-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	14-MAY-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	14-MAY-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	14-MAY-20
N-TOTKJ-WP	**Water**							
Batch R5087320								
WG3323527-10 LCS								
Total Kjeldahl Nitrogen			91.8		%		75-125	15-MAY-20
WG3323527-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	15-MAY-20
Batch R5095077								
WG3326701-6 LCS								
Total Kjeldahl Nitrogen			96.7		%		75-125	22-MAY-20
WG3326701-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	22-MAY-20
NH3-COL-WP	**Water**							
Batch R5087336								
WG3324297-6 LCS								
Ammonia, Total (as N)			95.6		%		85-115	15-MAY-20
WG3324297-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	15-MAY-20
Batch R5092849								
WG3326116-2 LCS								
Ammonia, Total (as N)			105.2		%		85-115	20-MAY-20
WG3326116-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	20-MAY-20
NO2-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-10 LCS								
Nitrite (as N)			97.2		%		90-110	08-MAY-20
WG3320284-6 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-6 LCS								
Nitrite (as N)			101.5		%		90-110	08-MAY-20
WG3320284-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	08-MAY-20
WG3320284-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	08-MAY-20
NO3-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-10 LCS								
Nitrate (as N)			94.6		%		90-110	08-MAY-20
WG3320284-6 LCS								
Nitrate (as N)			100.1		%		90-110	08-MAY-20
WG3320284-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	08-MAY-20
WG3320284-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	08-MAY-20
P-T-COL-WP	**Water**							
Batch R5081157								
WG3320882-14 LCS								
Phosphorus (P)-Total			93.6		%		80-120	11-MAY-20
WG3320882-13 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	11-MAY-20
Batch R5083637								
WG3323249-2 LCS								
Phosphorus (P)-Total			93.0		%		80-120	14-MAY-20
WG3323249-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	14-MAY-20
P-T-L-COL-WP	**Water**							
Batch R5095040								
WG3327173-2 LCS								
Phosphorus (P)-Total			110.5		%		80-120	22-MAY-20
WG3327173-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	22-MAY-20
P-TD-COL-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-WP	**Water**							
Batch R5081157								
WG3320867-2 LCS								
Phosphorus (P)-Total	Dissolved		93.0		%		80-120	11-MAY-20
WG3320867-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	11-MAY-20
Batch R5092671								
WG3325724-2 LCS								
Phosphorus (P)-Total	Dissolved		93.7		%		80-120	20-MAY-20
WG3325724-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	20-MAY-20
P-TD-L-COL-WP	**Water**							
Batch R5095040								
WG3327297-2 LCS								
Phosphorus (P)-Total	Dissolved		102.4		%		80-120	22-MAY-20
WG3327297-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	22-MAY-20
SO4-IC-N-WP	**Water**							
Batch R5082045								
WG3320284-10 LCS								
Sulfate (SO4)			93.8		%		90-110	08-MAY-20
WG3320284-6 LCS								
Sulfate (SO4)			100.5		%		90-110	08-MAY-20
WG3320284-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	08-MAY-20
WG3320284-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	08-MAY-20
SOLIDS-TOTSUS-WP	**Water**							
Batch R5081743								
WG3320981-7 DUP		**L2444978-4**						
Total Suspended Solids		32.1	32.5		mg/L	1.2	20	11-MAY-20
WG3320981-6 LCS								
Total Suspended Solids			89.5		%		85-115	11-MAY-20
WG3320981-5 MB								
Total Suspended Solids			<2.0		mg/L		2	11-MAY-20
TC,EC-QT97-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC-QT97-WP	**Water**							
Batch R5080985								
WG3320247-2 DUP		**L2444978-1**						
Total Coliforms		105	91		MPN/100mL	15	65	08-MAY-20
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	08-MAY-20
WG3320247-1 MB								
Total Coliforms			<1		MPN/100mL		1	08-MAY-20
Escherichia Coli			<1		MPN/100mL		1	08-MAY-20
TDS-WP	**Water**							
Batch R5082478								
WG3320998-7 DUP		**L2444978-4**						
Total Dissolved Solids		385	390		mg/L	1.2	20	11-MAY-20
WG3320998-6 LCS								
Total Dissolved Solids			99.4		%		85-115	11-MAY-20
WG3320998-5 MB								
Total Dissolved Solids			<4.0		mg/L		4	11-MAY-20

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
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	06-MAY-20 15:09	08-MAY-20 14:20	30	47	hours	EHTL
	2	06-MAY-20 16:07	08-MAY-20 14:20	30	46	hours	EHTL
	9	06-MAY-20 11:35	08-MAY-20 14:20	30	51	hours	EHTL

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 L2444978 were received on 07-MAY-20 15:45.

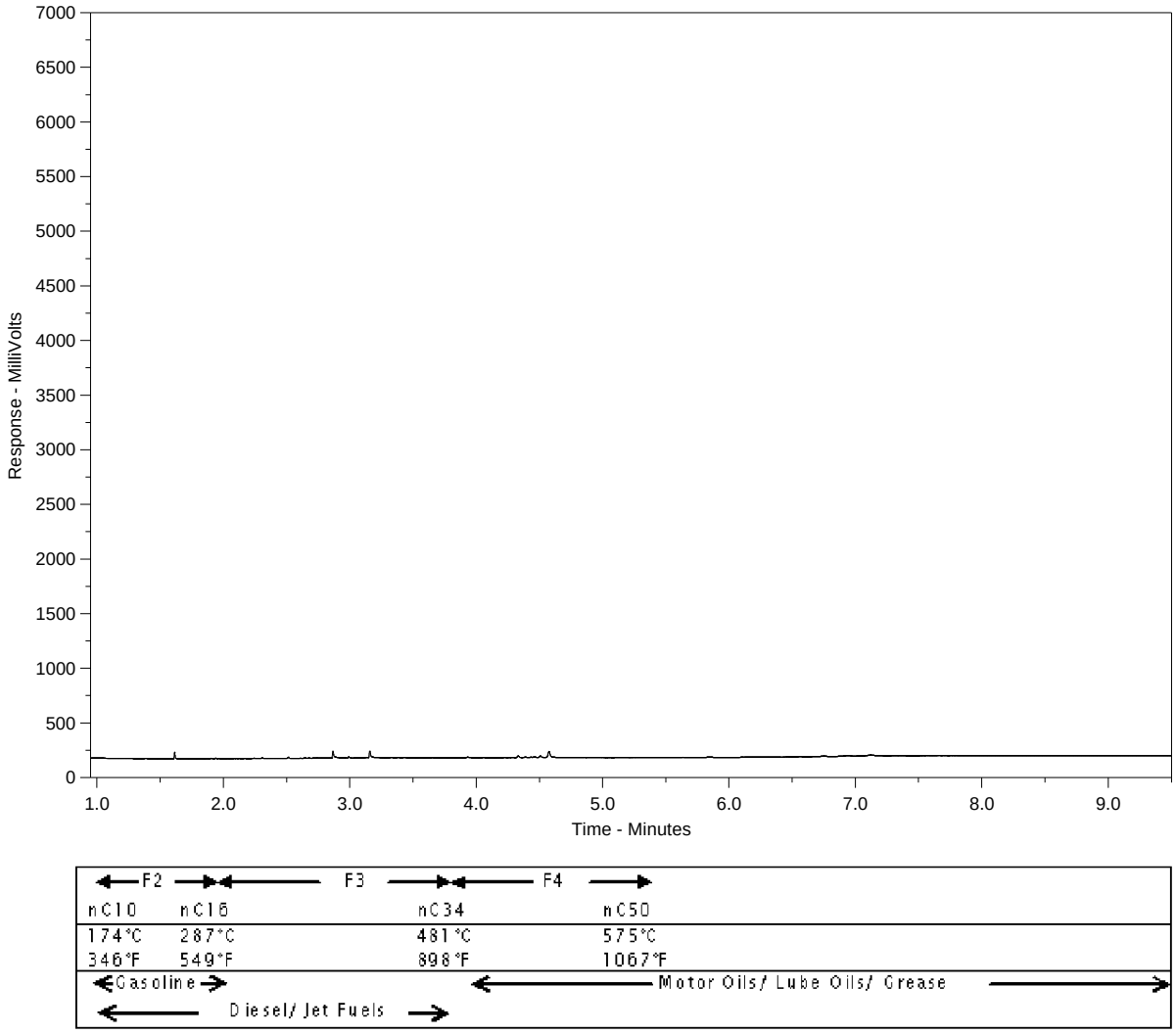
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2444978-1
Client Sample ID: D3



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

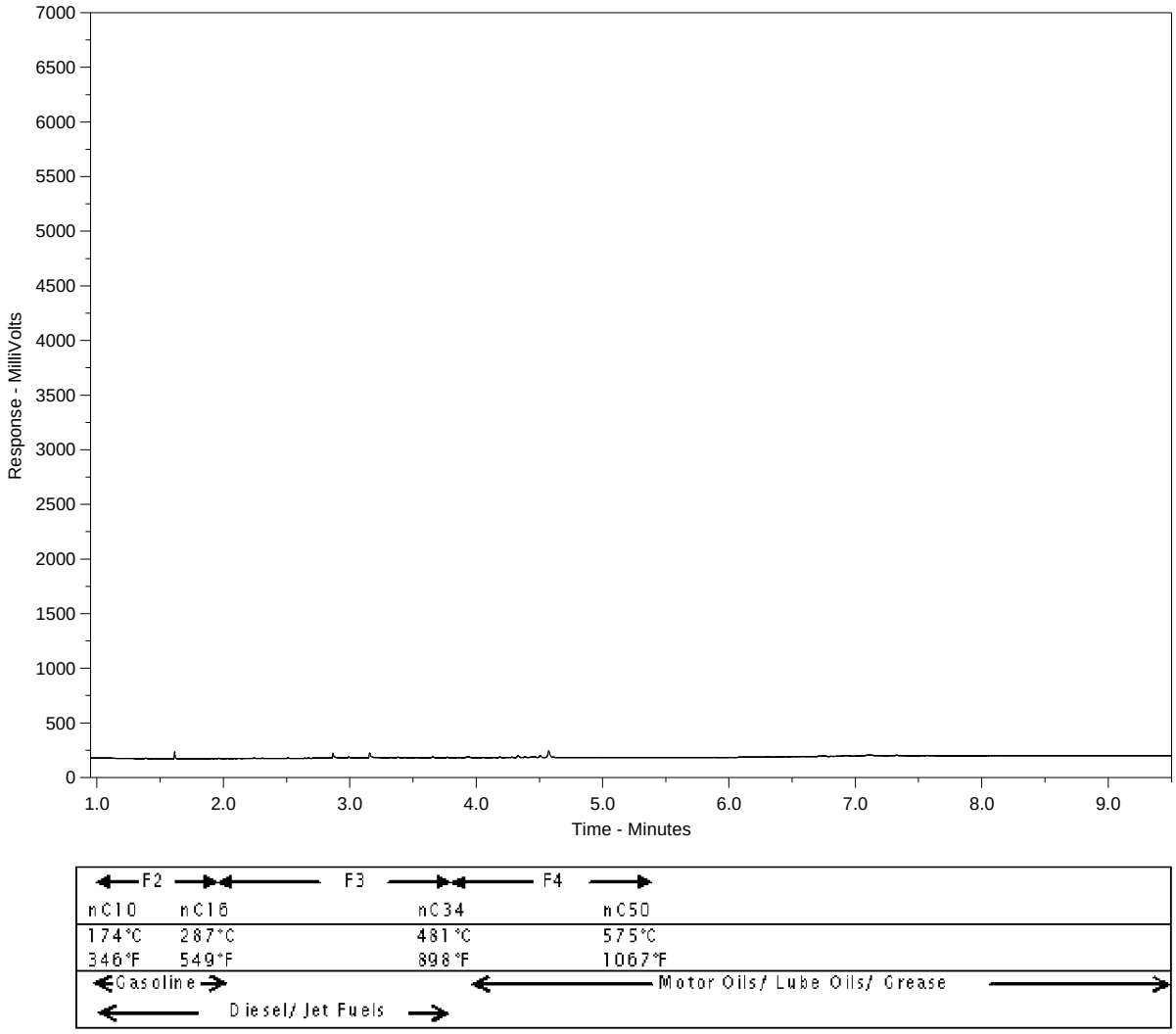
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2444978-2
Client Sample ID: D10



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

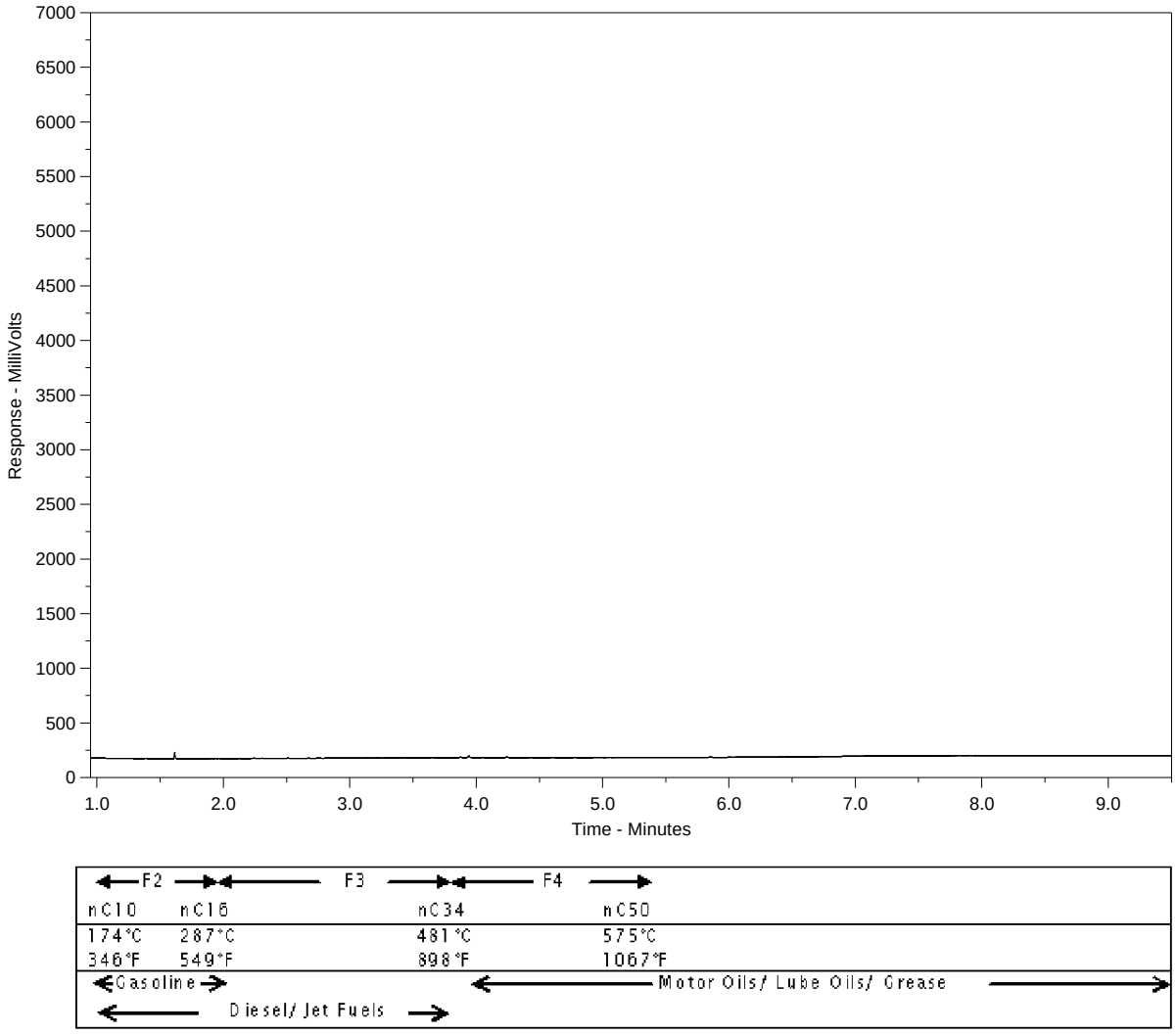
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2444978-3
Client Sample ID: BH19-29



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

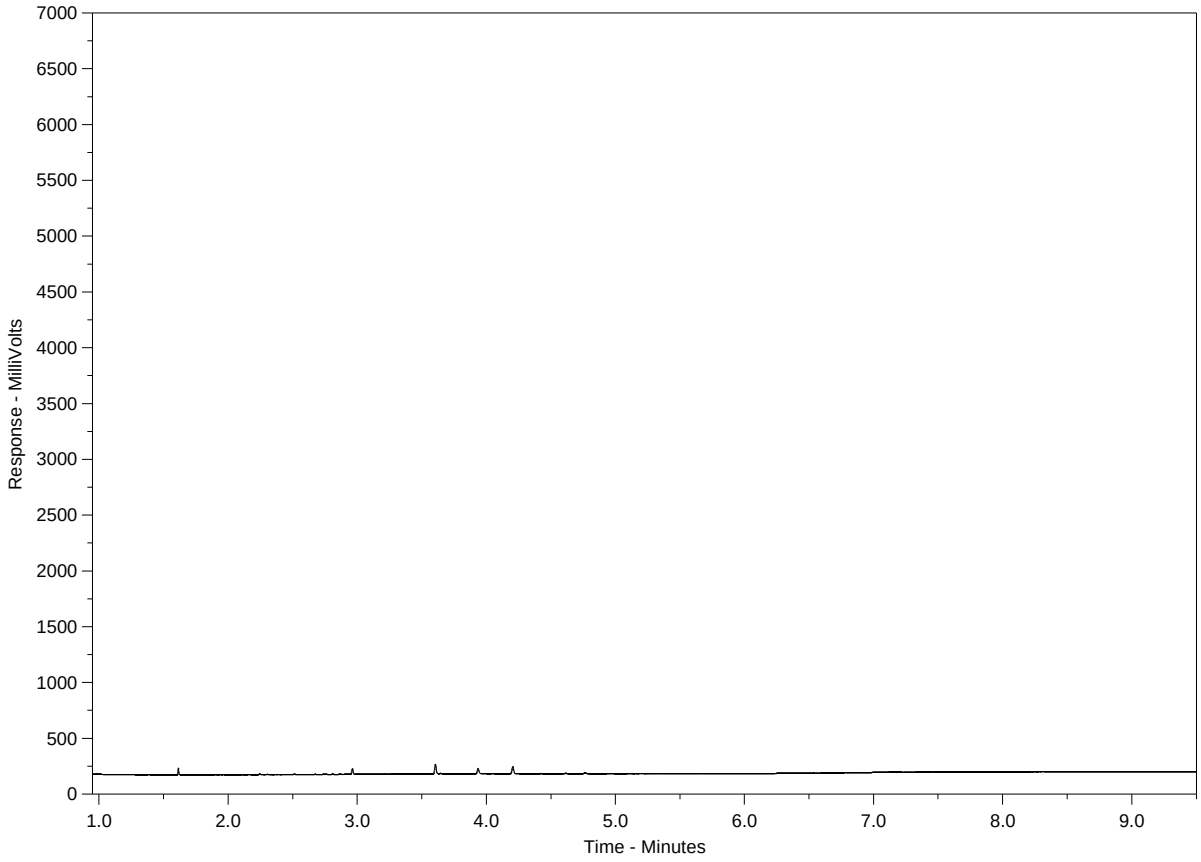
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

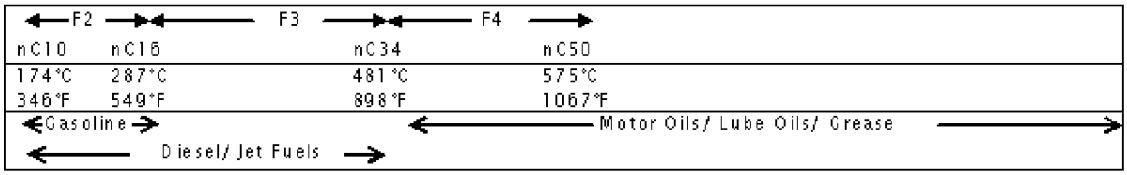
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2444978-4
Client Sample ID: OW19-05





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

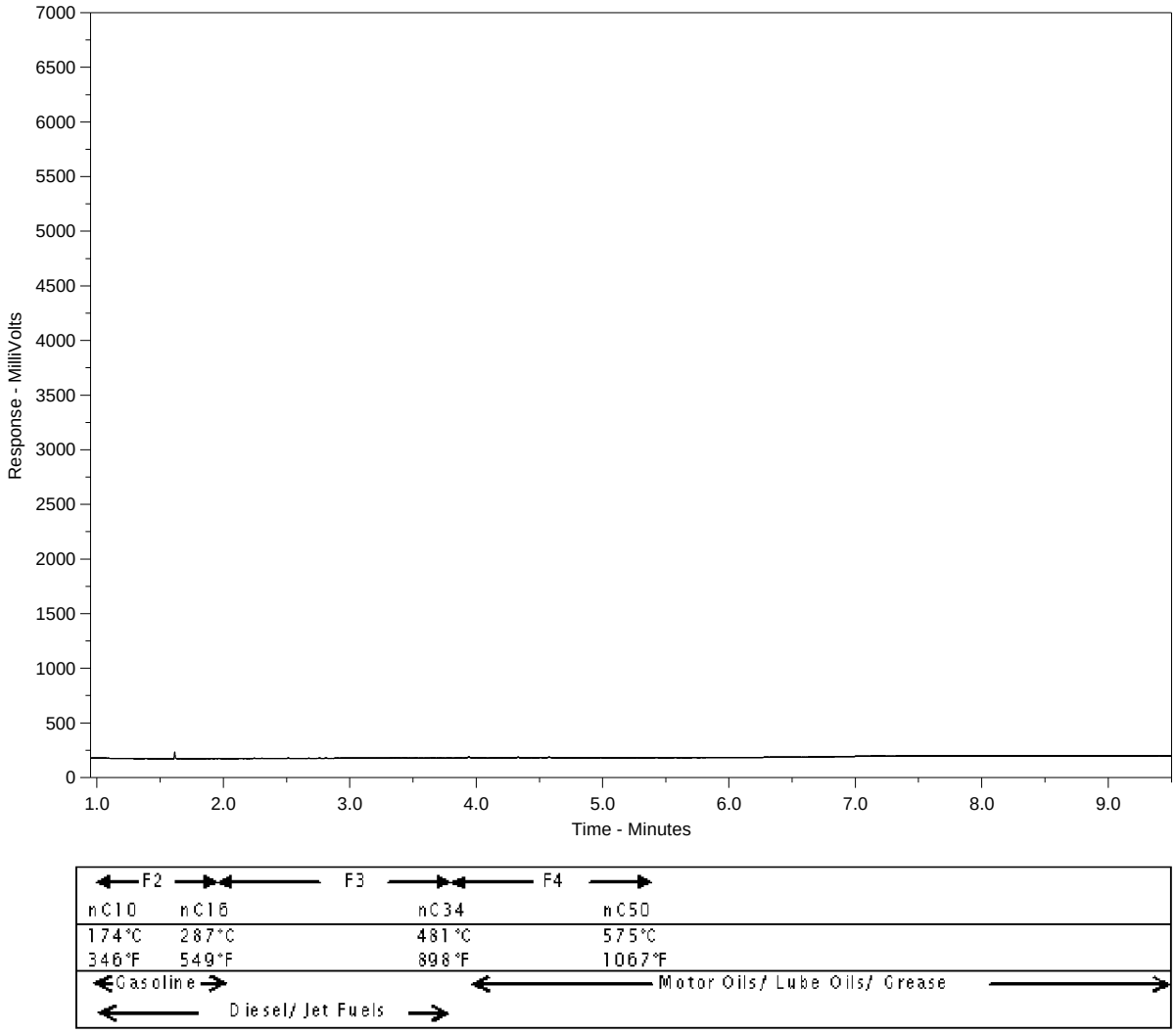
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2444978-5
Client Sample ID: D12



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

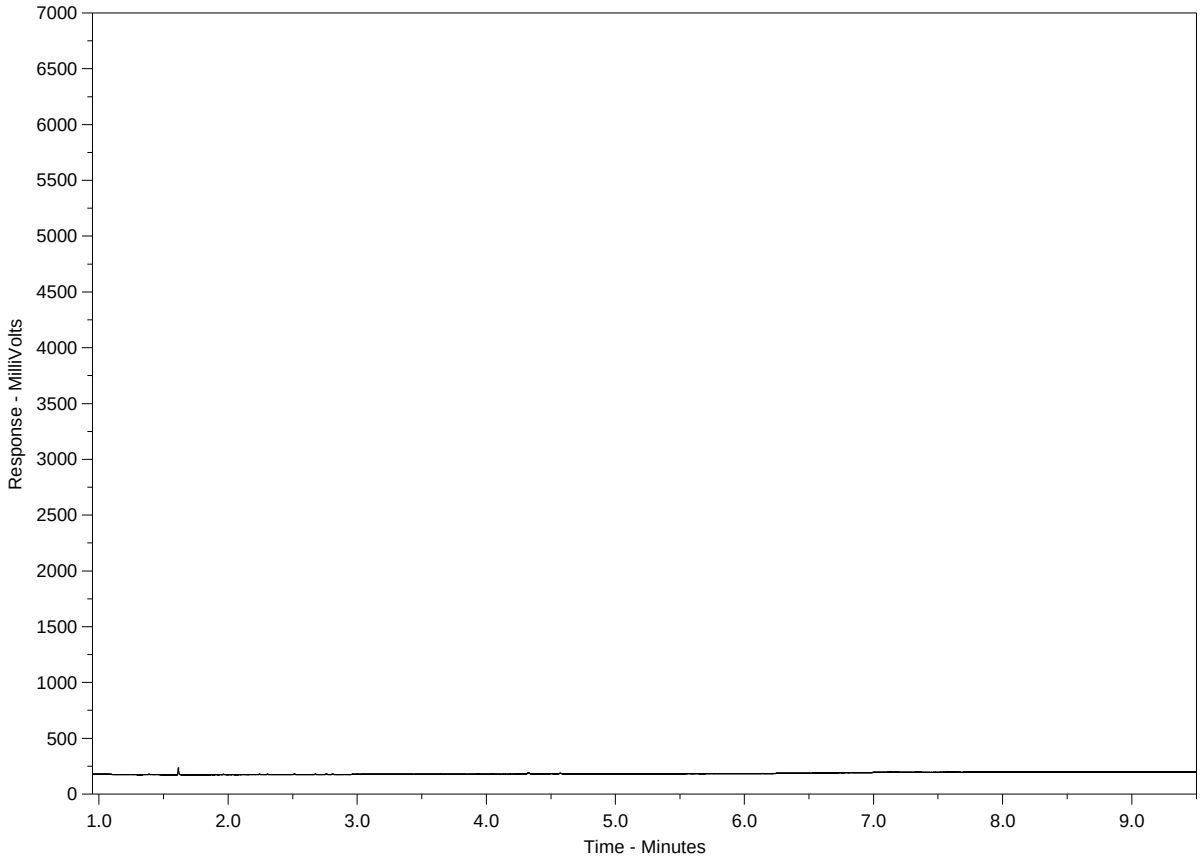
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

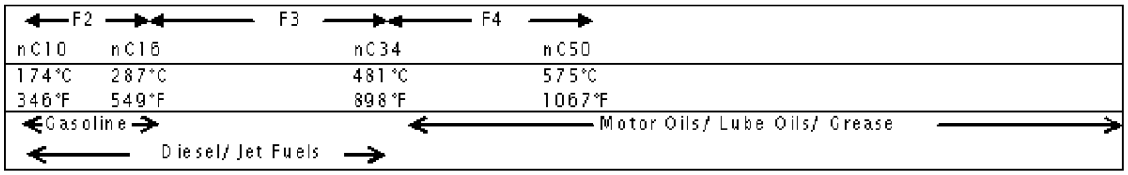
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2444978-6
Client Sample ID: D6





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

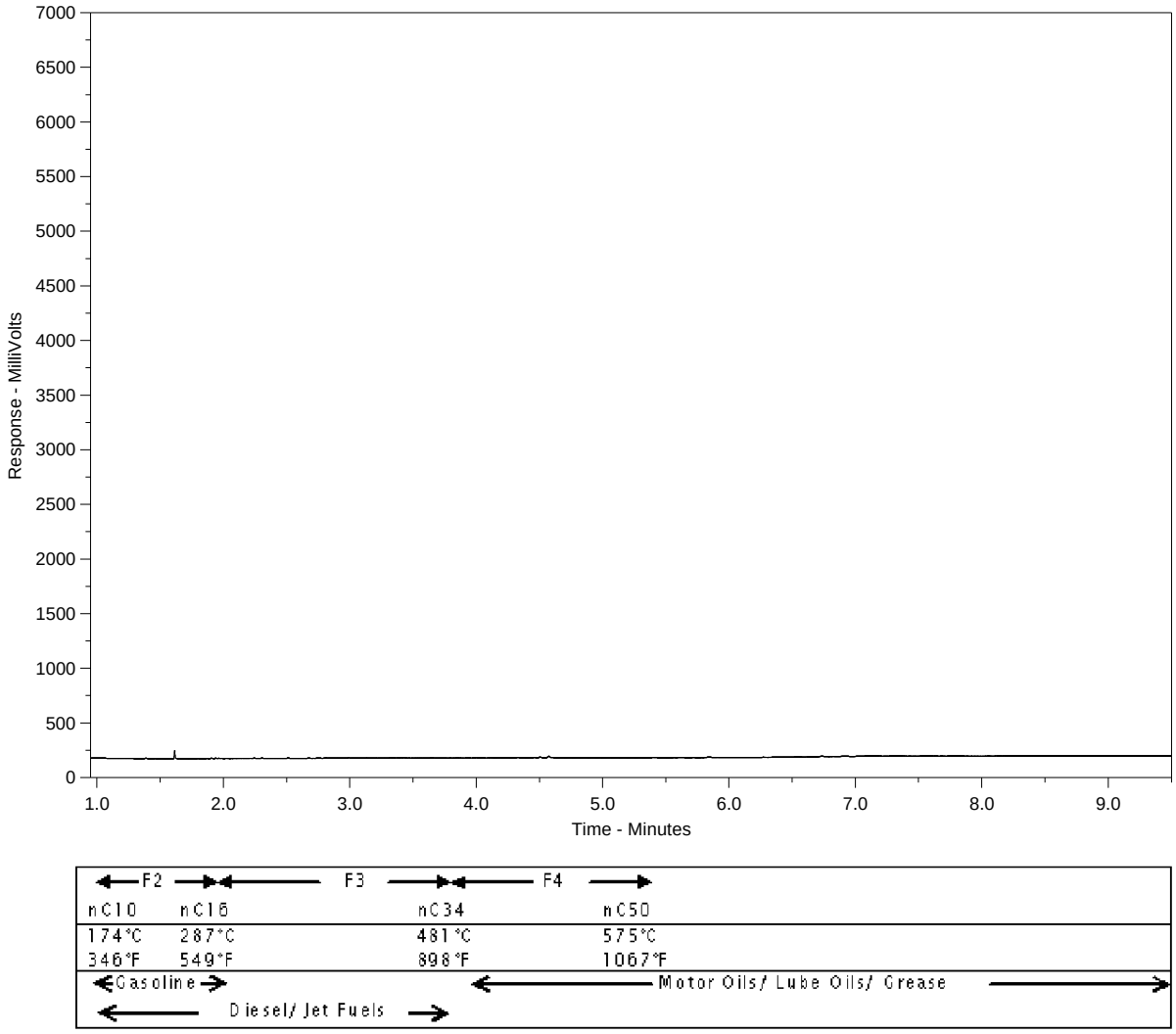
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2444978-7
Client Sample ID: D9



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

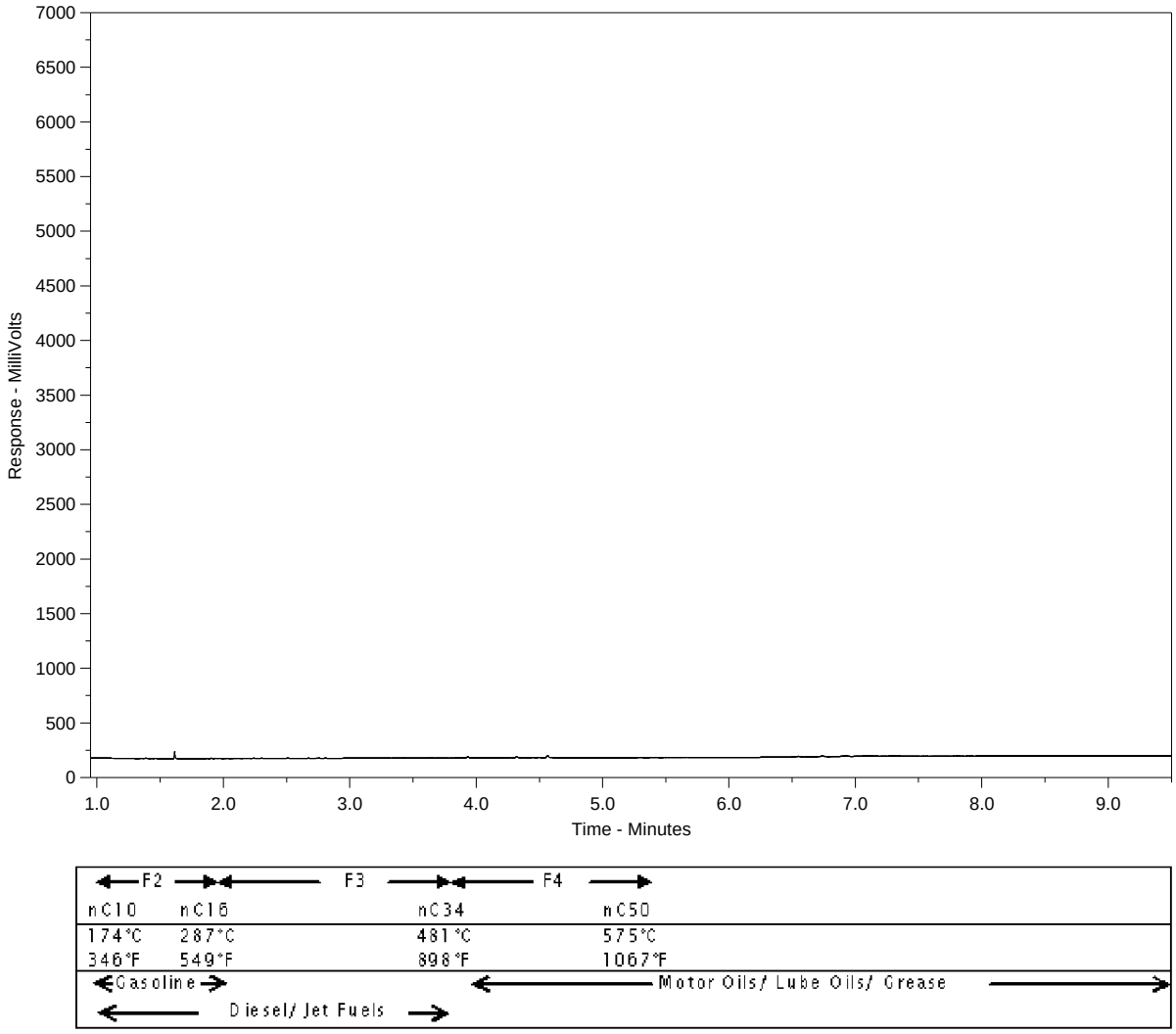
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2444978-9
Client Sample ID: D1



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

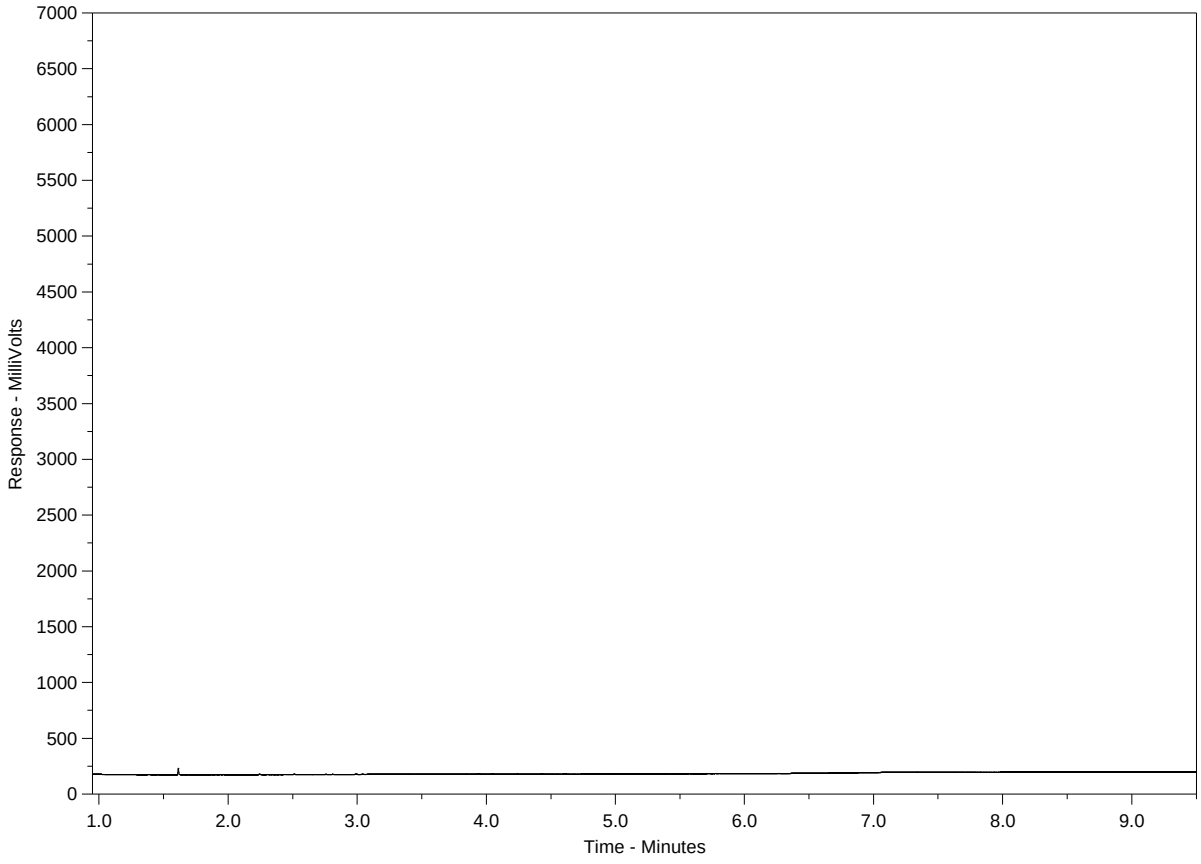
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

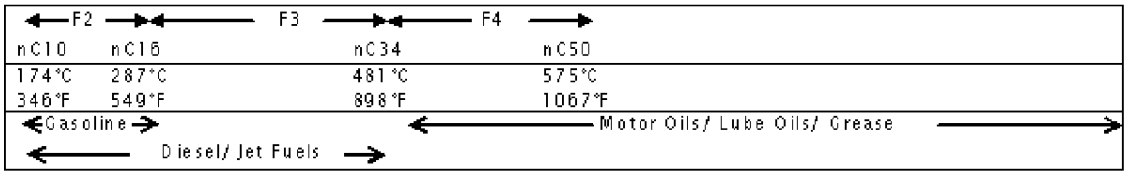
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2444978-10
Client Sample ID: TRIP BLANK





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.

ALS Environmental

L2444978-COFC

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____
Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Stantec - W2077	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON	☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave	Email 1:	tassia.stainton@stantec.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9	Email 2:	karen.mathers@stantec.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615 Fax:	Email 3:		
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**		**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #:	111475107	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:	Q74061	
Lab Work Order # (lab use only)		ALS Contact:		Sampler: BE/AR

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	NH3-COL-WP + N-TOTKJ-W	P-T-COL-WP + P-TD-COL-W	P-TPART-CALC-WP	TSS + TDS	TC,EC-QT97-WP	Number of Containers
							P	P		F/P	P	P	P	P		P	
1	D3	06-MAY-20	15:09	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
2	D10	06-MAY-20	16:07	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
3	BH19-29	07-MAY-20	08:25	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
4	OW19-05	07-MAY-20	10:05	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
5	D12	07-MAY-20	10:33	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
6	D6	07-MAY-20	10:48	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
7	D9	07-MAY-20	11:21	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
8	CH19-04	07-MAY-20	11:43	Water	X	X							X		X		1
9	D1	06-MAY-20	11:35	Water	X	X	X	X	X	X	X	X	X	X	X	X	11
10	TRIP BLANK	—	—	Water	X	X	X	X	X	X	X	X	X	X	X	X	10

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

TRIP BLANK MISSING 500 ML Routine - please SAMPLE CH19-04 to supplement previously submitted sample - L2444834-6 Analyse sample for ALL possible tests

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Adam Redekop	Date (dd-mmm-yy): 07/MAY/20	Time (hh-mm): 15:37	Received by:	Date: May 7/20	Time: 345	Temperature: 2.9 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 18.01 Front

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 07-JUL-20
Report Date: 24-JUL-20 07:21 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2470843

Project P.O. #: 111475107
Job Reference: 111475107
C of C Numbers:
Legal Site Desc:

Comments: NOTE: Frac -6 D11 was yellowish and brown in colour which interferes with the QT97 analysis - sample had to be run with a 1:10 dilution TC,EC10-QT97 resulting in an increase in the LOR from <1 to <10 .

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2470843-1 OW19-40							
Sampled By: BS/TS on 06-JUL-20 @ 09:51							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	317		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	260		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	17.9		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.367		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	162		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	85.7		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	112.6		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.063		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	346		0.20	mg/L		16-JUL-20	
Phosphorus (P)-Total	0.0070		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0034		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0036		0.0032	mg/L		15-JUL-20	
Total Dissolved Solids	454		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	32.3		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157

* 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
L2470843-1 OW19-40							
Sampled By: BS/TS on 06-JUL-20 @ 09:51							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.219		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00041		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0255		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.614		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	64.9		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	0.000057		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00041		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00018		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00101		0.00050	mg/L	09-JUL-20	14-JUL-20	R5154426
Iron (Fe)-Total	0.243		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	0.000183		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0418		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	51.7		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	0.0188		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.000338		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	9.69		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00701		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	4.30		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	45.7		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.471		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	55.4		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00850		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00034		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00125		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00096		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	0.00025		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00035		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0287		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.614		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	58.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-1 OW19-40							
Sampled By: BS/TS on 06-JUL-20 @ 09:51							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Dissolved	0.047		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000109		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0401		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	48.4		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0130		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000422		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	9.26		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00644		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	3.68		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	0.000019		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	44.7		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.436		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	54.0		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00122		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0029		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-2 D2							
Sampled By: BS/TS on 06-JUL-20 @ 11:05							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	409		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	335		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	18.7		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.220		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	0.023		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							

* 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
L2470843-2 D2							
Sampled By: BS/TS on 06-JUL-20 @ 11:05							
Matrix: WATER							
Sulfate in Water by IC							
Sulfate (SO4)	24.1		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	83.0		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	123.0		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.10	DLM	0.10	mg/L		15-JUL-20	R5153737
Hardness (as CaCO3)	369		0.20	mg/L		16-JUL-20	
Phosphorus (P)-Total	0.178		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.163		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	0.0153		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	458		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	1.92		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	1.92		0.20	mg/L		10-JUL-20	
Total Suspended Solids	5.3		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	870		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	2		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0069		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	0.00019		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00207		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0450		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.138		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	56.4		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00025		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00050		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00090		0.00050	mg/L	09-JUL-20	14-JUL-20	R5154426
Iron (Fe)-Total	0.269		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0261		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	55.1		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-2 D2							
Sampled By: BS/TS on 06-JUL-20 @ 11:05							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.241		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.000638		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	0.00135		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	6.65		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	0.190		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00353		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	0.000358		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	18.2		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	13.5		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.170		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	9.01		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00050		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00031		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00133		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00071		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	0.0041		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	0.00029		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	0.00021		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00213		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0491		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.149		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	56.2		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00024		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00045		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00043		0.00020	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Dissolved	0.214		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000115		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0259		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	55.4		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.228		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000728		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00141		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	0.154		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	6.59		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00347		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000405		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	17.2		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	13.5		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-2 D2							
Sampled By: BS/TS on 06-JUL-20 @ 11:05							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.166		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	8.56		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	0.00044		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00129		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0052		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	0.00034		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-3 CH19-37							
Sampled By: BS/TS on 06-JUL-20 @ 12:06							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	309		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	253		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	14.9		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.388		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	153		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	81.9		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	113.5		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	

* 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
L2470843-3 CH19-37							
Sampled By: BS/TS on 06-JUL-20 @ 12:06							
Matrix: WATER							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.138		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	349		0.20	mg/L		16-JUL-20	
Phosphorus (P)-Total	0.0039		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0040		0.0028	mg/L		10-JUL-20	
Total Dissolved Solids	405		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	4.6		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0404		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00023		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0220		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.619		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	59.8		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	0.000011		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Iron (Fe)-Total	0.066		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	0.000073		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0365		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	47.6		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	0.00773		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.000484		0.000050	mg/L	09-JUL-20	14-JUL-20	R5154426
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	8.13		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00330		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	4.78		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	41.0		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.472		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	54.4		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00092		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00025		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00197		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-3 CH19-37							
Sampled By: BS/TS on 06-JUL-20 @ 12:06							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00015		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0215		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.644		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	60.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00026		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.046		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0366		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	48.4		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.00717		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000623		0.000050	mg/L	09-JUL-20	13-JUL-20	R5152460
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	7.93		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00321		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	4.43		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	41.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.454		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	52.1		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00194		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0017		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-4 OW19-23							
Sampled By: BS/TS on 06-JUL-20 @ 12:51							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	287		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							

* 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
L2470843-4 OW19-23							
Sampled By: BS/TS on 06-JUL-20 @ 12:51							
Matrix: WATER							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	235		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	21.0		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.819		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	130		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	85.4		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.25		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	122.4		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.139		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	283		0.20	mg/L		16-JUL-20	
Phosphorus (P)-Total	0.0138		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0039		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0099		0.0032	mg/L		15-JUL-20	
Total Dissolved Solids	418		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	57.3		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.206		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-4 OW19-23							
Sampled By: BS/TS on 06-JUL-20 @ 12:51							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00051		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0252		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.630		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	58.5		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	0.000056		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00037		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00018		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00060		0.00050	mg/L	09-JUL-20	14-JUL-20	R5154426
Iron (Fe)-Total	0.197		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	0.000183		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0344		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	40.8		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	0.0193		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.000825		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	0.00059		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	9.41		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	0.035		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00474		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	5.17		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	51.6		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.437		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	45.2		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	0.00011		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00888		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00024		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00100		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00082		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	0.00025		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0011		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00037		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0265		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.673		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	53.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-4 OW19-23							
Sampled By: BS/TS on 06-JUL-20 @ 12:51							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Dissolved	0.024		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000080		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0342		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	36.6		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0129		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000940		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	9.29		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00437		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	4.54		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	51.6		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.417		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	43.5		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000929		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0024		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-5 D4							
Sampled By: BS/TS on 06-JUL-20 @ 13:30							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	329		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	269		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.59		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.219		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	46.3		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							

* 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
L2470843-5 D4							
Sampled By: BS/TS on 06-JUL-20 @ 13:30							
Matrix: WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	83.6		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	119.2		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.025		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	317		0.20	mg/L		16-JUL-20	
Phosphorus (P)-Total	0.0309		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0269		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	351		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	1.61		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	1.61		0.20	mg/L		10-JUL-20	
Total Suspended Solids	3.7		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	7		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0091		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00113		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0362		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.106		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	43.2		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00018		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00072		0.00050	mg/L	09-JUL-20	14-JUL-20	R5154426
Iron (Fe)-Total	0.037		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0165		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	50.5		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	0.0168		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.000792		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	0.00069		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-5 D4							
Sampled By: BS/TS on 06-JUL-20 @ 13:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	7.27		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	0.059		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00384		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	0.000196		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	6.34		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	9.95		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.142		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	18.1		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	0.00020		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00049		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00021		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00133		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00089		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	0.0051		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0012		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00108		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0389		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.115		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	43.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00045		0.00020	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Dissolved	0.023		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000102		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0163		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	50.9		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0144		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000768		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00066		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	7.15		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00375		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000196		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	6.00		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	9.97		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.136		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	16.1		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-5 D4							
Sampled By: BS/TS on 06-JUL-20 @ 13:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00129		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0037		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-6 D11							
Sampled By: BS/TS on 06-JUL-20 @ 14:53							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	471		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	386		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.9		1.0	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.254		0.040	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	321		0.60	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	84.8		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	121.0		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							

* 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
L2470843-6 D11							
Sampled By: BS/TS on 06-JUL-20 @ 14:53							
Matrix: WATER							
Ammonia, Total (as N)	0.203		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	726		0.20	mg/L		13-JUL-20	
Phosphorus (P)-Total	0.158		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.125		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	0.0336		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	1030		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	6.53		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	6.53		0.20	mg/L		10-JUL-20	
Total Suspended Solids	3.0		1.0	mg/L		10-JUL-20	R5152121
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	930		10	MPN/100mL		07-JUL-20	R5146330
Escherichia Coli	<10		10	MPN/100mL		07-JUL-20	R5146330
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0385		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	0.00048		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00385		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0648		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Boron (B)-Total	0.434		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	0.0000070		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	98.8		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00041		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00083		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00114		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Iron (Fe)-Total	0.543		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	0.000162		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0460		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	116		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	1.53		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.00511		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	0.00206		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	21.8		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	0.171		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00549		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	0.000457		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	30.3		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	25.3		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.552		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	122		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00303		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00026		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.00518		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00149		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	0.0053		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	0.00049		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-6 D11							
Sampled By: BS/TS on 06-JUL-20 @ 14:53							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0062		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	0.00047		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00390		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0632		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.456		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	0.0000055		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	99.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00038		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00080		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00133		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.461		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000131		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0449		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	116		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	1.51		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.00488		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00210		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	0.123		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	21.1		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00547		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000526		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	29.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	25.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.523		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	117		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	0.00021		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	0.00163		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00493		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	0.00090		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0071		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	0.00052		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-7 BH19-29							
Sampled By: BS/TS on 06-JUL-20 @ 15:27							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	279		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							

* 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
L2470843-7 BH19-29							
Sampled By: BS/TS on 06-JUL-20 @ 15:27							
Matrix: WATER							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	229		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.1		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.806		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	134		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	84.1		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	123.3		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.201		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	286		0.20	mg/L		13-JUL-20	
Phosphorus (P)-Total	0.0071		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0045		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	<0.0032		0.0032	mg/L		15-JUL-20	
Total Dissolved Solids	395		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	0.21		0.20	mg/L		10-JUL-20	
Total Suspended Solids	24.7		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0913		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Arsenic (As)-Total	0.00200		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Barium (Ba)-Total	0.0219		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018

* 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
L2470843-7 BH19-29							
Sampled By: BS/TS on 06-JUL-20 @ 15:27							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.563		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Calcium (Ca)-Total	54.5		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Cesium (Cs)-Total	0.000019		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Chromium (Cr)-Total	0.00017		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Cobalt (Co)-Total	0.00028		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Copper (Cu)-Total	0.00075		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Iron (Fe)-Total	0.207		0.010	mg/L	09-JUL-20	10-JUL-20	R5150018
Lead (Pb)-Total	0.000351		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Lithium (Li)-Total	0.0273		0.0010	mg/L	09-JUL-20	10-JUL-20	R5150018
Magnesium (Mg)-Total	38.9		0.0050	mg/L	09-JUL-20	10-JUL-20	R5150018
Manganese (Mn)-Total	0.0167		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Molybdenum (Mo)-Total	0.00105		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Potassium (K)-Total	7.57		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	10-JUL-20	R5150018
Rubidium (Rb)-Total	0.00351		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	10-JUL-20	R5150018
Silicon (Si)-Total	5.25		0.10	mg/L	09-JUL-20	10-JUL-20	R5150018
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Sodium (Na)-Total	43.1		0.050	mg/L	09-JUL-20	10-JUL-20	R5150018
Strontium (Sr)-Total	0.440		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Sulfur (S)-Total	46.9		0.50	mg/L	09-JUL-20	10-JUL-20	R5150018
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Titanium (Ti)-Total	0.00473		0.00030	mg/L	09-JUL-20	10-JUL-20	R5150018
Tungsten (W)-Total	0.00023		0.00010	mg/L	09-JUL-20	10-JUL-20	R5150018
Uranium (U)-Total	0.000964		0.000010	mg/L	09-JUL-20	10-JUL-20	R5150018
Vanadium (V)-Total	0.00057		0.00050	mg/L	09-JUL-20	10-JUL-20	R5150018
Zinc (Zn)-Total	0.0034		0.0030	mg/L	09-JUL-20	10-JUL-20	R5150018
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	10-JUL-20	R5150018
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00185		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0211		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.561		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	51.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00023		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.111		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0259		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-7 BH19-29							
Sampled By: BS/TS on 06-JUL-20 @ 15:27							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	38.2		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0150		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.00114		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	7.26		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00326		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	4.83		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	43.7		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.425		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	45.1		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000942		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0012		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-8 OW19-05							
Sampled By: BS/TS on 06-JUL-20 @ 16:33							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	268		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	220		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.7		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.587		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	104		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		08-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769

* 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
L2470843-8 OW19-05							
Sampled By: BS/TS on 06-JUL-20 @ 16:33							
Matrix: WATER							
BTX plus F1 by GCMS							
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		08-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	80.9		70-130	%		08-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	116.1		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.053		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	243		0.20	mg/L		10-JUL-20	
Phosphorus (P)-Total	0.0077		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0029		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0048		0.0032	mg/L		15-JUL-20	
Total Dissolved Solids	356		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	16.9		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0482		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	0.00013		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00114		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0432		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.485		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	45.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	0.000036		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00014		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	0.460		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.000106		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0204		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	37.2		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0554		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.00388		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	6.75		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00373		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-8 OW19-05							
Sampled By: BS/TS on 06-JUL-20 @ 16:33							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	4.20		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	45.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.352		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	39.8		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	0.00069		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00176		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	0.00351		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.000140		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	0.00028		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00092		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0413		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.456		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	41.2		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	0.000020		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.220		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0189		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	34.0		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0506		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.00359		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	6.50		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00345		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	3.54		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	44.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.331		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	34.1		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	0.00054		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-8 OW19-05							
Sampled By: BS/TS on 06-JUL-20 @ 16:33							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	0.00324		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000107		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0011		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-9 D12							
Sampled By: BS/TS on 06-JUL-20 @ 17:15							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	400		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	328		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	9.31		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.294		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	0.039		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	40.3		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	82.1		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	125.0		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.027		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	374		0.20	mg/L		23-JUL-20	

* 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
L2470843-9 D12							
Sampled By: BS/TS on 06-JUL-20 @ 17:15							
Matrix: WATER							
Phosphorus (P)-Total	0.0650		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0217		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	0.0432		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	428		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	2.04		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	2.04		0.20	mg/L		10-JUL-20	
Total Suspended Solids	10.7		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	435		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0506		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	0.00012		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00133		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0505		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.152		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	55.1		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00021		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00013		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	0.00058		0.00050	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Total	0.118		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.000073		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0178		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	60.1		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.144		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.00158		0.000050	mg/L	09-JUL-20	13-JUL-20	R5152460
Nickel (Ni)-Total	0.00086		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	4.35		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	0.059		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00254		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000255		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	15.6		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	10.6		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.180		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	16.2		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00223		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.000864		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0040		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649

* 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
L2470843-9 D12							
Sampled By: BS/TS on 06-JUL-20 @ 17:15							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0014		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00128		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0544		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.145		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	53.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00015		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00271	RRV	0.00020	mg/L	09-JUL-20	22-JUL-20	R5164837
Iron (Fe)-Dissolved	0.058		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000109		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0167		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	58.4		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0874		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.00260	RRV	0.000050	mg/L	09-JUL-20	22-JUL-20	R5164837
Nickel (Ni)-Dissolved	0.00079		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	4.34		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00237		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000266		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	14.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	10.7		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.167		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	15.0		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000821		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0047		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-10 QC-01							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	322		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	264		1.0	mg/L		09-JUL-20	R5147475

* 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
L2470843-10 QC-01							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	17.0		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.353		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	158		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	81.3		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	115.1		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.073		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	349		0.20	mg/L		10-JUL-20	
Phosphorus (P)-Total	0.0053		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Dissolved	0.0012		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0041		0.0028	mg/L		10-JUL-20	
Total Dissolved Solids	460		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	9.3		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0665		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00036		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0254		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.684		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-10 QC-01							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Calcium (Ca)-Total	62.9		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	0.000019		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00016		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00012		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	0.087		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.000085		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0429		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	52.8		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0163		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000395		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	10.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00701		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	4.16		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	47.2		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.465		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	58.9		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00230		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.00116		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0024		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00025		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0238		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.621		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	59.9		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.037		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0402		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	48.3		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0135		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-10 QC-01							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Molybdenum (Mo)-Dissolved	0.000443		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	9.60		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00642		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	3.73		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	44.9		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.446		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	53.2		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00120		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0011		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	0.00027		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-11 QC-02							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	418		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	342		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	18.5		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.217		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	23.1		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769

* 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
L2470843-11 QC-02							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
BTX plus F1 by GCMS							
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	82.5		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	108.0		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.021		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	368		0.20	mg/L		10-JUL-20	
Phosphorus (P)-Total	0.181		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.168		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	0.0128		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	441		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	1.92		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	1.92		0.20	mg/L		10-JUL-20	
Total Suspended Solids	1.7		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	921		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	2		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0046		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	0.00017		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00222		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0478		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.154		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	56.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00025		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00054		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	0.00053		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	0.258		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0270		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	60.6		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.245		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000674		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	0.00155		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	7.12		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	0.214		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00368		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000298		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	18.3		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-11 QC-02							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	14.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.172		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	9.56		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00069		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.00136		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	0.00063		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0056		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	0.00031		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0014		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	0.00016		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00212		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0436		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.154		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	56.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00023		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00046		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00065		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.221		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0264		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	54.9		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.227		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000694		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00138		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	0.162		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	6.56		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00353		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000345		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	17.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	13.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.170		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	9.08		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	0.00046		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-11 QC-02							
Sampled By: BS/TS on 06-JUL-20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Uranium (U)-Dissolved	0.00136		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0036		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	0.00033		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-12 D10							
Sampled By: BS/TS on 07-JUL-20 @ 08:10							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	227		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	27.8		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	232		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.68		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.215		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	81.6		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	79.2		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	118.9		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.018		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	329		0.20	mg/L		23-JUL-20	
Phosphorus (P)-Total	0.0258		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0208		0.0030	mg/L		10-JUL-20	R5147649

* 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
L2470843-12 D10							
Sampled By: BS/TS on 07-JUL-20 @ 08:10							
Matrix: WATER							
Phosphorus (P)-Total Particulate	0.0050		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	378		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	1.66		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	1.66		0.20	mg/L		10-JUL-20	
Total Suspended Solids	19.1		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	830		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	11		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0067		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00133		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0231		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.130		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	34.1		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00017		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00017		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Total	0.030		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0185		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	62.8		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0318		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000717		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	0.00087		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	8.39		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	0.035		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00373		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000242		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	8.02		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	12.1		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.127		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	31.7		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00055		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.00113		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	0.00071		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-12 D10							
Sampled By: BS/TS on 07-JUL-20 @ 08:10							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Arsenic (As)-Dissolved	0.00127		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0269		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.125		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	33.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00015		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00316	RRV	0.00020	mg/L	09-JUL-20	22-JUL-20	R5164837
Iron (Fe)-Dissolved	0.025		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000100		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0175		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	59.5		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0194		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000663		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00083		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	8.15		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00365		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000231		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	7.57		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	11.5		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.126		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	29.2		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00108		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0027		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-13 D3							
Sampled By: BS/TS on 07-JUL-20 @ 09:20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	360		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	9.24		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	311		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							

* 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
L2470843-13 D3							
Sampled By: BS/TS on 07-JUL-20 @ 09:20							
Matrix: WATER							
Chloride in Water by IC							
Chloride (Cl)	7.01		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.148		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	98.4		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	81.0		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	115.6		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.055		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	405		0.20	mg/L		23-JUL-20	
Phosphorus (P)-Total	0.0292		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0201		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	0.0091		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	461		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	2.70		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	2.70		0.20	mg/L		10-JUL-20	
Total Suspended Solids	3.7		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	2420		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	11		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0068		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	0.00021		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00189		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0255		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.106		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	27.2		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-13 D3							
Sampled By: BS/TS on 07-JUL-20 @ 09:20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00012		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00016		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Total	0.022		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.000085		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0262		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	86.3		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0570		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000276		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	14.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	0.062		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00571		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000164		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	6.11		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	18.7		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.0707		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	38.6		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00031		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.000507		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	0.00087		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0068		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0014		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	0.00013		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00173		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0296		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.103		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	26.1		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00011		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00314	RRV	0.00020	mg/L	09-JUL-20	22-JUL-20	R5164837
Iron (Fe)-Dissolved	0.015		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000149		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0244		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	82.6		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0413		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000302		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-13 D3							
Sampled By: BS/TS on 07-JUL-20 @ 09:20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	14.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00566		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000141		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	5.56		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	17.8		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.0694		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	34.1		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000484		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0038		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-14 CH19-08							
Sampled By: BS/TS on 07-JUL-20 @ 10:36							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	342		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	280		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.4		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.321		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	133		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769

* 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
L2470843-14 CH19-08							
Sampled By: BS/TS on 07-JUL-20 @ 10:36							
Matrix: WATER							
BTX plus F1 by GCMS							
Surrogate: 4-Bromofluorobenzene (SS)	82.1		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	112.4		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.133		0.010	mg/L		16-JUL-20	R5157280
Hardness (as CaCO3)	349		0.20	mg/L		10-JUL-20	
Phosphorus (P)-Total	0.144		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		16-JUL-20	R5154612
Phosphorus (P)-Total Particulate	0.143		0.0032	mg/L		16-JUL-20	
Total Dissolved Solids	491		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	8890		7.5	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	6.34		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00236		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0737		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	0.00059		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	0.000142		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.467		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	0.0000793		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	240		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	0.00202		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.0149		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	0.00406		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	0.0271		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	6.69		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.00661		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0429		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	153		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.402		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.00187		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	0.0239		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	8.20		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	0.667		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.0182		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000085		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	16.2		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	0.000084		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-14 CH19-08							
Sampled By: BS/TS on 07-JUL-20 @ 10:36							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Sodium (Na)-Total	50.7		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	1.12		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	50.4		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	0.000208		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	0.00626		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	0.00028		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.165		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	0.00078		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.00318		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	0.0159		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0621		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	0.00230		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00039		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0251		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.417		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	57.6		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	0.000011		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00023		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.470		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0306		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	49.9		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0518		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.00161		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00258		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	5.99		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00242		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	5.21		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	46.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.599		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	46.3		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	0.00072		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00148		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-14 CH19-08							
Sampled By: BS/TS on 07-JUL-20 @ 10:36							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0012		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-15 OW19-18							
Sampled By: BS/TS on 07-JUL-20 @ 11:43							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	423		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	347		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.46		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	0.796		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	110		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	83.5		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	115.9		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.128		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	387		0.20	mg/L		10-JUL-20	
Phosphorus (P)-Total	0.0073		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0041		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	0.0032		0.0032	mg/L		23-JUL-20	

* 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
L2470843-15 OW19-18							
Sampled By: BS/TS on 07-JUL-20 @ 11:43							
Matrix: WATER							
Total Dissolved Solids	429		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	10.9		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	<1		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0305		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00017		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0193		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.580		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	74.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	0.000028		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	0.00154		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	0.065		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	0.000366		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0357		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	54.5		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0195		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000226		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	11.0		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00665		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	5.72		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	34.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.566		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	39.0		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00097		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.000677		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0070		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-15 OW19-18							
Sampled By: BS/TS on 07-JUL-20 @ 11:43							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Barium (Ba)-Dissolved	0.0184		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.525		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	70.4		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	0.000022		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	0.040		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0337		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	51.2		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.0193		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000221		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	10.9		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00641		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	5.15		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	33.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.556		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	35.3		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.000646		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0028		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-16 D8							
Sampled By: BS/TS on 07-JUL-20 @ 11:05							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	434		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	9.36		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	371		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.68		0.50	mg/L		08-JUL-20	R5147780

* 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
L2470843-16 D8							
Sampled By: BS/TS on 07-JUL-20 @ 11:05							
Matrix: WATER							
Fluoride in Water by IC							
Fluoride (F)	0.268		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	23.7		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	81.6		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	121.0		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		10-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		09-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.020		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	397		0.20	mg/L		23-JUL-20	
Phosphorus (P)-Total	0.0254		0.0030	mg/L		09-JUL-20	R5146696
Phosphorus (P)-Total Dissolved	0.0241		0.0030	mg/L		10-JUL-20	R5147649
Phosphorus (P)-Total Particulate	<0.0042		0.0042	mg/L		10-JUL-20	
Total Dissolved Solids	444		20	mg/L		10-JUL-20	R5152679
Total Kjeldahl Nitrogen	1.82		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	1.82		0.20	mg/L		10-JUL-20	
Total Suspended Solids	<1.0		1.0	mg/L		10-JUL-20	R5152121
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		07-JUL-20	R5146157
Escherichia Coli	88		1	MPN/100mL		07-JUL-20	R5146157
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0217		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Total	0.00013		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	0.00175		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Total	0.0460		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	0.122		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Total	62.6		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	0.00017		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-16 D8							
Sampled By: BS/TS on 07-JUL-20 @ 11:05							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Cobalt (Co)-Total	0.00016		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	<0.00050		0.00050	mg/L	09-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Total	0.102		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Total	0.0162		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	61.5		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Total	0.0138		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Total	0.000542		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Total	0.00102		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	3.88		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	0.00291		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	0.000240		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	15.1		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	9.36		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Total	0.162		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Total	10.5		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Total	0.00103		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	0.00121		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	0.00069		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0053		0.0030	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Total	0.00024		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	0.0020		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	0.00012		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	0.00171		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	0.0483		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	0.109		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	61.5		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	0.00019		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	0.00015		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	0.00339	RRV	0.00020	mg/L	09-JUL-20	22-JUL-20	R5164837
Iron (Fe)-Dissolved	0.084		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	0.000103		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	0.0153		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	59.1		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	0.00966		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	0.000527		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	0.00090		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555

* 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
L2470843-16 D8							
Sampled By: BS/TS on 07-JUL-20 @ 11:05							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Potassium (K)-Dissolved	3.77		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	0.00287		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	0.000305		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	14.3		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010	RRV	0.000010	mg/L	09-JUL-20	22-JUL-20	R5164837
Sodium (Na)-Dissolved	8.93		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	0.159		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	9.81		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	0.00032		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	0.00113		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	0.0031		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	0.00022		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
L2470843-17 TRIP BLANK (NOT ON COFC)							
Sampled By: BS/TS							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		10-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		10-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		09-JUL-20	R5147475
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		08-JUL-20	R5147780
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		08-JUL-20	R5147780
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		08-JUL-20	R5147780
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		08-JUL-20	R5147780
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
Toluene	<0.0010		0.0010	mg/L		09-JUL-20	R5146769
Ethyl benzene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
o-Xylene	<0.00050		0.00050	mg/L		09-JUL-20	R5146769
m+p-Xylenes	<0.00040		0.00040	mg/L		09-JUL-20	R5146769
F1 (C6-C10)	<0.10		0.10	mg/L		09-JUL-20	R5146769
Surrogate: 4-Bromofluorobenzene (SS)	83.6		70-130	%		09-JUL-20	R5146769
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147430

* 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
L2470843-17 TRIP BLANK (NOT ON COFC)							
Sampled By: BS/TS							
Matrix: WATER							
CCME PHC F2-F4 in Water							
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	09-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	115.7		60-140	%	09-JUL-20	09-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		10-JUL-20	R5147967
Hardness (as CaCO3)	<0.20		0.20	mg/L		14-JUL-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		10-JUL-20	R5147746
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		10-JUL-20	
Total Dissolved Solids	<4.0		4.0	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-JUL-20	10-JUL-20	R5147687
Total Nitrogen	<0.20		0.20	mg/L		10-JUL-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-JUL-20	R5146969
Escherichia Coli	<1		1	MPN/100mL		08-JUL-20	R5146969
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0099		0.0030	mg/L	09-JUL-20	13-JUL-20	R5152460
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Total	<0.00010		0.00010	mg/L	09-JUL-20	13-JUL-20	R5152460
Barium (Ba)-Total	0.00064		0.00010	mg/L	09-JUL-20	13-JUL-20	R5152460
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Total	<0.010		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Total	0.0000075		0.0000050	mg/L	09-JUL-20	13-JUL-20	R5152460
Calcium (Ca)-Total	4.30		0.050	mg/L	09-JUL-20	13-JUL-20	R5152460
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Total	0.00051		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Total	0.014		0.010	mg/L	09-JUL-20	13-JUL-20	R5152460
Lead (Pb)-Total	0.000101		0.000050	mg/L	09-JUL-20	13-JUL-20	R5152460
Lithium (Li)-Total	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Total	0.159		0.0050	mg/L	09-JUL-20	13-JUL-20	R5152460
Manganese (Mn)-Total	0.00182		0.00010	mg/L	09-JUL-20	13-JUL-20	R5152460
Molybdenum (Mo)-Total	0.000098		0.000050	mg/L	09-JUL-20	13-JUL-20	R5152460
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Total	0.322		0.050	mg/L	09-JUL-20	13-JUL-20	R5152460
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Total	<0.10		0.10	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Total	0.465		0.050	mg/L	09-JUL-20	13-JUL-20	R5152460
Strontium (Sr)-Total	0.00265		0.00020	mg/L	09-JUL-20	13-JUL-20	R5152460
Sulfur (S)-Total	0.80		0.50	mg/L	09-JUL-20	13-JUL-20	R5152460

* 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
L2470843-17 TRIP BLANK (NOT ON COFC)							
Sampled By: BS/TS							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Total	0.00014		0.00010	mg/L	09-JUL-20	13-JUL-20	R5152460
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Total	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Total	0.0454		0.0030	mg/L	09-JUL-20	13-JUL-20	R5152460
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					09-JUL-20	R5146649
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Boron (B)-Dissolved	<0.010		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	09-JUL-20	09-JUL-20	R5147555
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	09-JUL-20	09-JUL-20	R5147555
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	09-JUL-20	09-JUL-20	R5147555
Potassium (K)-Dissolved	<0.050		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	09-JUL-20	09-JUL-20	R5147555
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	09-JUL-20	09-JUL-20	R5147555
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	09-JUL-20	09-JUL-20	R5147555
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	09-JUL-20	09-JUL-20	R5147555
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	09-JUL-20	09-JUL-20	R5147555
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	09-JUL-20	09-JUL-20	R5147555
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	09-JUL-20	09-JUL-20	R5147555
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	09-JUL-20	09-JUL-20	R5147555

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP Water CCME PHC F2-F4 in Water EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP Water Hardness Calculated 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.

MET-D-CCMS-WP Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020B (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-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020B (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.

N-TOTKJ-WP Water Total Kjeldahl Nitrogen APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-T-L-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TD-L-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

P-TPART-L-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-LR-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TC,EC10-QT97-WP	Water	Total and E. coli, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Susbtrate Coliform Test". Total coliforms and Eschericia coli bacteria are simultaneously determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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: L2470843 Report Date: 24-JUL-20

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5147475								
WG3359714-14 LCS								
Alkalinity, Total (as CaCO3)			104.1		%		85-115	09-JUL-20
WG3359714-4 LCS								
Alkalinity, Total (as CaCO3)			102.0		%		85-115	09-JUL-20
WG3359714-9 LCS								
Alkalinity, Total (as CaCO3)			100.7		%		85-115	09-JUL-20
WG3359714-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	09-JUL-20
WG3359714-11 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	09-JUL-20
WG3359714-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	09-JUL-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5146769								
WG3358117-9 DUP		**L2470843-10**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-JUL-20
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	09-JUL-20
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-JUL-20
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-JUL-20
m+p-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	09-JUL-20
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	09-JUL-20
WG3358117-13 LCS								
F1 (C6-C10)			90.2		%		70-130	08-JUL-20
WG3358117-2 LCS								
Benzene			113.4		%		70-130	08-JUL-20
Toluene			99.9		%		70-130	08-JUL-20
Ethyl benzene			102.1		%		70-130	08-JUL-20
o-Xylene			107.2		%		70-130	08-JUL-20
m+p-Xylenes			103.6		%		70-130	08-JUL-20
WG3358117-3 LCS								
F1 (C6-C10)			98.5		%		70-130	08-JUL-20
WG3358117-8 LCS								
Benzene			106.0		%		70-130	08-JUL-20
Toluene			99.0		%		70-130	08-JUL-20
Ethyl benzene			99.9		%		70-130	08-JUL-20
o-Xylene			102.8		%		70-130	08-JUL-20
m+p-Xylenes			100.4		%		70-130	08-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Water**							
Batch R5146769								
WG3358117-1 MB								
Benzene			<0.00050		mg/L		0.0005	08-JUL-20
Toluene			<0.0010		mg/L		0.001	08-JUL-20
Ethyl benzene			<0.00050		mg/L		0.0005	08-JUL-20
o-Xylene			<0.00050		mg/L		0.0005	08-JUL-20
m+p-Xylenes			<0.00040		mg/L		0.0004	08-JUL-20
F1 (C6-C10)			<0.10		mg/L		0.1	08-JUL-20
Surrogate: 4-Bromofluorobenzene (SS)			87.5		%		70-130	08-JUL-20
WG3358117-7 MB								
Benzene			<0.00050		mg/L		0.0005	08-JUL-20
Toluene			<0.0010		mg/L		0.001	08-JUL-20
Ethyl benzene			<0.00050		mg/L		0.0005	08-JUL-20
o-Xylene			<0.00050		mg/L		0.0005	08-JUL-20
m+p-Xylenes			<0.00040		mg/L		0.0004	08-JUL-20
F1 (C6-C10)			<0.10		mg/L		0.1	08-JUL-20
Surrogate: 4-Bromofluorobenzene (SS)			82.9		%		70-130	08-JUL-20
WG3358117-10 MS		**L2470843-11**						
Benzene			100.1		%		50-150	08-JUL-20
Toluene			97.5		%		50-150	08-JUL-20
Ethyl benzene			98.5		%		50-150	08-JUL-20
o-Xylene			101.4		%		50-150	08-JUL-20
m+p-Xylenes			98.2		%		50-150	08-JUL-20
WG3358117-12 MS		**L2470843-12**						
F1 (C6-C10)			89.5		%		50-150	08-JUL-20
CL-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-11 DUP		**L2470843-15**						
Chloride (Cl)		6.46	6.28		mg/L	2.9	20	08-JUL-20
WG3358093-7 DUP		**L2470843-3**						
Chloride (Cl)		14.9	15.2		mg/L	2.1	20	08-JUL-20
WG3358093-10 LCS								
Chloride (Cl)			98.0		%		90-110	08-JUL-20
WG3358093-6 LCS								
Chloride (Cl)			98.1		%		90-110	08-JUL-20
WG3358093-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	08-JUL-20
WG3358093-9 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	08-JUL-20
WG3358093-12 MS		**L2470843-15**						
Chloride (Cl)			102.1		%		75-125	08-JUL-20
WG3358093-8 MS		**L2470843-3**						
Chloride (Cl)			103.7		%		75-125	08-JUL-20
F-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-11 DUP		**L2470843-15**						
Fluoride (F)		0.796	0.777		mg/L	2.5	20	08-JUL-20
WG3358093-7 DUP		**L2470843-3**						
Fluoride (F)		0.388	0.384		mg/L	1.0	20	08-JUL-20
WG3358093-10 LCS								
Fluoride (F)			97.0		%		90-110	08-JUL-20
WG3358093-6 LCS								
Fluoride (F)			99.3		%		90-110	08-JUL-20
WG3358093-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	08-JUL-20
WG3358093-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	08-JUL-20
WG3358093-12 MS		**L2470843-15**						
Fluoride (F)			94.8		%		75-125	08-JUL-20
WG3358093-8 MS		**L2470843-3**						
Fluoride (F)			99.3		%		75-125	08-JUL-20
F2-F4-FID-WP	**Water**							
Batch R5147430								
WG3358906-2 LCS								
F2 (C10-C16)			98.1		%		70-130	09-JUL-20
F3 (C16-C34)			95.5		%		70-130	09-JUL-20
F4 (C34-C50)			103.8		%		70-130	09-JUL-20
WG3358906-4 LCS								
F2 (C10-C16)			103.2		%		70-130	09-JUL-20
F3 (C16-C34)			92.3		%		70-130	09-JUL-20
F4 (C34-C50)			101.7		%		70-130	09-JUL-20
WG3358906-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	09-JUL-20
F3 (C16-C34)			<0.25		mg/L		0.25	09-JUL-20
F4 (C34-C50)			<0.25		mg/L		0.25	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	**Water**							
Batch R5147430								
WG3358906-1 MB								
Surrogate: 2-Bromobenzotrifluoride			95.8		%		60-140	09-JUL-20
WG3358906-3 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	09-JUL-20
F3 (C16-C34)			<0.25		mg/L		0.25	09-JUL-20
F4 (C34-C50)			<0.25		mg/L		0.25	09-JUL-20
Surrogate: 2-Bromobenzotrifluoride			98.9		%		60-140	09-JUL-20
MET-D-CCMS-WP	**Water**							
Batch R5147555								
WG3358814-4 DUP		**L2470843-1**						
Aluminum (Al)-Dissolved		0.0020	0.0021		mg/L	1.7	20	09-JUL-20
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Arsenic (As)-Dissolved		0.00035	0.00033		mg/L	5.1	20	09-JUL-20
Barium (Ba)-Dissolved		0.0287	0.0279		mg/L	2.9	20	09-JUL-20
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-JUL-20
Boron (B)-Dissolved		0.614	0.663		mg/L	7.7	20	09-JUL-20
Cadmium (Cd)-Dissolved		<0.0000050	<0.000005C	RPD-NA	mg/L	N/A	20	09-JUL-20
Calcium (Ca)-Dissolved		58.8	59.1		mg/L	0.5	20	09-JUL-20
Cesium (Cs)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-JUL-20
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Iron (Fe)-Dissolved		0.047	0.047		mg/L	0.4	20	09-JUL-20
Lead (Pb)-Dissolved		0.000109	0.000110		mg/L	0.8	20	09-JUL-20
Lithium (Li)-Dissolved		0.0401	0.0405		mg/L	0.9	20	09-JUL-20
Magnesium (Mg)-Dissolved		48.4	47.7		mg/L	1.5	20	09-JUL-20
Manganese (Mn)-Dissolved		0.0130	0.0127		mg/L	2.6	20	09-JUL-20
Molybdenum (Mo)-Dissolved		0.000422	0.000430		mg/L	1.8	20	09-JUL-20
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	09-JUL-20
Phosphorus (P)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	09-JUL-20
Potassium (K)-Dissolved		9.26	9.19		mg/L	0.8	20	09-JUL-20
Rubidium (Rb)-Dissolved		0.00644	0.00633		mg/L	1.7	20	09-JUL-20
Selenium (Se)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-JUL-20
Silicon (Si)-Dissolved		3.68	3.71		mg/L	0.8	20	09-JUL-20
Silver (Ag)-Dissolved		0.000019	<0.000010	RPD-NA	mg/L	N/A	20	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5147555								
WG3358814-4 DUP		**L2470843-1**						
Sodium (Na)-Dissolved		44.7	44.3		mg/L	0.9	20	09-JUL-20
Strontium (Sr)-Dissolved		0.436	0.443		mg/L	1.6	20	09-JUL-20
Sulfur (S)-Dissolved		54.0	53.4		mg/L	1.3	20	09-JUL-20
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	09-JUL-20
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-JUL-20
Thorium (Th)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	09-JUL-20
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-JUL-20
Uranium (U)-Dissolved		0.00122	0.00123		mg/L	0.5	20	09-JUL-20
Vanadium (V)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	09-JUL-20
Zinc (Zn)-Dissolved		0.0029	0.0028		mg/L	6.0	20	09-JUL-20
Zirconium (Zr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	09-JUL-20
WG3358814-2 LCS								
Aluminum (Al)-Dissolved			100.1		%		80-120	09-JUL-20
Antimony (Sb)-Dissolved			99.2		%		80-120	09-JUL-20
Arsenic (As)-Dissolved			100.0		%		80-120	09-JUL-20
Barium (Ba)-Dissolved			97.4		%		80-120	09-JUL-20
Beryllium (Be)-Dissolved			100.3		%		80-120	09-JUL-20
Bismuth (Bi)-Dissolved			99.0		%		80-120	09-JUL-20
Boron (B)-Dissolved			98.8		%		80-120	09-JUL-20
Cadmium (Cd)-Dissolved			97.5		%		80-120	09-JUL-20
Calcium (Ca)-Dissolved			100.4		%		80-120	09-JUL-20
Cesium (Cs)-Dissolved			97.8		%		80-120	09-JUL-20
Chromium (Cr)-Dissolved			101.5		%		80-120	09-JUL-20
Cobalt (Co)-Dissolved			100.3		%		80-120	09-JUL-20
Copper (Cu)-Dissolved			99.7		%		80-120	09-JUL-20
Iron (Fe)-Dissolved			93.7		%		80-120	09-JUL-20
Lead (Pb)-Dissolved			100.8		%		80-120	09-JUL-20
Lithium (Li)-Dissolved			101.8		%		80-120	09-JUL-20
Magnesium (Mg)-Dissolved			108.1		%		80-120	09-JUL-20
Manganese (Mn)-Dissolved			101.2		%		80-120	09-JUL-20
Molybdenum (Mo)-Dissolved			101.4		%		80-120	09-JUL-20
Nickel (Ni)-Dissolved			98.0		%		80-120	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5147555								
WG3358814-2 LCS								
Phosphorus (P)-Dissolved			100.1		%		80-120	09-JUL-20
Potassium (K)-Dissolved			101.1		%		80-120	09-JUL-20
Rubidium (Rb)-Dissolved			100.7		%		80-120	09-JUL-20
Selenium (Se)-Dissolved			95.5		%		80-120	09-JUL-20
Silicon (Si)-Dissolved			97.7		%		80-120	09-JUL-20
Silver (Ag)-Dissolved			98.0		%		80-120	09-JUL-20
Sodium (Na)-Dissolved			100.9		%		80-120	09-JUL-20
Strontium (Sr)-Dissolved			97.4		%		80-120	09-JUL-20
Sulfur (S)-Dissolved			89.3		%		80-120	09-JUL-20
Tellurium (Te)-Dissolved			99.4		%		80-120	09-JUL-20
Thallium (Tl)-Dissolved			100.9		%		80-120	09-JUL-20
Thorium (Th)-Dissolved			98.5		%		80-120	09-JUL-20
Tin (Sn)-Dissolved			97.0		%		80-120	09-JUL-20
Titanium (Ti)-Dissolved			96.4		%		80-120	09-JUL-20
Tungsten (W)-Dissolved			99.6		%		80-120	09-JUL-20
Uranium (U)-Dissolved			99.7		%		80-120	09-JUL-20
Vanadium (V)-Dissolved			100.0		%		80-120	09-JUL-20
Zinc (Zn)-Dissolved			99.9		%		80-120	09-JUL-20
Zirconium (Zr)-Dissolved			93.6		%		80-120	09-JUL-20
WG3358814-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	09-JUL-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	09-JUL-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	09-JUL-20
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	09-JUL-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	09-JUL-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	09-JUL-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	09-JUL-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5147555								
WG3358814-1 MB								
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	09-JUL-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	09-JUL-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	09-JUL-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	09-JUL-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	09-JUL-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	09-JUL-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	09-JUL-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	09-JUL-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	09-JUL-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	09-JUL-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	09-JUL-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	09-JUL-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	09-JUL-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	09-JUL-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	09-JUL-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	09-JUL-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	09-JUL-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	09-JUL-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	09-JUL-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	09-JUL-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	09-JUL-20
WG3358814-5 MS		**L2470843-1**						
Aluminum (Al)-Dissolved			98.2		%		70-130	09-JUL-20
Antimony (Sb)-Dissolved			95.4		%		70-130	09-JUL-20
Arsenic (As)-Dissolved			100.8		%		70-130	09-JUL-20
Barium (Ba)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Beryllium (Be)-Dissolved			95.3		%		70-130	09-JUL-20
Bismuth (Bi)-Dissolved			81.5		%		70-130	09-JUL-20
Boron (B)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Cadmium (Cd)-Dissolved			95.1		%		70-130	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5147555								
WG3358814-5 MS		**L2470843-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Cesium (Cs)-Dissolved			91.6		%		70-130	09-JUL-20
Chromium (Cr)-Dissolved			97.5		%		70-130	09-JUL-20
Cobalt (Co)-Dissolved			95.0		%		70-130	09-JUL-20
Iron (Fe)-Dissolved			91.5		%		70-130	09-JUL-20
Lead (Pb)-Dissolved			91.7		%		70-130	09-JUL-20
Lithium (Li)-Dissolved			92.6		%		70-130	09-JUL-20
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Manganese (Mn)-Dissolved			93.5		%		70-130	09-JUL-20
Molybdenum (Mo)-Dissolved			98.7		%		70-130	09-JUL-20
Nickel (Ni)-Dissolved			90.3		%		70-130	09-JUL-20
Phosphorus (P)-Dissolved			105.3		%		70-130	09-JUL-20
Potassium (K)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Rubidium (Rb)-Dissolved			95.2		%		70-130	09-JUL-20
Selenium (Se)-Dissolved			98.8		%		70-130	09-JUL-20
Silicon (Si)-Dissolved			88.1		%		70-130	09-JUL-20
Silver (Ag)-Dissolved			83.4		%		70-130	09-JUL-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Sulfur (S)-Dissolved			N/A	MS-B	%		-	09-JUL-20
Tellurium (Te)-Dissolved			95.1		%		70-130	09-JUL-20
Thallium (Tl)-Dissolved			91.7		%		70-130	09-JUL-20
Thorium (Th)-Dissolved			94.6		%		70-130	09-JUL-20
Tin (Sn)-Dissolved			95.6		%		70-130	09-JUL-20
Titanium (Ti)-Dissolved			99.0		%		70-130	09-JUL-20
Tungsten (W)-Dissolved			96.3		%		70-130	09-JUL-20
Uranium (U)-Dissolved			92.0		%		70-130	09-JUL-20
Vanadium (V)-Dissolved			98.4		%		70-130	09-JUL-20
Zinc (Zn)-Dissolved			93.1		%		70-130	09-JUL-20
Zirconium (Zr)-Dissolved			93.2		%		70-130	09-JUL-20
MET-T-CCMS-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5147555								
WG3358024-2 LCS								
Aluminum (Al)-Total			116.2		%		80-120	09-JUL-20
Antimony (Sb)-Total			101.3		%		80-120	09-JUL-20
Arsenic (As)-Total			105.3		%		80-120	09-JUL-20
Barium (Ba)-Total			103.8		%		80-120	09-JUL-20
Beryllium (Be)-Total			114.1		%		80-120	09-JUL-20
Bismuth (Bi)-Total			100.2		%		80-120	09-JUL-20
Boron (B)-Total			122.8	MES	%		80-120	09-JUL-20
Cadmium (Cd)-Total			100.1		%		80-120	09-JUL-20
Calcium (Ca)-Total			96.1		%		80-120	09-JUL-20
Cesium (Cs)-Total			101.8		%		80-120	09-JUL-20
Chromium (Cr)-Total			103.9		%		80-120	09-JUL-20
Cobalt (Co)-Total			101.9		%		80-120	09-JUL-20
Copper (Cu)-Total			102.1		%		80-120	09-JUL-20
Iron (Fe)-Total			84.8		%		80-120	09-JUL-20
Lead (Pb)-Total			102.1		%		80-120	09-JUL-20
Lithium (Li)-Total			107.4		%		80-120	09-JUL-20
Magnesium (Mg)-Total			115.9		%		80-120	09-JUL-20
Manganese (Mn)-Total			109.3		%		80-120	09-JUL-20
Molybdenum (Mo)-Total			108.8		%		80-120	09-JUL-20
Nickel (Ni)-Total			100.1		%		80-120	09-JUL-20
Potassium (K)-Total			112.4		%		80-120	09-JUL-20
Phosphorus (P)-Total			116.8		%		80-120	09-JUL-20
Rubidium (Rb)-Total			105.4		%		80-120	09-JUL-20
Selenium (Se)-Total			88.2		%		80-120	09-JUL-20
Silicon (Si)-Total			106.0		%		80-120	09-JUL-20
Silver (Ag)-Total			104.7		%		80-120	09-JUL-20
Sodium (Na)-Total			106.5		%		80-120	09-JUL-20
Strontium (Sr)-Total			104.8		%		80-120	09-JUL-20
Sulfur (S)-Total			102.1		%		80-120	09-JUL-20
Tellurium (Te)-Total			106.4		%		80-120	09-JUL-20
Thallium (Tl)-Total			104.6		%		80-120	09-JUL-20
Thorium (Th)-Total			95.9		%		80-120	09-JUL-20
Tin (Sn)-Total			99.4		%		80-120	09-JUL-20
Titanium (Ti)-Total			106.8		%		80-120	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5147555								
WG3358024-2 LCS								
Tungsten (W)-Total			104.9		%		80-120	09-JUL-20
Uranium (U)-Total			98.5		%		80-120	09-JUL-20
Vanadium (V)-Total			105.7		%		80-120	09-JUL-20
Zinc (Zn)-Total			107.7		%		80-120	09-JUL-20
Zirconium (Zr)-Total			102.9		%		80-120	09-JUL-20
WG3358024-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	09-JUL-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	09-JUL-20
Boron (B)-Total			<0.010		mg/L		0.01	09-JUL-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	09-JUL-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	09-JUL-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	09-JUL-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	09-JUL-20
Iron (Fe)-Total			<0.010		mg/L		0.01	09-JUL-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-JUL-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	09-JUL-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	09-JUL-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-JUL-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-JUL-20
Potassium (K)-Total			<0.050		mg/L		0.05	09-JUL-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	09-JUL-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	09-JUL-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	09-JUL-20
Silicon (Si)-Total			<0.10		mg/L		0.1	09-JUL-20
Silver (Ag)-Total			0.000013	B	mg/L		0.00001	09-JUL-20
Sodium (Na)-Total			<0.050		mg/L		0.05	09-JUL-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	09-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5147555								
WG3358024-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	09-JUL-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	09-JUL-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	09-JUL-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	09-JUL-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	09-JUL-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	09-JUL-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	09-JUL-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	09-JUL-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	09-JUL-20
Batch R5150018								
WG3358020-2 LCS								
Aluminum (Al)-Total			103.7		%		80-120	10-JUL-20
Antimony (Sb)-Total			96.5		%		80-120	10-JUL-20
Arsenic (As)-Total			97.1		%		80-120	10-JUL-20
Barium (Ba)-Total			99.8		%		80-120	10-JUL-20
Beryllium (Be)-Total			100.4		%		80-120	10-JUL-20
Bismuth (Bi)-Total			100.5		%		80-120	10-JUL-20
Boron (B)-Total			96.6		%		80-120	10-JUL-20
Cadmium (Cd)-Total			97.6		%		80-120	10-JUL-20
Calcium (Ca)-Total			94.7		%		80-120	10-JUL-20
Cesium (Cs)-Total			97.8		%		80-120	10-JUL-20
Chromium (Cr)-Total			96.3		%		80-120	10-JUL-20
Cobalt (Co)-Total			95.3		%		80-120	10-JUL-20
Copper (Cu)-Total			96.3		%		80-120	10-JUL-20
Iron (Fe)-Total			97.3		%		80-120	10-JUL-20
Lead (Pb)-Total			98.1		%		80-120	10-JUL-20
Lithium (Li)-Total			102.9		%		80-120	10-JUL-20
Magnesium (Mg)-Total			104.7		%		80-120	10-JUL-20
Manganese (Mn)-Total			98.9		%		80-120	10-JUL-20
Molybdenum (Mo)-Total			98.8		%		80-120	10-JUL-20
Nickel (Ni)-Total			95.5		%		80-120	10-JUL-20
Potassium (K)-Total			105.1		%		80-120	10-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5150018								
WG3358020-2 LCS								
Phosphorus (P)-Total			101.8		%		80-120	10-JUL-20
Rubidium (Rb)-Total			100.1		%		80-120	10-JUL-20
Selenium (Se)-Total			106.2		%		80-120	10-JUL-20
Silicon (Si)-Total			113.5		%		80-120	10-JUL-20
Silver (Ag)-Total			95.6		%		80-120	10-JUL-20
Sodium (Na)-Total			102.7		%		80-120	10-JUL-20
Strontium (Sr)-Total			100.2		%		80-120	10-JUL-20
Sulfur (S)-Total			113.4		%		80-120	10-JUL-20
Tellurium (Te)-Total			92.9		%		80-120	10-JUL-20
Thallium (Tl)-Total			98.4		%		80-120	10-JUL-20
Thorium (Th)-Total			96.7		%		80-120	10-JUL-20
Tin (Sn)-Total			95.2		%		80-120	10-JUL-20
Titanium (Ti)-Total			96.8		%		80-120	10-JUL-20
Tungsten (W)-Total			95.2		%		80-120	10-JUL-20
Uranium (U)-Total			101.6		%		80-120	10-JUL-20
Vanadium (V)-Total			98.3		%		80-120	10-JUL-20
Zinc (Zn)-Total			95.8		%		80-120	10-JUL-20
Zirconium (Zr)-Total			93.9		%		80-120	10-JUL-20
WG3358020-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	10-JUL-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	10-JUL-20
Boron (B)-Total			<0.010		mg/L		0.01	10-JUL-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	10-JUL-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	10-JUL-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	10-JUL-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	10-JUL-20
Iron (Fe)-Total			<0.010		mg/L		0.01	10-JUL-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	10-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5150018								
WG3358020-1 MB								
Lithium (Li)-Total			<0.0010		mg/L		0.001	10-JUL-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	10-JUL-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	10-JUL-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	10-JUL-20
Potassium (K)-Total			<0.050		mg/L		0.05	10-JUL-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	10-JUL-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	10-JUL-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	10-JUL-20
Silicon (Si)-Total			<0.10		mg/L		0.1	10-JUL-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	10-JUL-20
Sodium (Na)-Total			<0.050		mg/L		0.05	10-JUL-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	10-JUL-20
Sulfur (S)-Total			<0.50		mg/L		0.5	10-JUL-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	10-JUL-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	10-JUL-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	10-JUL-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	10-JUL-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	10-JUL-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	10-JUL-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	10-JUL-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	10-JUL-20
N-TOTKJ-WP	**Water**							
Batch R5147687								
WG3357882-7 DUP		**L2470843-3**						
Total Kjeldahl Nitrogen		<0.20	<0.20	RPD-NA	mg/L	N/A	20	10-JUL-20
WG3357882-2 LCS								
Total Kjeldahl Nitrogen			98.9		%		75-125	10-JUL-20
WG3357882-6 LCS								
Total Kjeldahl Nitrogen			97.5		%		75-125	10-JUL-20
WG3357882-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	10-JUL-20
WG3357882-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOTKJ-WP	**Water**							
Batch R5147687								
WG3357882-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	10-JUL-20
WG3357882-8 MS		**L2470843-3**						
Total Kjeldahl Nitrogen			100.9		%		70-130	10-JUL-20
NH3-COL-WP	**Water**							
Batch R5147967								
WG3360212-2 LCS								
Ammonia, Total (as N)			102.1		%		85-115	10-JUL-20
WG3360212-6 LCS								
Ammonia, Total (as N)			98.8		%		85-115	10-JUL-20
WG3360212-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	10-JUL-20
WG3360212-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	10-JUL-20
Batch R5153737								
WG3362284-6 LCS								
Ammonia, Total (as N)			100.9		%		85-115	14-JUL-20
WG3362284-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	14-JUL-20
Batch R5157280								
WG3364967-2 LCS								
Ammonia, Total (as N)			99.6		%		85-115	16-JUL-20
WG3364967-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	16-JUL-20
NO2-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-11 DUP		**L2470843-15**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	08-JUL-20
WG3358093-7 DUP		**L2470843-3**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	08-JUL-20
WG3358093-10 LCS								
Nitrite (as N)			101.5		%		90-110	08-JUL-20
WG3358093-6 LCS								
Nitrite (as N)			100.4		%		90-110	08-JUL-20
WG3358093-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	08-JUL-20
WG3358093-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	08-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-12 MS		**L2470843-15**						
Nitrite (as N)			103.7		%		75-125	08-JUL-20
WG3358093-8 MS		**L2470843-3**						
Nitrite (as N)			103.4		%		75-125	08-JUL-20
NO3-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-11 DUP		**L2470843-15**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	08-JUL-20
WG3358093-7 DUP		**L2470843-3**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	08-JUL-20
WG3358093-10 LCS								
Nitrate (as N)			97.0		%		90-110	08-JUL-20
WG3358093-6 LCS								
Nitrate (as N)			97.2		%		90-110	08-JUL-20
WG3358093-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	08-JUL-20
WG3358093-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	08-JUL-20
WG3358093-12 MS		**L2470843-15**						
Nitrate (as N)			104.6		%		75-125	08-JUL-20
WG3358093-8 MS		**L2470843-3**						
Nitrate (as N)			102.5		%		75-125	08-JUL-20
P-T-COL-WP	**Water**							
Batch R5146696								
WG3358395-14 LCS								
Phosphorus (P)-Total			96.4		%		80-120	09-JUL-20
WG3358395-18 LCS								
Phosphorus (P)-Total			97.9		%		80-120	09-JUL-20
WG3358395-13 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	09-JUL-20
WG3358395-17 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	09-JUL-20
WG3358395-20 MS		**L2470843-16**						
Phosphorus (P)-Total			103.2		%		70-130	09-JUL-20
P-T-L-COL-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-L-COL-WP	**Water**							
Batch R5147746								
WG3359983-2 LCS								
Phosphorus (P)-Total			107.0		%		80-120	10-JUL-20
WG3359983-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	10-JUL-20
P-TD-COL-WP	**Water**							
Batch R5147649								
WG3359662-2 LCS								
Phosphorus (P)-Total	Dissolved		98.8		%		80-120	10-JUL-20
WG3359662-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	10-JUL-20
WG3359662-4 MS		**L2470843-2**						
Phosphorus (P)-Total	Dissolved		102.3		%		70-130	10-JUL-20
P-TD-L-COL-WP	**Water**							
Batch R5147746								
WG3359982-2 LCS								
Phosphorus (P)-Total	Dissolved		107.4		%		80-120	10-JUL-20
WG3359982-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	10-JUL-20
Batch R5154612								
WG3362441-3 DUP		**L2470843-14**						
Phosphorus (P)-Total	Dissolved	<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-20
WG3362441-2 LCS								
Phosphorus (P)-Total	Dissolved		105.8		%		80-120	16-JUL-20
WG3362441-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	16-JUL-20
WG3362441-4 MS		**L2470843-14**						
Phosphorus (P)-Total	Dissolved		99.1		%		70-130	16-JUL-20
SO4-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-11 DUP		**L2470843-15**						
Sulfate (SO4)		110	109		mg/L	1.0	20	08-JUL-20
WG3358093-7 DUP		**L2470843-3**						
Sulfate (SO4)		153	156		mg/L	1.5	20	08-JUL-20
WG3358093-10 LCS								
Sulfate (SO4)			97.8		%		90-110	08-JUL-20
WG3358093-6 LCS								
Sulfate (SO4)			98.1		%		90-110	08-JUL-20
WG3358093-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP	**Water**							
Batch R5147780								
WG3358093-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	08-JUL-20
WG3358093-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	08-JUL-20
WG3358093-12 MS		**L2470843-15**						
Sulfate (SO4)			N/A	MS-B	%		-	08-JUL-20
WG3358093-8 MS		**L2470843-3**						
Sulfate (SO4)			N/A	MS-B	%		-	08-JUL-20
SOLIDS-TOTSUS-LR-WP	**Water**							
Batch R5152121								
WG3359226-2 LCS								
Total Suspended Solids			96.0		%		85-115	10-JUL-20
WG3359226-1 MB								
Total Suspended Solids			<1.0		mg/L		1	10-JUL-20
Batch R5154572								
WG3361113-2 LCS								
Total Suspended Solids			95.8		%		85-115	13-JUL-20
WG3361113-1 MB								
Total Suspended Solids			<1.0		mg/L		1	13-JUL-20
TC,EC-QT97-WP	**Water**							
Batch R5146157								
WG3357459-1 MB								
Total Coliforms			<1		MPN/100mL		1	07-JUL-20
Escherichia Coli			<1		MPN/100mL		1	07-JUL-20
Batch R5146969								
WG3358222-2 DUP		**L2470843-17**						
Total Coliforms		<1	<1	RPD-NA	MPN/100mL	N/A	65	08-JUL-20
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	08-JUL-20
WG3358222-1 MB								
Total Coliforms			<1		MPN/100mL		1	08-JUL-20
Escherichia Coli			<1		MPN/100mL		1	08-JUL-20
TC,EC10-QT97-WP	**Water**							
Batch R5146330								
WG3357499-2 DUP		**L2470843-6**						
Total Coliforms		930	640		MPN/100mL	37	65	07-JUL-20
Escherichia Coli		<10	<10	RPD-NA	MPN/100mL	N/A	65	07-JUL-20
WG3357499-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC10-QT97-WP	**Water**							
Batch R5146330								
WG3357499-1 MB								
Total Coliforms			<1		MPN/100mL		1	07-JUL-20
Escherichia Coli			<1		MPN/100mL		1	07-JUL-20
TDS-WP	**Water**							
Batch R5152679								
WG3359847-3 DUP		**L2470843-10**						
Total Dissolved Solids		460	477		mg/L	3.5	20	10-JUL-20
WG3359847-6 DUP		**L2470843-16**						
Total Dissolved Solids		444	439		mg/L	1.2	20	10-JUL-20
WG3359847-2 LCS								
Total Dissolved Solids			90.0		%		85-115	10-JUL-20
WG3359847-5 LCS								
Total Dissolved Solids			90.6		%		85-115	10-JUL-20
WG3359847-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	10-JUL-20
WG3359847-4 MB								
Total Dissolved Solids			<4.0		mg/L		4	10-JUL-20
Batch R5154182								
WG3361161-2 LCS								
Total Dissolved Solids			96.6		%		85-115	13-JUL-20
WG3361161-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	13-JUL-20

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.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
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.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	06-JUL-20 09:51	07-JUL-20 18:30	30	33	hours	EHTR
	2	06-JUL-20 11:05	07-JUL-20 18:30	30	31	hours	EHTL

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 L2470843 were received on 07-JUL-20 16:15.

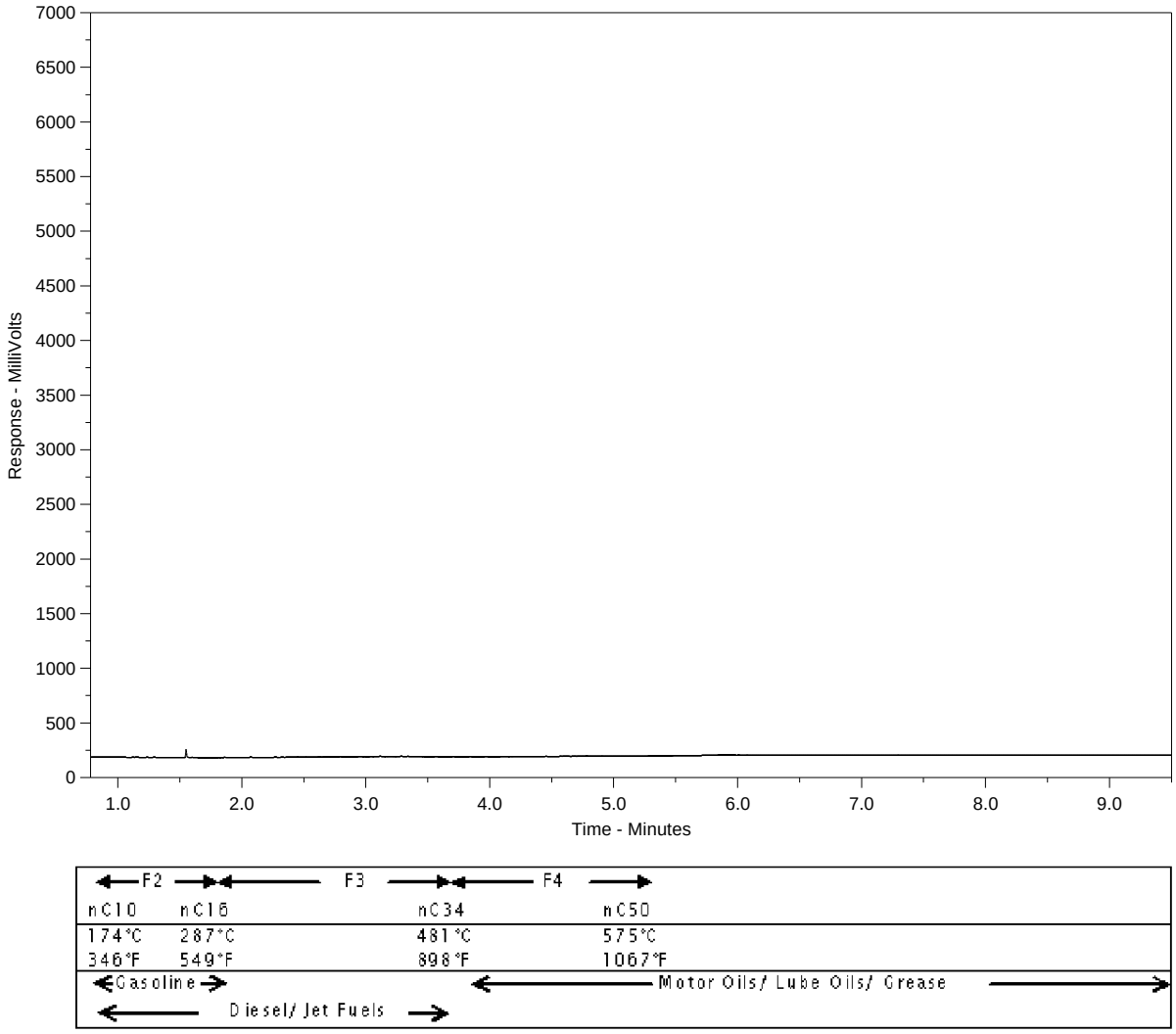
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2470843-1
Client Sample ID: OW19-40



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

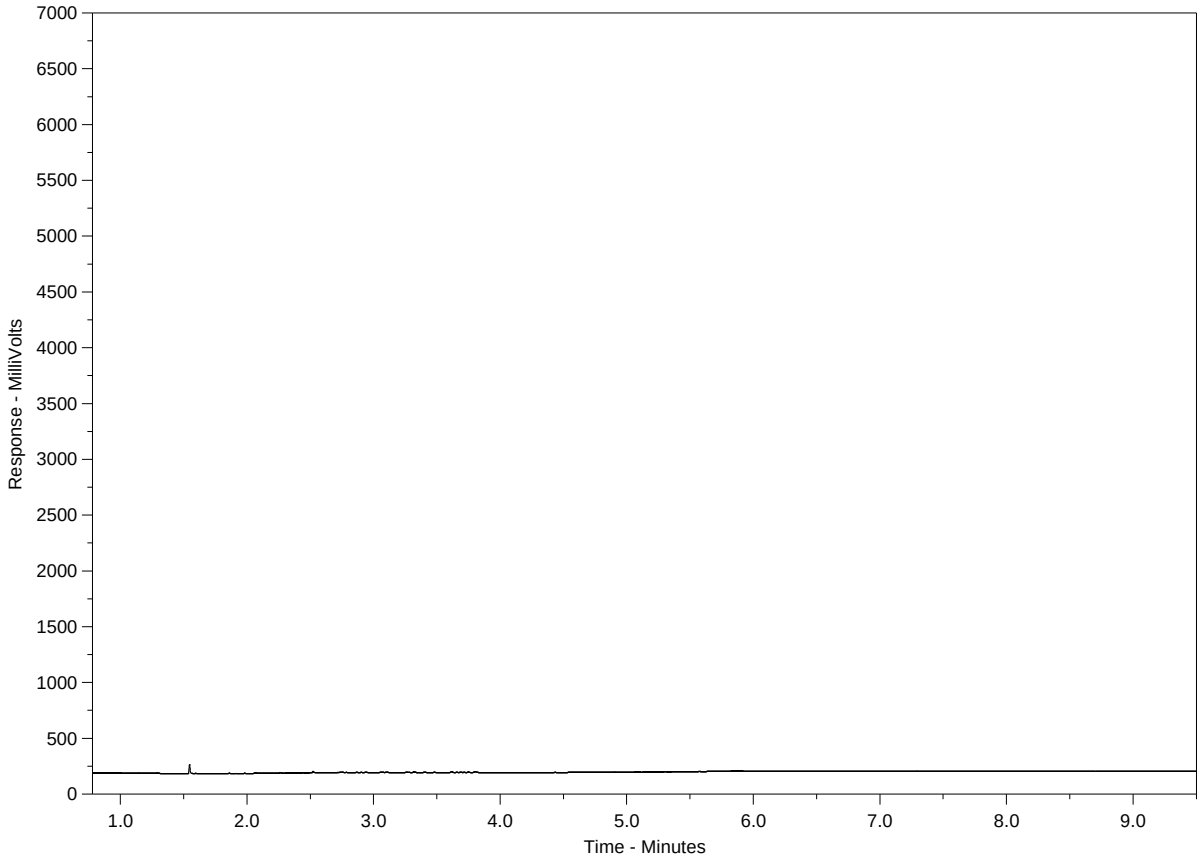
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

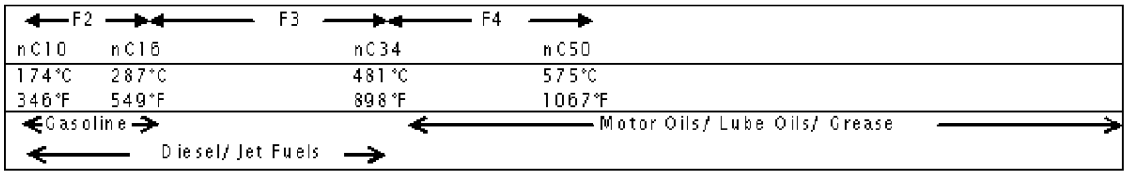
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-2
Client Sample ID: D2





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

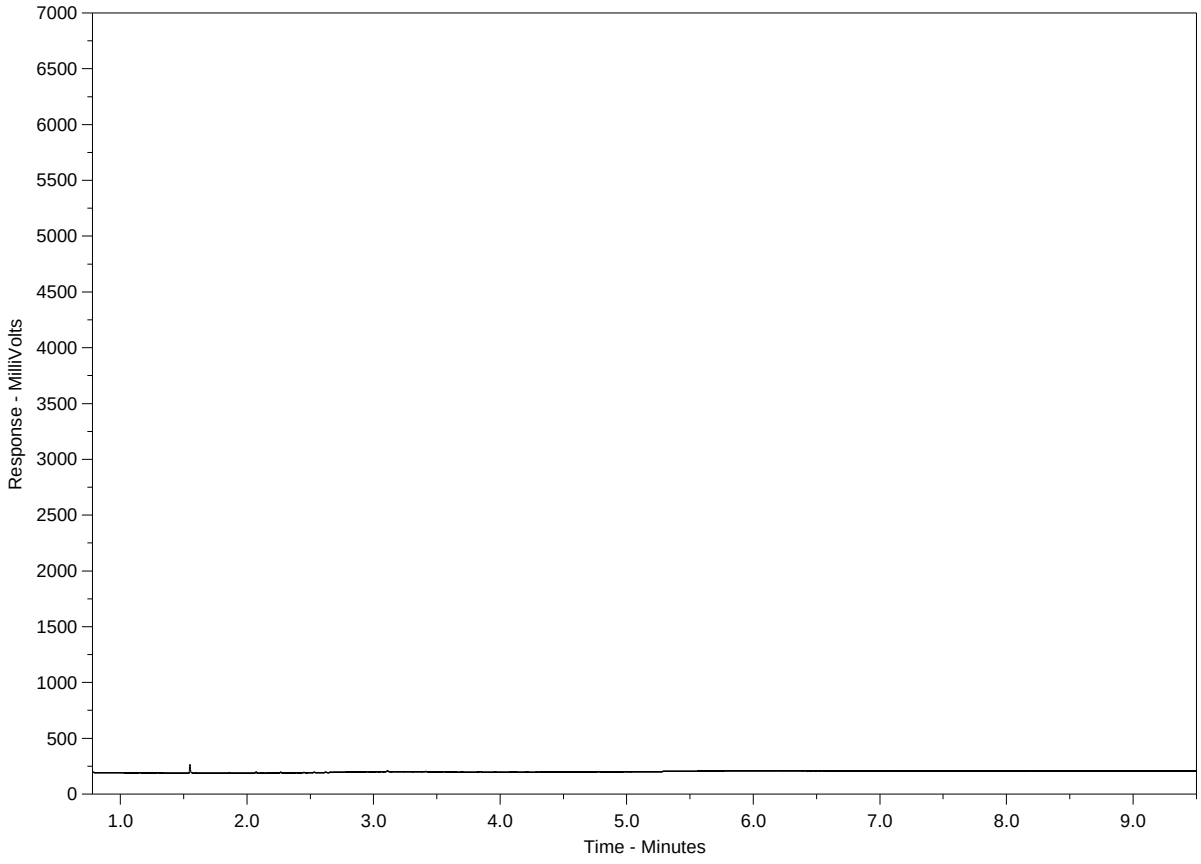
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

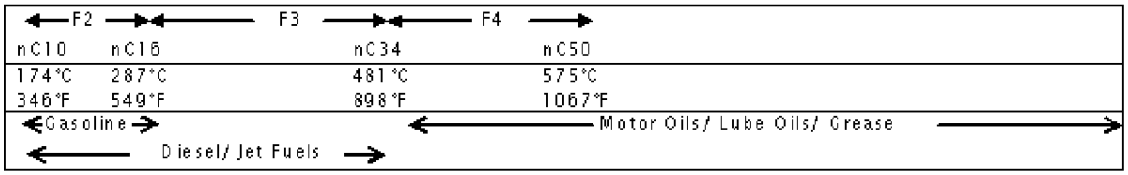
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-3
Client Sample ID: CH19-37





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

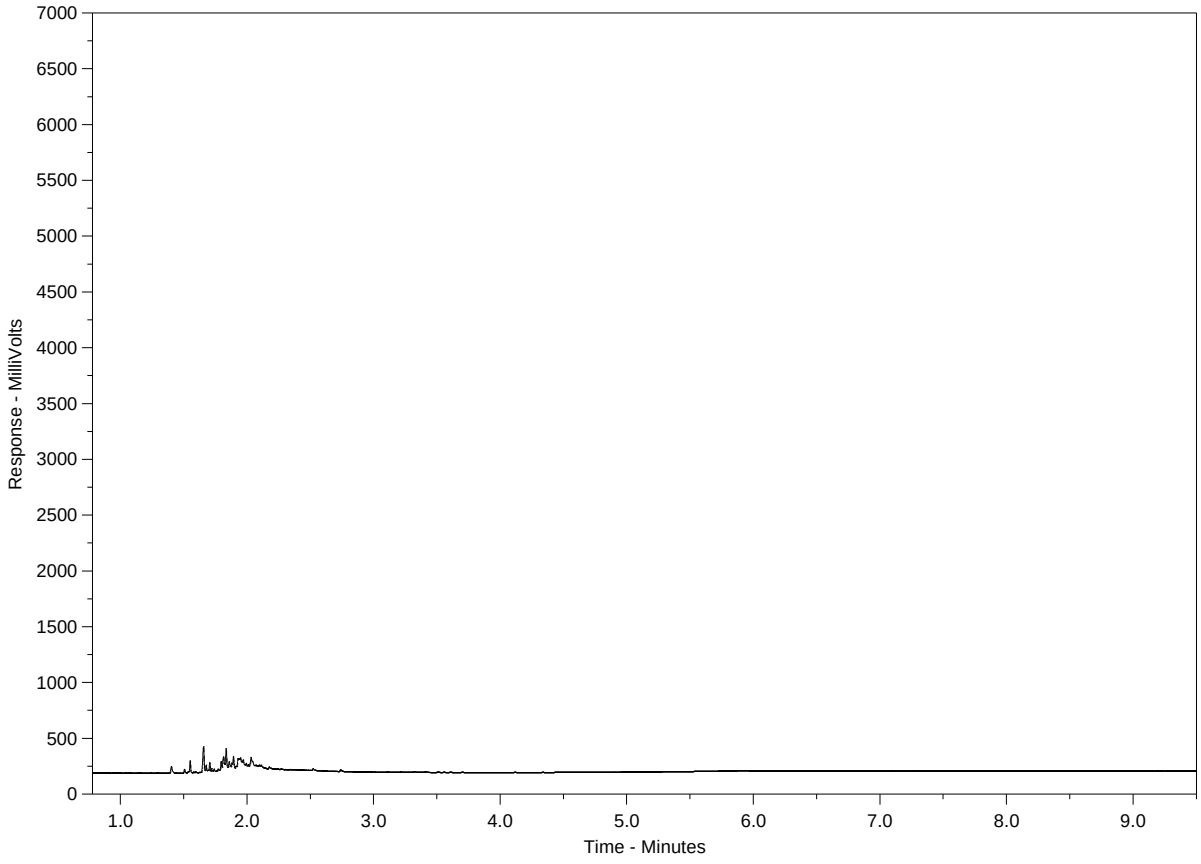
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

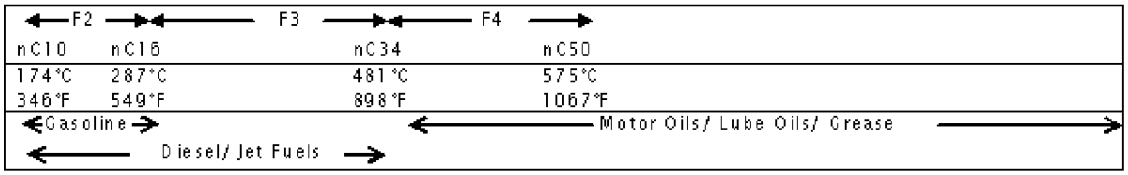
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-4
Client Sample ID: OW19-23





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

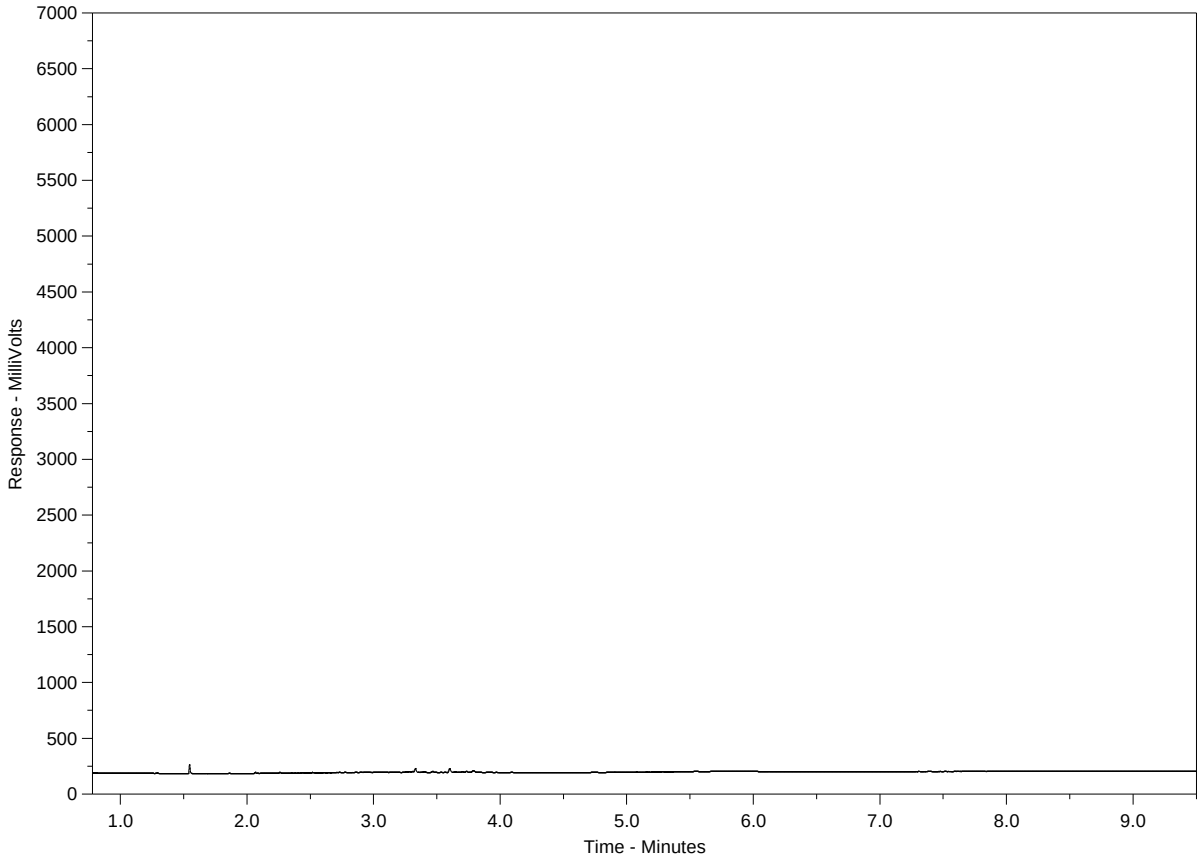
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

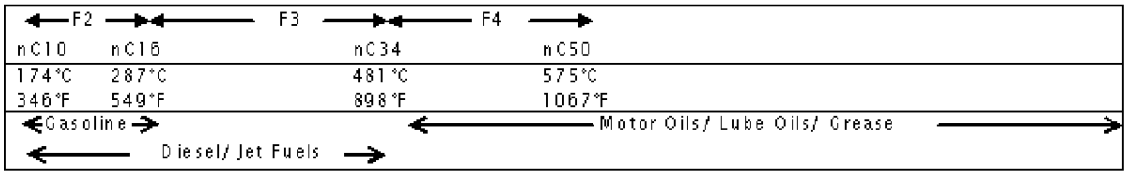
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-5
Client Sample ID: D4





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

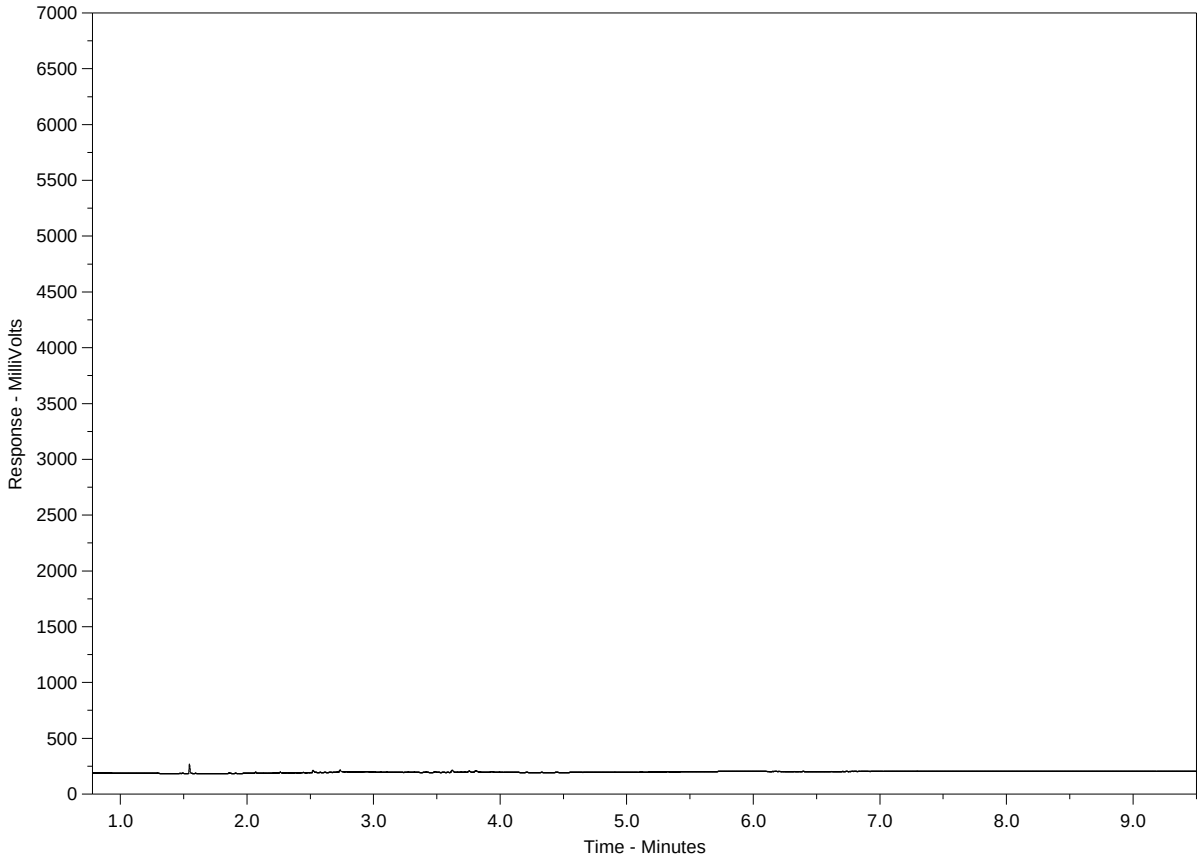
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

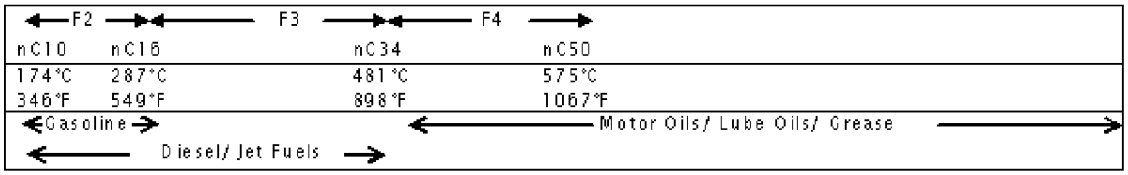
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-6
Client Sample ID: D11





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

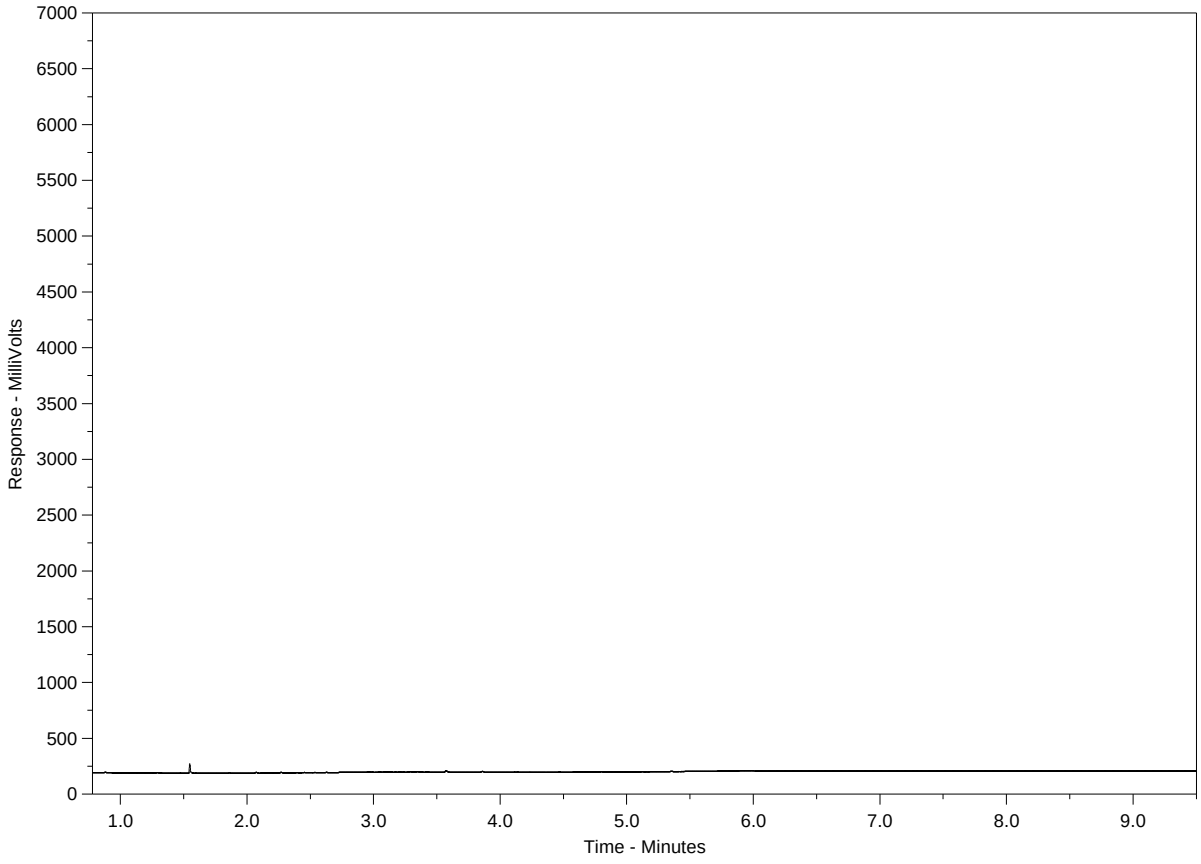
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

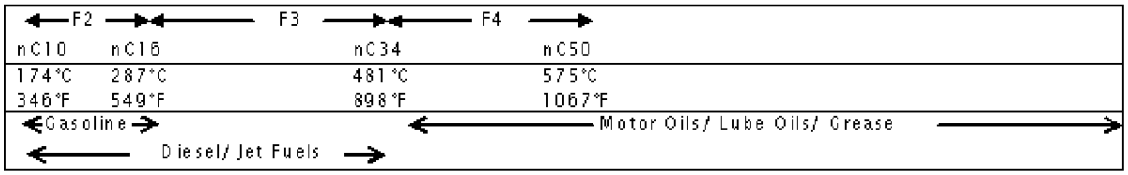
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-7
Client Sample ID: BH19-29





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

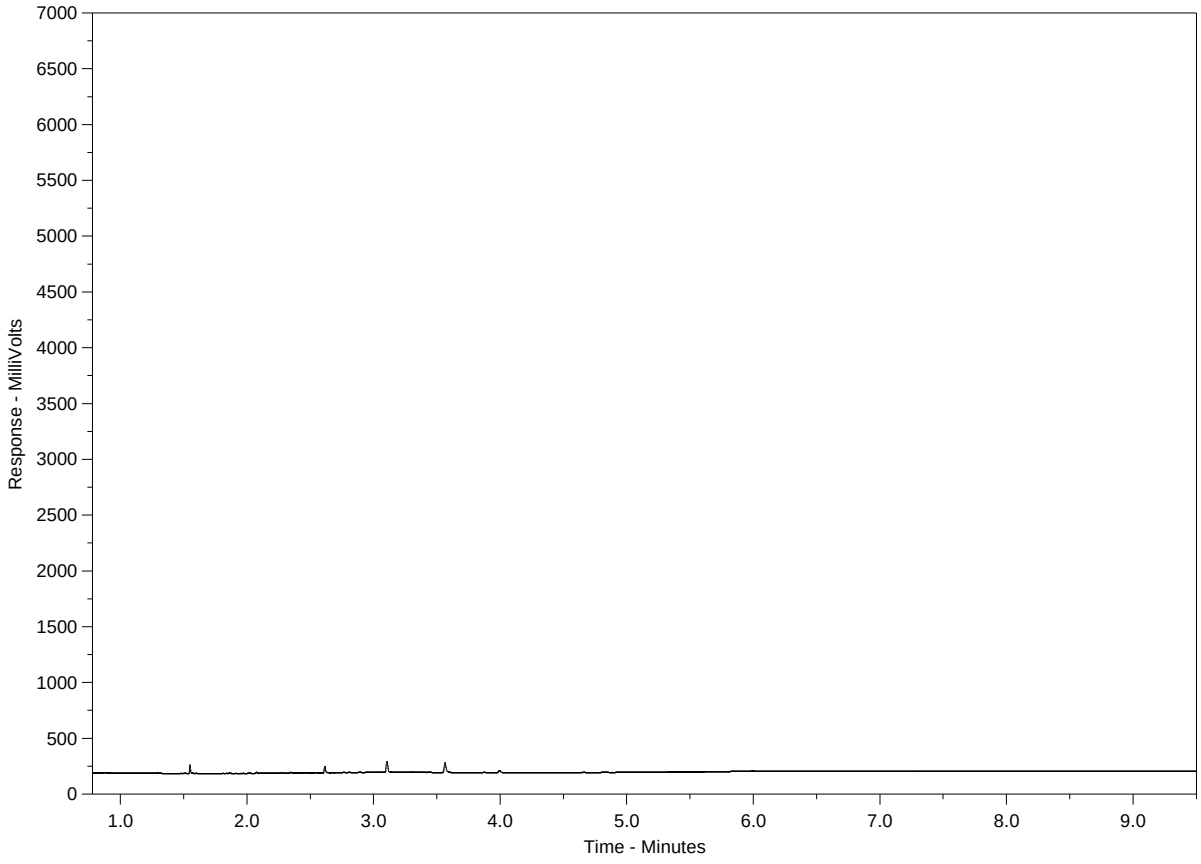
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

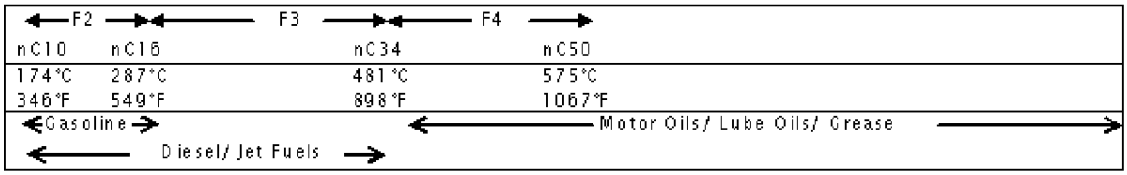
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-8
Client Sample ID: OW19-05





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

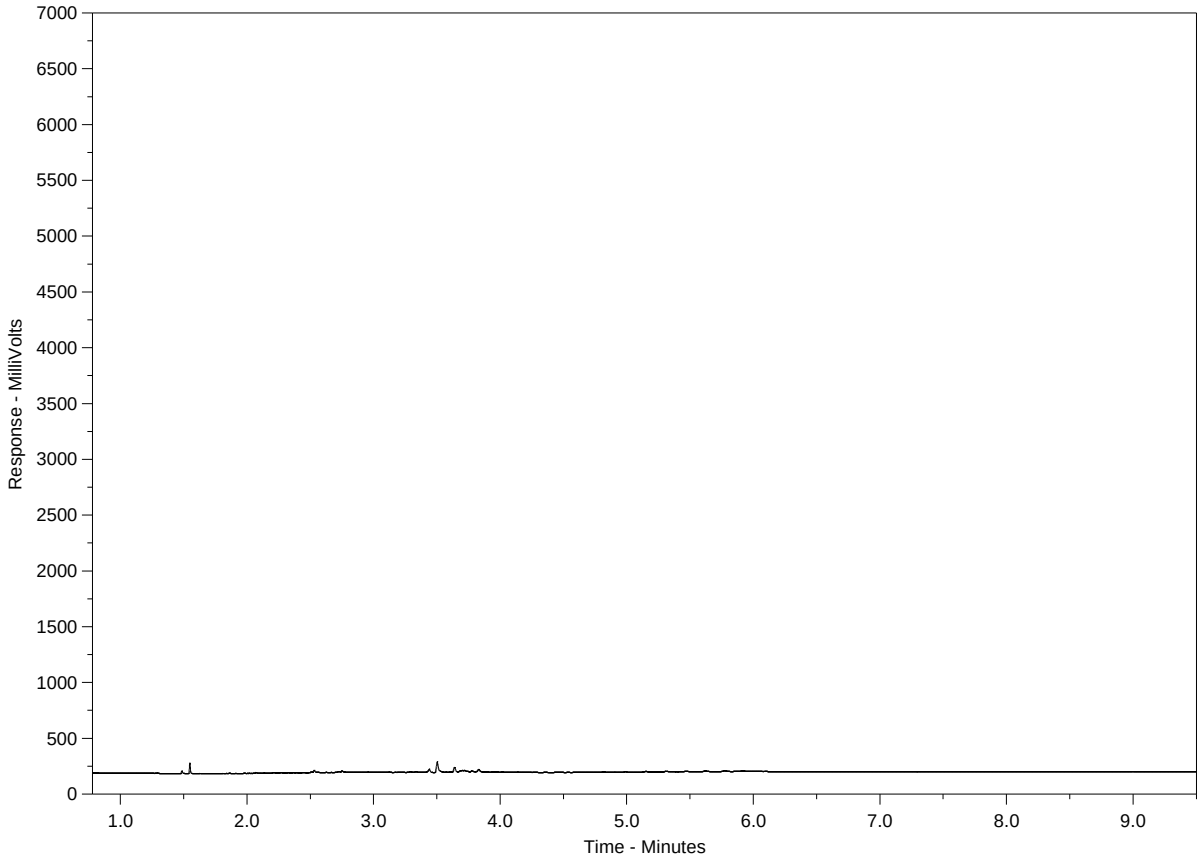
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

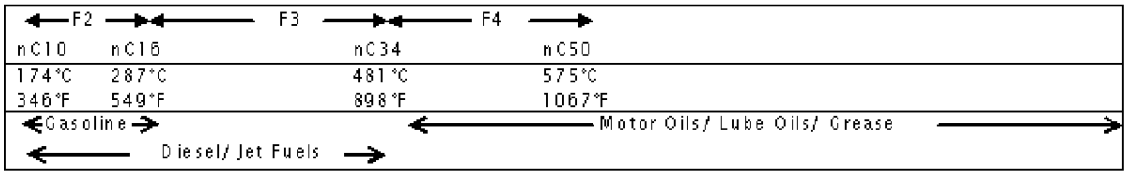
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-9
Client Sample ID: D12





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

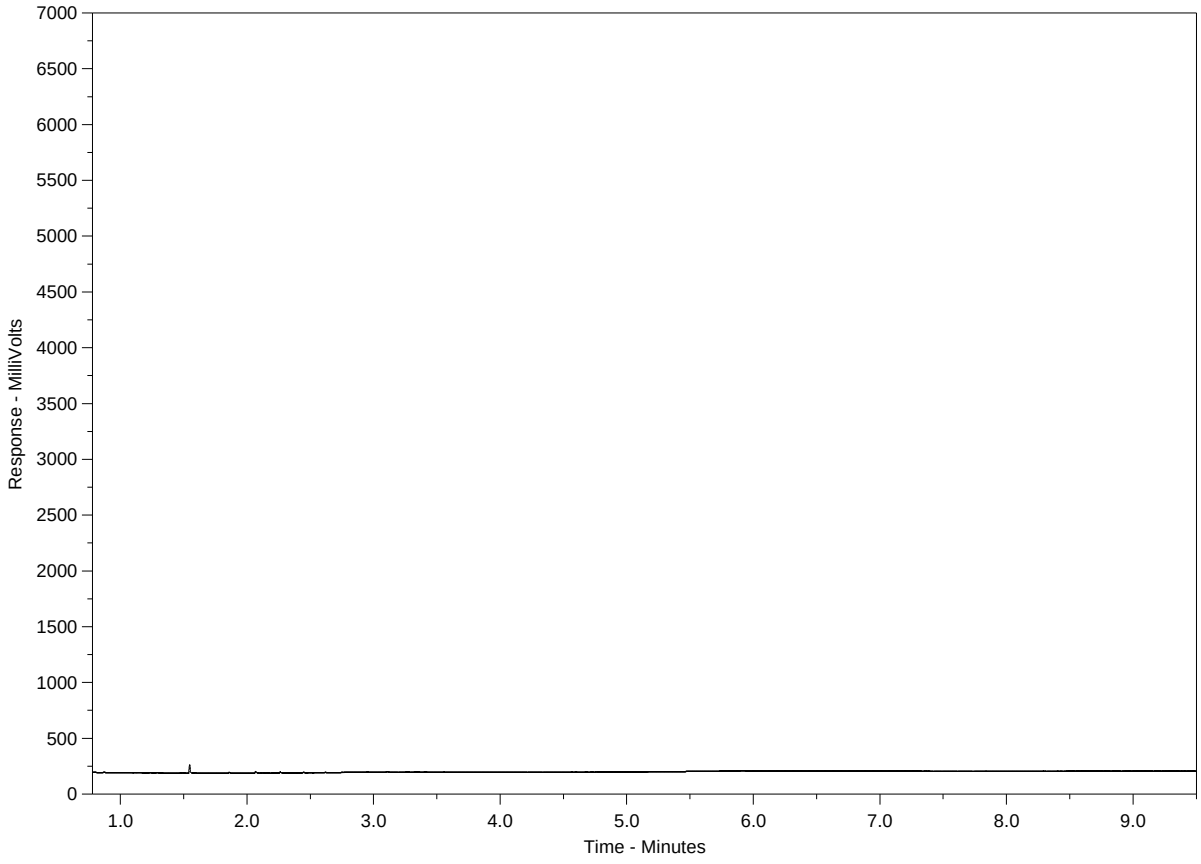
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

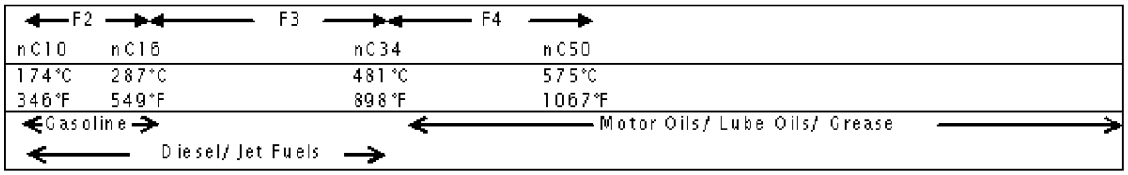
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-10
Client Sample ID: QC-01





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

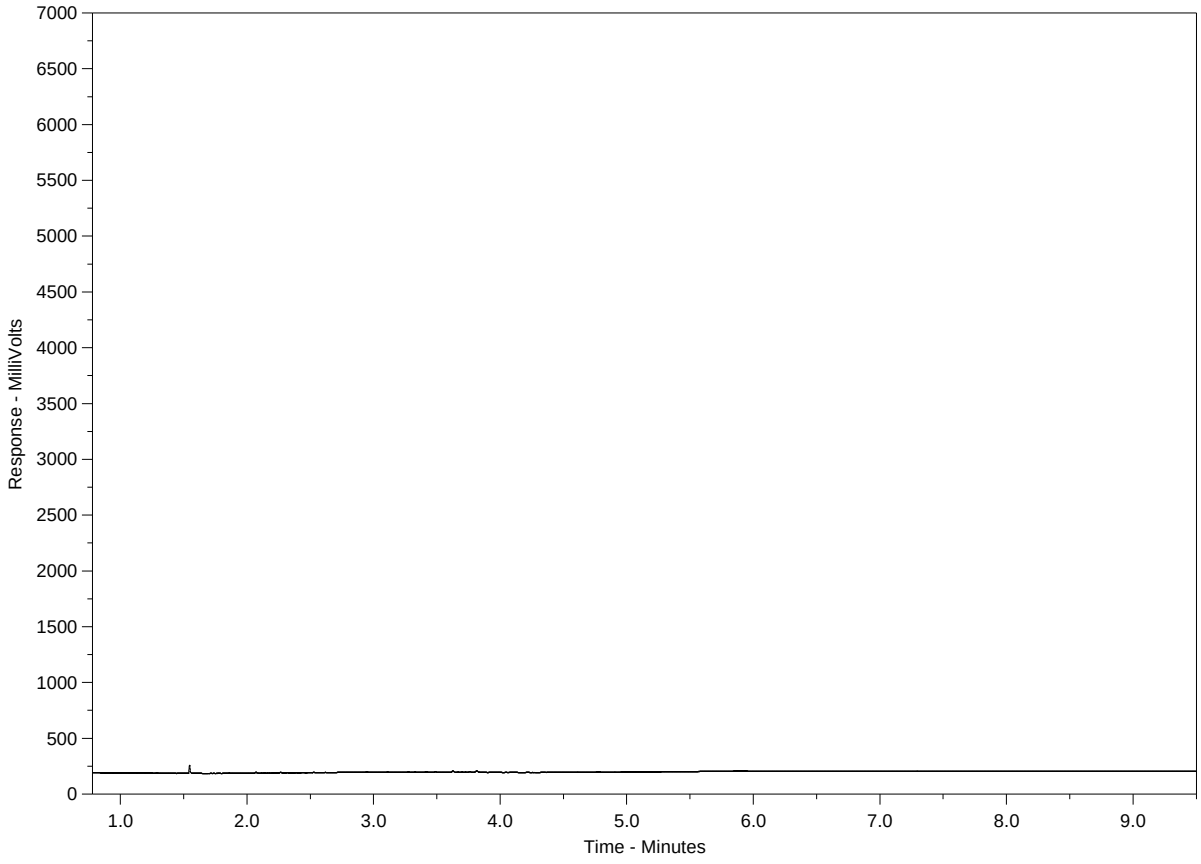
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

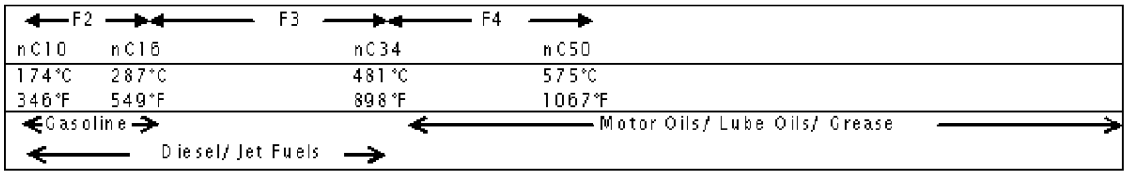
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-11
Client Sample ID: QC-02





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

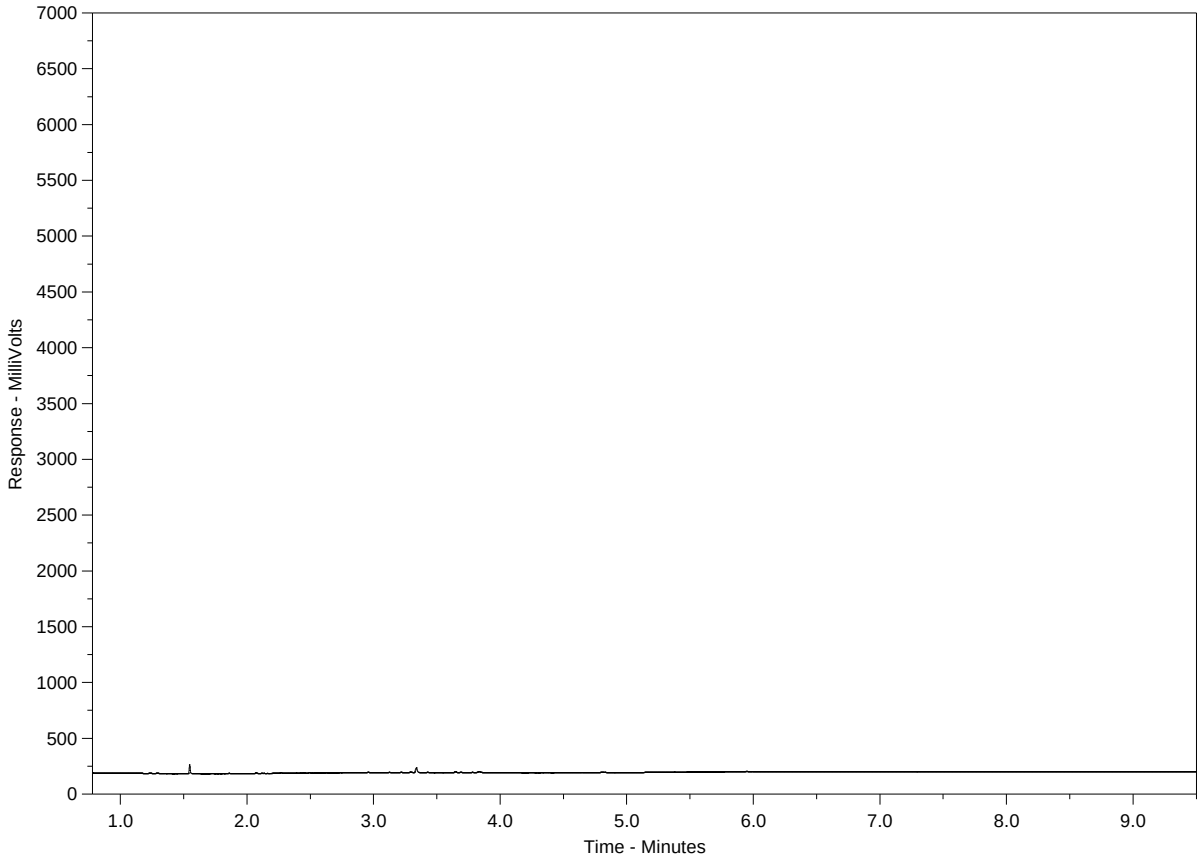
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

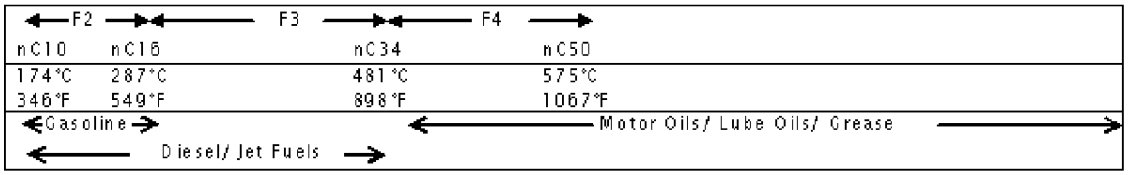
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-12
Client Sample ID: D10





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

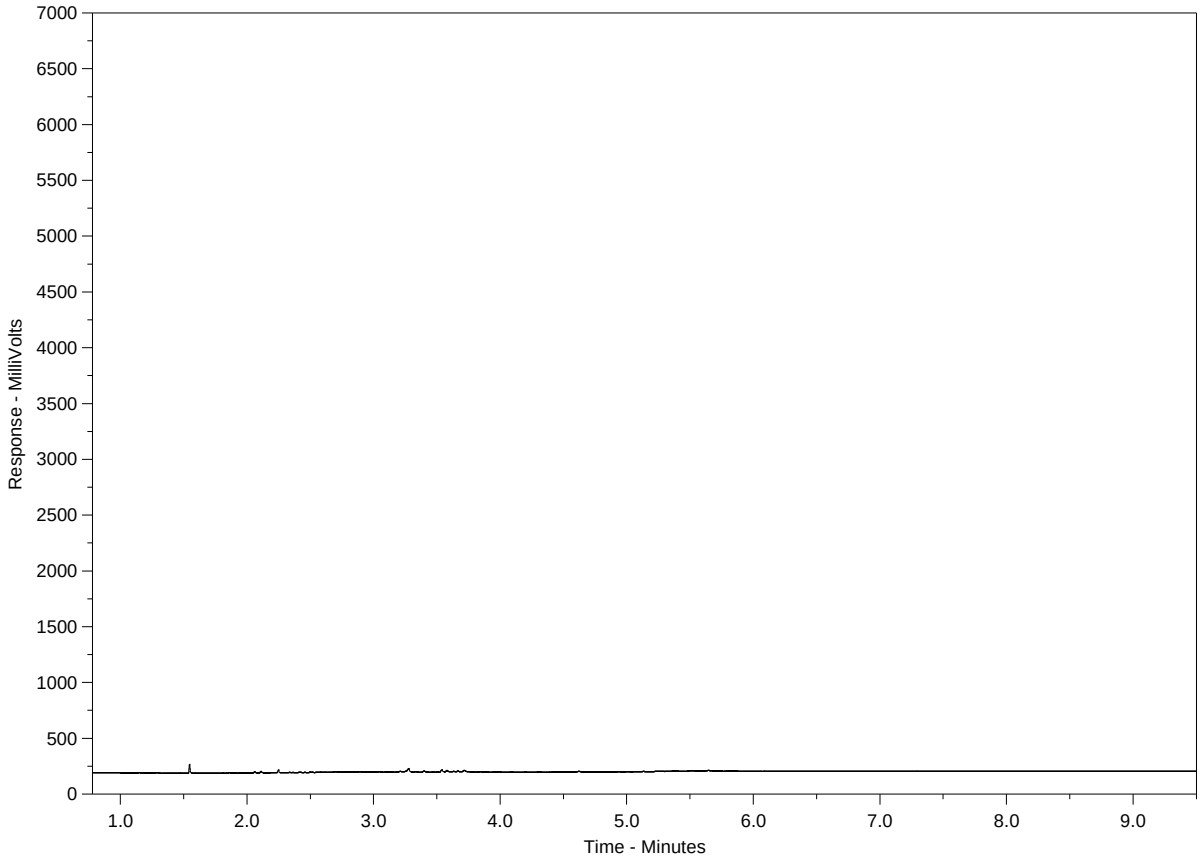
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

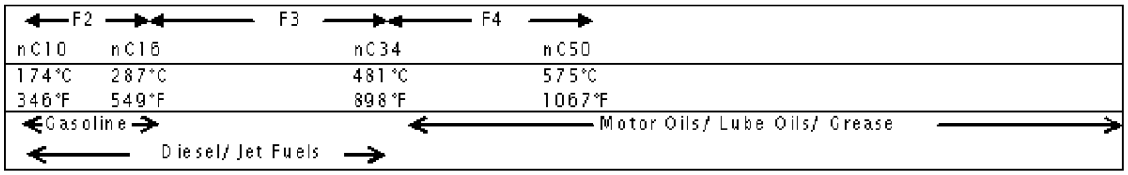
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-13
Client Sample ID: D3





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

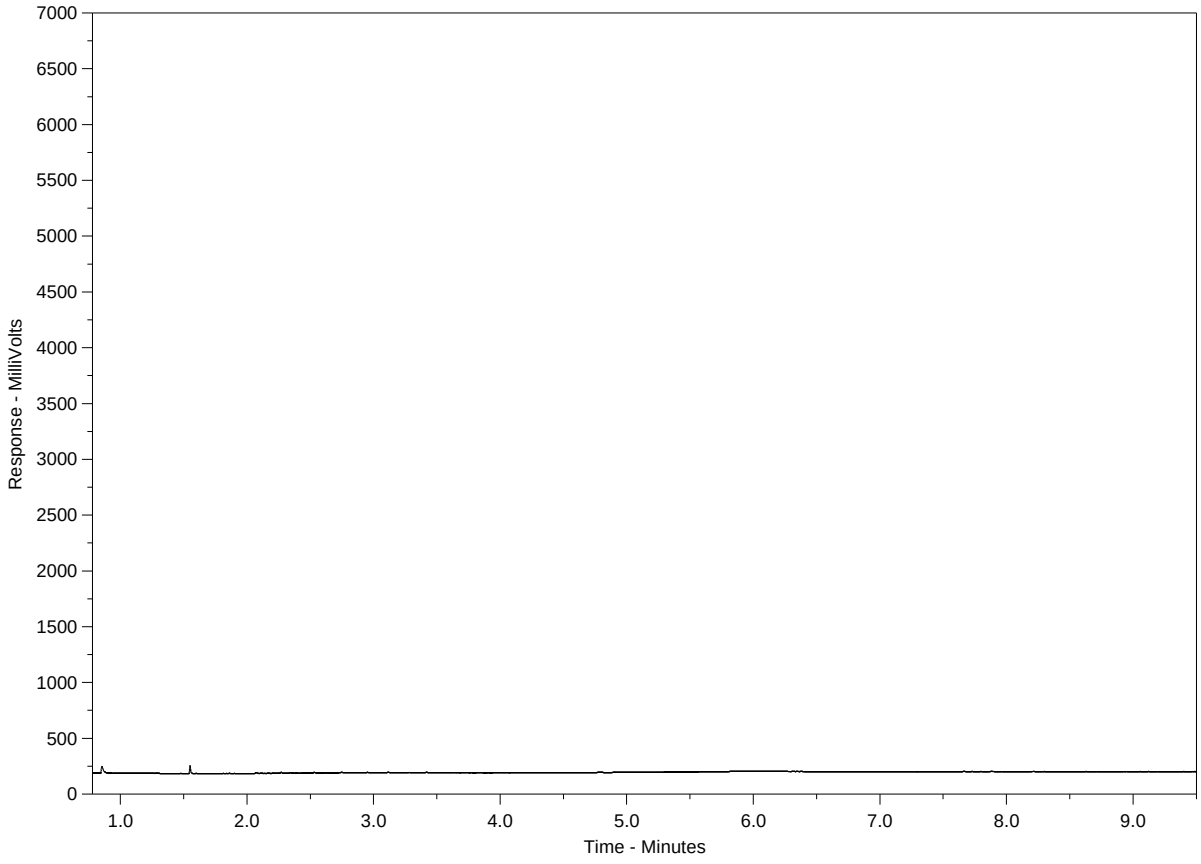
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

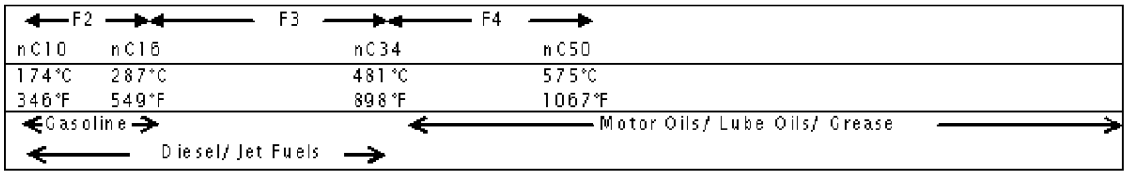
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-14
Client Sample ID: CH19-08





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

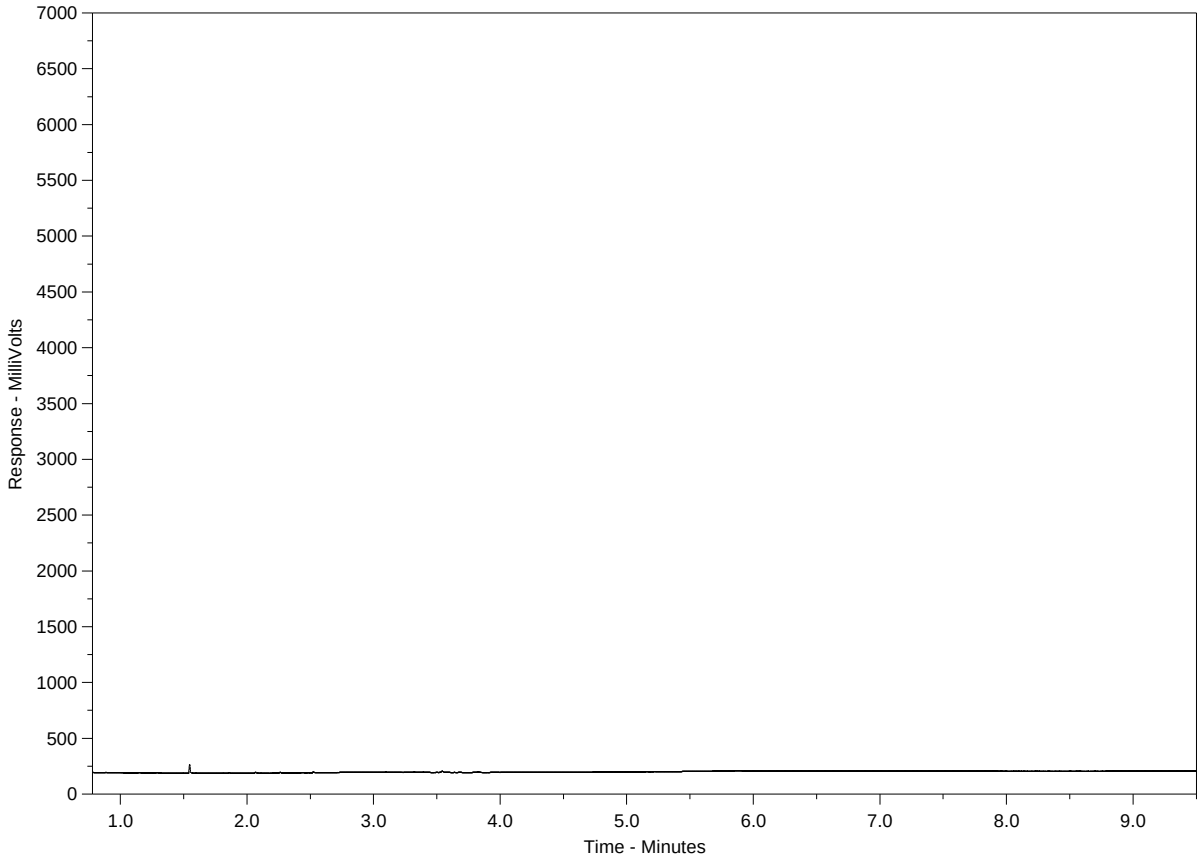
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

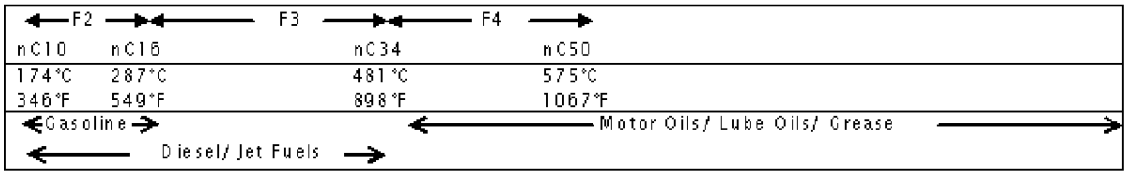
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-15
Client Sample ID: OW19-18





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

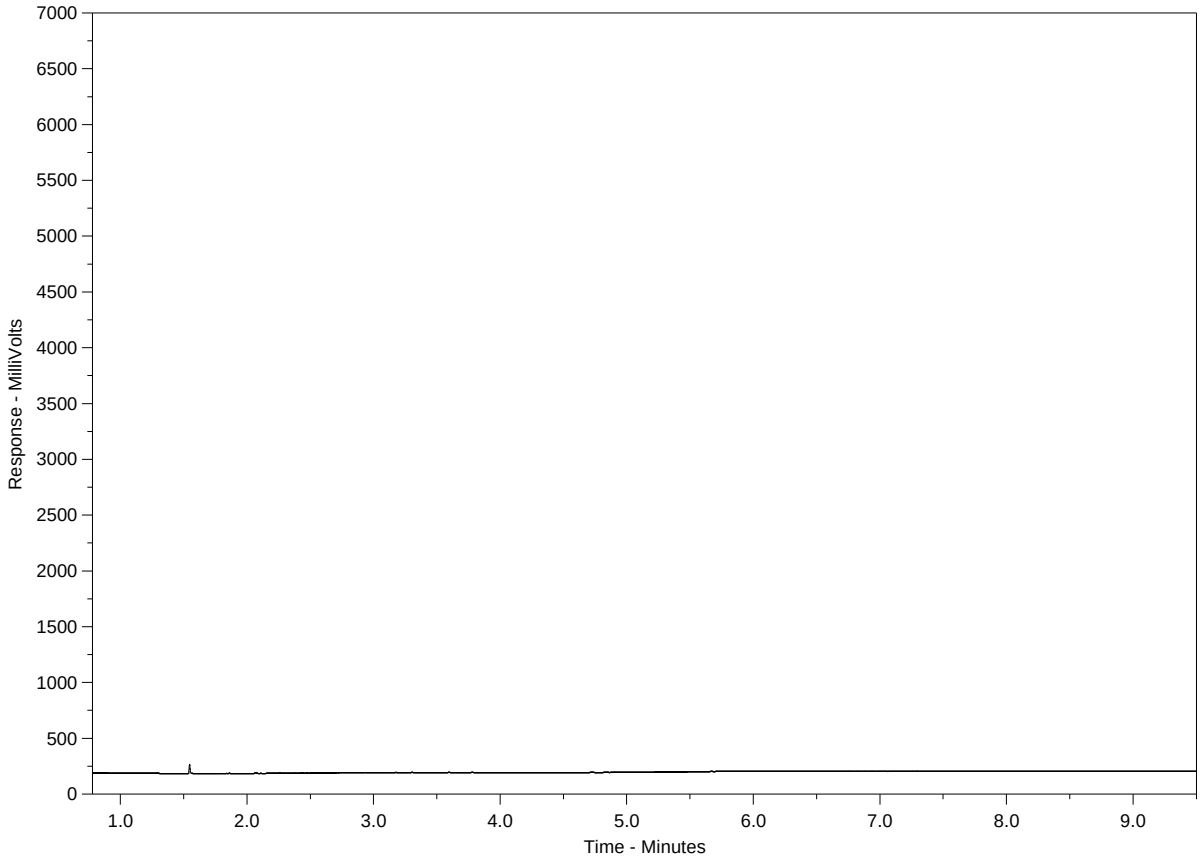
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

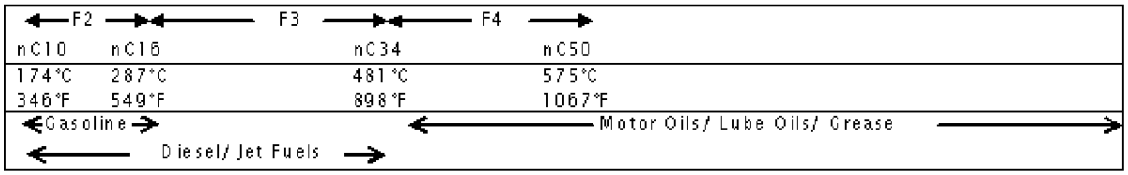
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-16
Client Sample ID: D8





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

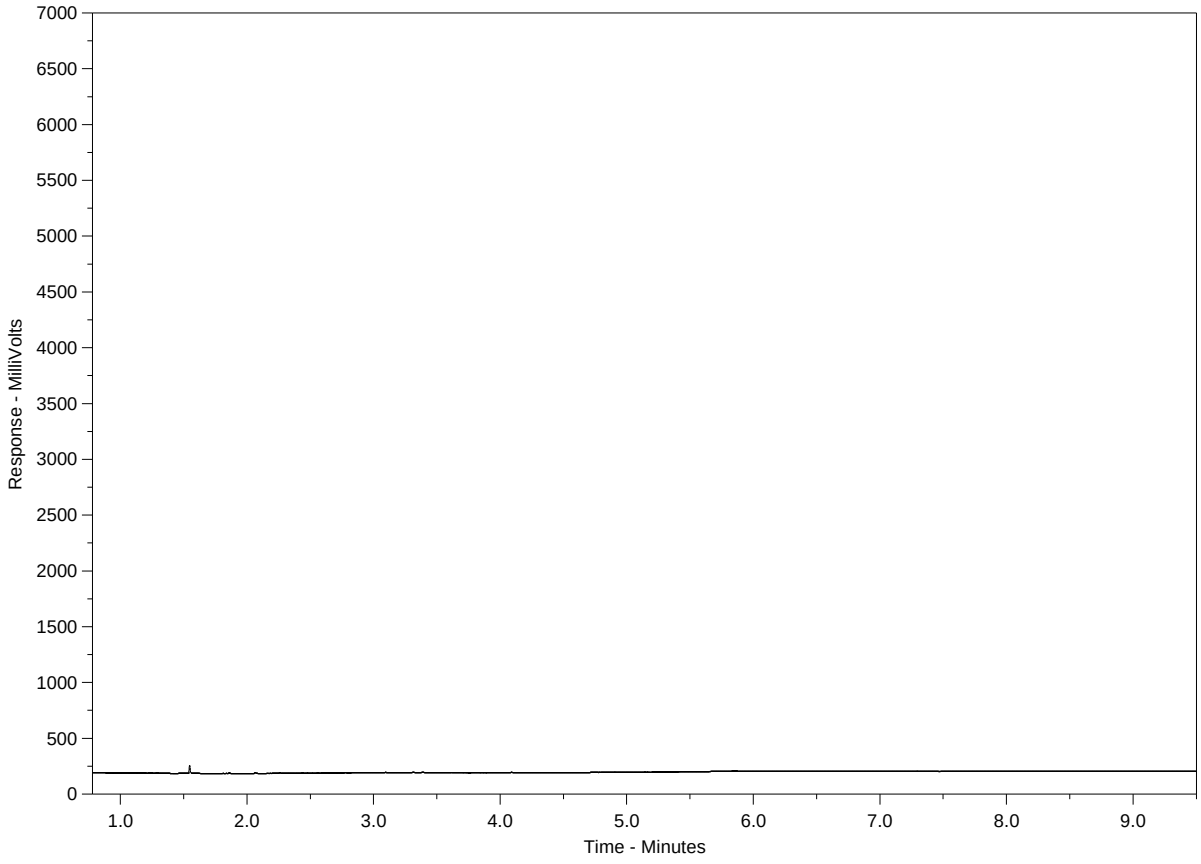
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

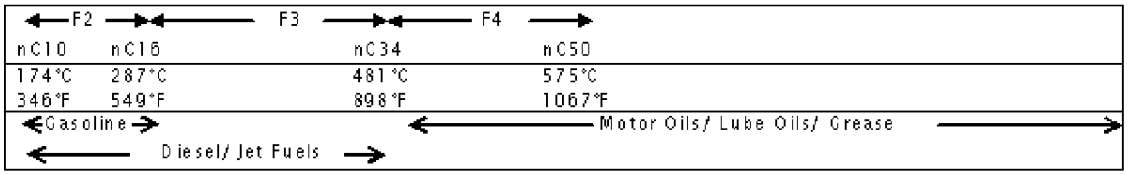
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2470843-17
Client Sample ID: TRIP BLANK (NOT ON COFC)





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.

ALS Environmental

L2470843-COFC

COC # _____

Page 1 of 2

Report To			Report To			Service Requested (Rush for routine analysis subject to availability)
Company:	Stantec - W2077		☑			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON		☑ PDF	☑ Excel	☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave		Email 1:	tassia.stainton@stantec.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9		Email 2:	karen.mathers@stantec.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615	Fax:	Email 3:			Analysis Request
Invoice To	Same as Report ? ☑ Yes	☐ No	Client / Project Information			Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes	☐ No	Job #:	14475107		
Company:			PO / AFE:			
Contact:			LSD:			
Address:						
Phone:		Fax:	Quote #:	Q74061		
Lab Work Order # (lab use only)			ALS Contact:		Sampler: BS, TS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP (P)	ETL-N-TOT-ANY-WP (P)	HARDNESS-CALC-WP	MET-D-CCMS-WP (F/P)	MET-T-CCMS-WP (P)	NH3-COL-WP + N-TOTKJ-W (P)	P-T-COL-WP + P-TD-COL-W (P)	P-TPART-CALC-WP (P)	TSS + TDS	TC,EC-QT97-WP (P)	Number of Containers
1	OW19-40	06.07.22	0951	Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
2	D2		1105														
3	CH19-37		1206														
4	OW19-23		1351														
5	D4		1330														
6	D11		1453														
7	BH19-29		1527														
8	OW19-05		1633														
9	D13		1715														
10	QC-01		-														
11	QC-02		-														

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	07.07.22	16:00		7 July	415	21.4 °C				

GENF 18.01 Front

ALS Environmental

L2470843-COFC

COC # _____

Page 2 of 2

Report To		Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Stantec - W2077	☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON	☑ PDF	☑ Excel	☑ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave	Email 1:	tassia.stainton@stantec.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9	Email 2:	karen.mathers@stantec.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615 Fax:	Email 3:				
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information				Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #:	1147S107			Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:				
Contact:		LSD:				
Address:						
Phone:	Fax:	Quote #:	Q74061			
Lab Work Order # (lab use only)		ALS Contact:		Sampler:	BE, TS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	NH3-COL-WP + N-TOTKJ-W	P-T-COL-WP + P-TD-COL-W	P-TPART-CALC-WP	TSS + TDS	TC,EC-QT97-WP	Number of Containers
12	D10	07-07-20	0810	water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
13	D3		0920														
14	CH19-08		1036														
15	OW19-18		1143														
16	D8		1105														

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	07-07-20	16:00		7 July	4:15	21.4 °C				

GENF 18.01 Front

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 09-JUL-20
Report Date: 22-JUL-20 14:13 (MT)
Version: FINAL

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2472215

Project P.O. #: 111475107
Job Reference: 111475107
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2472215-1 D1							
Sampled By: BS,TS on 08-JUL-20 @ 13:12							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	198		1.2	mg/L		14-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	7.20		0.60	mg/L		14-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	175		1.0	mg/L		13-JUL-20	R5152186
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	171		1.0	mg/L		10-JUL-20	R5154959
Fluoride in Water by IC							
Fluoride (F)	0.143		0.040	mg/L		10-JUL-20	R5154959
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		10-JUL-20	R5154959
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		10-JUL-20	R5154959
Sulfate in Water by IC							
Sulfate (SO4)	90.4		0.60	mg/L		10-JUL-20	R5154959
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
Toluene	<0.0010		0.0010	mg/L		10-JUL-20	R5149839
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-20	R5149839
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-20	R5149839
Surrogate: 4-Bromofluorobenzene (SS)	80.1		70-130	%		10-JUL-20	R5149839
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	09-JUL-20	10-JUL-20	R5147430
F3 (C16-C34)	<0.25		0.25	mg/L	09-JUL-20	10-JUL-20	R5147430
F4 (C34-C50)	<0.25		0.25	mg/L	09-JUL-20	10-JUL-20	R5147430
Surrogate: 2-Bromobenzotrifluoride	104.7		60-140	%	09-JUL-20	10-JUL-20	R5147430
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		15-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		15-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		14-JUL-20	R5153737
Hardness (as CaCO3)	249		0.20	mg/L		17-JUL-20	
Phosphorus (P)-Total	0.0243		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Dissolved	0.0091		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Particulate	0.0152		0.0042	mg/L		16-JUL-20	
Total Dissolved Solids	553		20	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	1.16		0.20	mg/L	10-JUL-20	14-JUL-20	R5152198
Total Nitrogen	1.16		0.20	mg/L		16-JUL-20	
Total Suspended Solids	8.6		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-JUL-20	R5147722
Escherichia Coli	<1		1	MPN/100mL		09-JUL-20	R5147722

* 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
L2472215-1 D1							
Sampled By: BS,TS on 08-JUL-20 @ 13:12							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0325		0.0030	mg/L	13-JUL-20	13-JUL-20	R5152460
Antimony (Sb)-Total	0.00023		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Arsenic (As)-Total	0.00220		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Barium (Ba)-Total	0.0417		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-JUL-20	13-JUL-20	R5152460
Boron (B)-Total	0.102		0.010	mg/L	13-JUL-20	13-JUL-20	R5152460
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-JUL-20	13-JUL-20	R5152460
Calcium (Ca)-Total	39.2		0.050	mg/L	13-JUL-20	13-JUL-20	R5152460
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-JUL-20	13-JUL-20	R5152460
Chromium (Cr)-Total	0.00015		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-JUL-20	13-JUL-20	R5152460
Iron (Fe)-Total	0.038		0.010	mg/L	13-JUL-20	13-JUL-20	R5152460
Lead (Pb)-Total	0.000089		0.000050	mg/L	13-JUL-20	13-JUL-20	R5152460
Lithium (Li)-Total	0.0354		0.0010	mg/L	13-JUL-20	13-JUL-20	R5152460
Magnesium (Mg)-Total	39.1		0.0050	mg/L	13-JUL-20	13-JUL-20	R5152460
Manganese (Mn)-Total	0.00624		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Molybdenum (Mo)-Total	0.00210		0.000050	mg/L	13-JUL-20	13-JUL-20	R5152460
Nickel (Ni)-Total	0.00065		0.00050	mg/L	13-JUL-20	13-JUL-20	R5152460
Potassium (K)-Total	9.97		0.050	mg/L	13-JUL-20	13-JUL-20	R5152460
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-JUL-20	13-JUL-20	R5152460
Rubidium (Rb)-Total	0.00369		0.00020	mg/L	13-JUL-20	13-JUL-20	R5152460
Selenium (Se)-Total	0.000108		0.000050	mg/L	13-JUL-20	13-JUL-20	R5152460
Silicon (Si)-Total	3.79		0.10	mg/L	13-JUL-20	13-JUL-20	R5152460
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-JUL-20	13-JUL-20	R5152460
Sodium (Na)-Total	122		0.050	mg/L	13-JUL-20	13-JUL-20	R5152460
Strontium (Sr)-Total	0.260		0.00020	mg/L	13-JUL-20	13-JUL-20	R5152460
Sulfur (S)-Total	34.3		0.50	mg/L	13-JUL-20	13-JUL-20	R5152460
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-JUL-20	13-JUL-20	R5152460
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-JUL-20	13-JUL-20	R5152460
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Titanium (Ti)-Total	0.00132		0.00030	mg/L	13-JUL-20	13-JUL-20	R5152460
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-JUL-20	13-JUL-20	R5152460
Uranium (U)-Total	0.00162		0.000010	mg/L	13-JUL-20	13-JUL-20	R5152460
Vanadium (V)-Total	0.00142		0.00050	mg/L	13-JUL-20	13-JUL-20	R5152460
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-JUL-20	13-JUL-20	R5152460
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-JUL-20	13-JUL-20	R5152460
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					14-JUL-20	R5153050
Aluminum (Al)-Dissolved	0.0037		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Antimony (Sb)-Dissolved	0.00018		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Arsenic (As)-Dissolved	0.00224		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Barium (Ba)-Dissolved	0.0436		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Boron (B)-Dissolved	0.114		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cadmium (Cd)-Dissolved	0.0000052		0.0000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Calcium (Ca)-Dissolved	36.9		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583

* 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
L2472215-1 D1							
Sampled By: BS,TS on 08-JUL-20 @ 13:12							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Copper (Cu)-Dissolved	0.00329		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Lead (Pb)-Dissolved	0.000085		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Lithium (Li)-Dissolved	0.0361		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Magnesium (Mg)-Dissolved	38.1		0.0050	mg/L	14-JUL-20	14-JUL-20	R5153583
Manganese (Mn)-Dissolved	0.00044		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Molybdenum (Mo)-Dissolved	0.00196		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Nickel (Ni)-Dissolved	0.00065		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	14-JUL-20	14-JUL-20	R5153583
Potassium (K)-Dissolved	10.1		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Rubidium (Rb)-Dissolved	0.00349		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Selenium (Se)-Dissolved	0.000098		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silicon (Si)-Dissolved	3.65		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sodium (Na)-Dissolved	124		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Strontium (Sr)-Dissolved	0.248		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sulfur (S)-Dissolved	33.6		0.50	mg/L	14-JUL-20	14-JUL-20	R5153583
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	14-JUL-20	14-JUL-20	R5153583
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Uranium (U)-Dissolved	0.00140		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Vanadium (V)-Dissolved	0.00127		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Zinc (Zn)-Dissolved	0.0046		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
L2472215-2 D9							
Sampled By: BS,TS on 08-JUL-20 @ 15:39							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	203		1.2	mg/L		14-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	5.64		0.60	mg/L		14-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	176		1.0	mg/L		13-JUL-20	R5152186
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	170		1.0	mg/L		10-JUL-20	R5154959
Fluoride in Water by IC							
Fluoride (F)	0.141		0.040	mg/L		10-JUL-20	R5154959
Nitrate in Water by IC							
Nitrate (as N)	0.673		0.040	mg/L		10-JUL-20	R5154959
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		10-JUL-20	R5154959
Sulfate in Water by IC							

* 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
L2472215-2 D9							
Sampled By: BS,TS on 08-JUL-20 @ 15:39							
Matrix: WATER							
Sulfate in Water by IC							
Sulfate (SO4)	65.1		0.60	mg/L		10-JUL-20	R5154959
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
Toluene	<0.0010		0.0010	mg/L		10-JUL-20	R5149839
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-20	R5149839
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-20	R5149839
Surrogate: 4-Bromofluorobenzene (SS)	79.3		70-130	%		10-JUL-20	R5149839
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	10-JUL-20	10-JUL-20	R5151499
F3 (C16-C34)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
F4 (C34-C50)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
Surrogate: 2-Bromobenzotrifluoride	105.1		60-140	%	10-JUL-20	10-JUL-20	R5151499
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		15-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		15-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.012		0.010	mg/L		14-JUL-20	R5153737
Hardness (as CaCO3)	242		0.20	mg/L		20-JUL-20	
Phosphorus (P)-Total	0.0248		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Dissolved	0.0096		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Particulate	0.0153		0.0042	mg/L		16-JUL-20	
Total Dissolved Solids	536		20	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	1.01		0.20	mg/L	10-JUL-20	14-JUL-20	R5152198
Total Nitrogen	1.01		0.20	mg/L		16-JUL-20	
Total Suspended Solids	6.8		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	517		1	MPN/100mL		09-JUL-20	R5147722
Escherichia Coli	3		1	MPN/100mL		09-JUL-20	R5147722
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0444		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Antimony (Sb)-Total	0.00019		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Arsenic (As)-Total	0.00205		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Barium (Ba)-Total	0.0395		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Boron (B)-Total	0.082		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cadmium (Cd)-Total	0.0000208		0.0000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Calcium (Ca)-Total	40.0		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Cesium (Cs)-Total	0.000011		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Chromium (Cr)-Total	0.00016		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Copper (Cu)-Total	0.00053		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Iron (Fe)-Total	0.040		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Lead (Pb)-Total	0.000116		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Lithium (Li)-Total	0.0283		0.0010	mg/L	14-JUL-20	15-JUL-20	R5154985
Magnesium (Mg)-Total	29.4		0.0050	mg/L	14-JUL-20	15-JUL-20	R5154985

* 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
L2472215-2 D9							
Sampled By: BS,TS on 08-JUL-20 @ 15:39							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.00957		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Molybdenum (Mo)-Total	0.00183		0.000050	mg/L	14-JUL-20	17-JUL-20	R5158577
Nickel (Ni)-Total	0.00058		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Potassium (K)-Total	7.78		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Phosphorus (P)-Total	<0.030		0.030	mg/L	14-JUL-20	15-JUL-20	R5154985
Rubidium (Rb)-Total	0.00375		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Selenium (Se)-Total	0.000191		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Silicon (Si)-Total	2.84		0.10	mg/L	14-JUL-20	15-JUL-20	R5154985
Silver (Ag)-Total	0.000011		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Sodium (Na)-Total	105		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Strontium (Sr)-Total	0.245		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Sulfur (S)-Total	21.5		0.50	mg/L	14-JUL-20	15-JUL-20	R5154985
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Thorium (Th)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Tin (Sn)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Titanium (Ti)-Total	0.00165		0.00030	mg/L	14-JUL-20	15-JUL-20	R5154985
Tungsten (W)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Uranium (U)-Total	0.00137		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Vanadium (V)-Total	0.00120		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	LAB					14-JUL-20	R5153050
Aluminum (Al)-Dissolved	0.0072		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Antimony (Sb)-Dissolved	0.00017		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Arsenic (As)-Dissolved	0.00212		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Barium (Ba)-Dissolved	0.0379		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Boron (B)-Dissolved	0.102		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Calcium (Ca)-Dissolved	40.9		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Copper (Cu)-Dissolved	0.00035		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Lithium (Li)-Dissolved	0.0298		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Magnesium (Mg)-Dissolved	34.0		0.0050	mg/L	14-JUL-20	14-JUL-20	R5153583
Manganese (Mn)-Dissolved	0.00016		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Molybdenum (Mo)-Dissolved	0.00269		0.000050	mg/L	14-JUL-20	17-JUL-20	R5158051
Nickel (Ni)-Dissolved	0.00054		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	14-JUL-20	14-JUL-20	R5153583
Potassium (K)-Dissolved	8.66		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Rubidium (Rb)-Dissolved	0.00353		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Selenium (Se)-Dissolved	0.000106		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silicon (Si)-Dissolved	3.20		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sodium (Na)-Dissolved	123		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583

* 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
L2472215-2 D9							
Sampled By: BS,TS on 08-JUL-20 @ 15:39							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.250		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sulfur (S)-Dissolved	24.1		0.50	mg/L	14-JUL-20	14-JUL-20	R5153583
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	14-JUL-20	14-JUL-20	R5153583
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Uranium (U)-Dissolved	0.00138		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Vanadium (V)-Dissolved	0.00117		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Zinc (Zn)-Dissolved	0.0022		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
L2472215-3 BH19-12							
Sampled By: BS,TS on 08-JUL-20 @ 16:35							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	395		1.2	mg/L		14-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		14-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	324		1.0	mg/L		13-JUL-20	R5152186
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.74		0.50	mg/L		10-JUL-20	R5154959
Fluoride in Water by IC							
Fluoride (F)	0.570		0.020	mg/L		10-JUL-20	R5154959
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		10-JUL-20	R5154959
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		10-JUL-20	R5154959
Sulfate in Water by IC							
Sulfate (SO4)	117		0.30	mg/L		10-JUL-20	R5154959
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
Toluene	<0.0010		0.0010	mg/L		10-JUL-20	R5149839
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-20	R5149839
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-20	R5149839
Surrogate: 4-Bromofluorobenzene (SS)	79.3		70-130	%		10-JUL-20	R5149839
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	10-JUL-20	10-JUL-20	R5151499
F3 (C16-C34)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
F4 (C34-C50)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
Surrogate: 2-Bromobenzotrifluoride	97.5		60-140	%	10-JUL-20	10-JUL-20	R5151499
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		15-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		15-JUL-20	

* 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
L2472215-3 BH19-12							
Sampled By: BS,TS on 08-JUL-20 @ 16:35							
Matrix: WATER							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.114		0.010	mg/L		14-JUL-20	R5153737
Hardness (as CaCO3)	389		0.20	mg/L		20-JUL-20	
Phosphorus (P)-Total	0.0065		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Dissolved	0.0020		0.0010	mg/L		21-JUL-20	R5159586
Phosphorus (P)-Total Particulate	0.0050		0.0042	mg/L		16-JUL-20	
Total Dissolved Solids	453		20	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	10-JUL-20	14-JUL-20	R5152198
Total Nitrogen	<0.20		0.20	mg/L		16-JUL-20	
Total Suspended Solids	10.3		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-JUL-20	R5147722
Escherichia Coli	<1		1	MPN/100mL		09-JUL-20	R5147722
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0344		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Arsenic (As)-Total	0.00024		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Barium (Ba)-Total	0.0182		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Boron (B)-Total	0.470		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cadmium (Cd)-Total	0.0000172		0.0000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Calcium (Ca)-Total	74.6		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Cesium (Cs)-Total	0.000037		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Chromium (Cr)-Total	0.00016		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Copper (Cu)-Total	<0.00050		0.00050	mg/L	14-JUL-20	17-JUL-20	R5158577
Iron (Fe)-Total	0.081		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Lead (Pb)-Total	0.000076		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Lithium (Li)-Total	0.0334		0.0010	mg/L	14-JUL-20	15-JUL-20	R5154985
Magnesium (Mg)-Total	44.4		0.0050	mg/L	14-JUL-20	15-JUL-20	R5154985
Manganese (Mn)-Total	0.00631		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Molybdenum (Mo)-Total	0.000329		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Potassium (K)-Total	9.27		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Phosphorus (P)-Total	<0.030		0.030	mg/L	14-JUL-20	15-JUL-20	R5154985
Rubidium (Rb)-Total	0.00590		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Selenium (Se)-Total	0.000060		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Silicon (Si)-Total	4.52		0.10	mg/L	14-JUL-20	15-JUL-20	R5154985
Silver (Ag)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Sodium (Na)-Total	28.0		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Strontium (Sr)-Total	0.525		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Sulfur (S)-Total	37.6		0.50	mg/L	14-JUL-20	15-JUL-20	R5154985
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Thorium (Th)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Tin (Sn)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Titanium (Ti)-Total	0.00152		0.00030	mg/L	14-JUL-20	15-JUL-20	R5154985
Tungsten (W)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Uranium (U)-Total	0.000483		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985

* 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
L2472215-3 BH19-12							
Sampled By: BS,TS on 08-JUL-20 @ 16:35							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Zinc (Zn)-Total	0.0082		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Zirconium (Zr)-Total	0.00077		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					14-JUL-20	R5153050
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Arsenic (As)-Dissolved	0.00012		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Barium (Ba)-Dissolved	0.0222		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Boron (B)-Dissolved	0.537		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Calcium (Ca)-Dissolved	73.7		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Cesium (Cs)-Dissolved	0.000021		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	17-JUL-20	R5158051
Iron (Fe)-Dissolved	0.053		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Lead (Pb)-Dissolved	0.000117		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Lithium (Li)-Dissolved	0.0345		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Magnesium (Mg)-Dissolved	49.7		0.0050	mg/L	14-JUL-20	14-JUL-20	R5153583
Manganese (Mn)-Dissolved	0.00542		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Molybdenum (Mo)-Dissolved	0.000354		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	14-JUL-20	14-JUL-20	R5153583
Potassium (K)-Dissolved	10.1		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Rubidium (Rb)-Dissolved	0.00573		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silicon (Si)-Dissolved	5.16		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sodium (Na)-Dissolved	32.3		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Strontium (Sr)-Dissolved	0.510		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sulfur (S)-Dissolved	44.8		0.50	mg/L	14-JUL-20	14-JUL-20	R5153583
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	14-JUL-20	14-JUL-20	R5153583
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Uranium (U)-Dissolved	0.000473		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Zinc (Zn)-Dissolved	0.0026		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
L2472215-4 D6							
Sampled By: BS,TS on 08-JUL-20 @ 17:07							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	415		1.2	mg/L		14-JUL-20	
Alkalinity, Carbonate							

* 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
L2472215-4 D6							
Sampled By: BS,TS on 08-JUL-20 @ 17:07							
Matrix: WATER							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		14-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	340		1.0	mg/L		13-JUL-20	R5152186
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.4		0.50	mg/L		10-JUL-20	R5154959
Fluoride in Water by IC							
Fluoride (F)	0.293		0.020	mg/L		10-JUL-20	R5154959
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		10-JUL-20	R5154959
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		10-JUL-20	R5154959
Sulfate in Water by IC							
Sulfate (SO4)	44.5		0.30	mg/L		10-JUL-20	R5154959
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
Toluene	<0.0010		0.0010	mg/L		10-JUL-20	R5149839
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-20	R5149839
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-20	R5149839
Surrogate: 4-Bromofluorobenzene (SS)	81.0		70-130	%		10-JUL-20	R5149839
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	10-JUL-20	10-JUL-20	R5151499
F3 (C16-C34)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
F4 (C34-C50)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
Surrogate: 2-Bromobenzotrifluoride	98.3		60-140	%	10-JUL-20	10-JUL-20	R5151499
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		15-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		15-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.046		0.010	mg/L		14-JUL-20	R5153737
Hardness (as CaCO3)	396		0.20	mg/L		20-JUL-20	
Phosphorus (P)-Total	0.0242		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Dissolved	0.0155		0.0030	mg/L		15-JUL-20	R5153892
Phosphorus (P)-Total Particulate	0.0087		0.0042	mg/L		16-JUL-20	
Total Dissolved Solids	450		20	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	1.60		0.20	mg/L	10-JUL-20	14-JUL-20	R5152198
Total Nitrogen	1.60		0.20	mg/L		16-JUL-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420		1	MPN/100mL		09-JUL-20	R5147722
Escherichia Coli	36		1	MPN/100mL		09-JUL-20	R5147722
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0041		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Antimony (Sb)-Total	0.00013		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985

* 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
L2472215-4 D6							
Sampled By: BS,TS on 08-JUL-20 @ 17:07							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00142		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Barium (Ba)-Total	0.0489		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Boron (B)-Total	0.126		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cadmium (Cd)-Total	0.0000224		0.0000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Calcium (Ca)-Total	58.4		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Chromium (Cr)-Total	0.00019		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Copper (Cu)-Total	<0.00050		0.00050	mg/L	14-JUL-20	17-JUL-20	R5158577
Iron (Fe)-Total	0.053		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Lead (Pb)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Lithium (Li)-Total	0.0178		0.0010	mg/L	14-JUL-20	15-JUL-20	R5154985
Magnesium (Mg)-Total	55.9		0.0050	mg/L	14-JUL-20	15-JUL-20	R5154985
Manganese (Mn)-Total	0.0137		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Molybdenum (Mo)-Total	0.000500		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Nickel (Ni)-Total	0.00075		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Potassium (K)-Total	4.13		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Phosphorus (P)-Total	<0.030		0.030	mg/L	14-JUL-20	15-JUL-20	R5154985
Rubidium (Rb)-Total	0.00253		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Selenium (Se)-Total	0.000244		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Silicon (Si)-Total	15.0		0.10	mg/L	14-JUL-20	15-JUL-20	R5154985
Silver (Ag)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Sodium (Na)-Total	10.4		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Strontium (Sr)-Total	0.177		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Sulfur (S)-Total	15.2		0.50	mg/L	14-JUL-20	15-JUL-20	R5154985
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Thorium (Th)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Tin (Sn)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Titanium (Ti)-Total	0.00040		0.00030	mg/L	14-JUL-20	15-JUL-20	R5154985
Tungsten (W)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Uranium (U)-Total	0.000825		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Vanadium (V)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					14-JUL-20	R5153050
Aluminum (Al)-Dissolved	0.0013		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Antimony (Sb)-Dissolved	0.00012		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Arsenic (As)-Dissolved	0.00147		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Barium (Ba)-Dissolved	0.0527		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Boron (B)-Dissolved	0.153		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Calcium (Ca)-Dissolved	57.4		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Chromium (Cr)-Dissolved	0.00013		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583

* 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
L2472215-4 D6							
Sampled By: BS,TS on 08-JUL-20 @ 17:07							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00031		0.00020	mg/L	14-JUL-20	17-JUL-20	R5158051
Iron (Fe)-Dissolved	0.045		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Lead (Pb)-Dissolved	0.000096		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Lithium (Li)-Dissolved	0.0191		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Magnesium (Mg)-Dissolved	61.3		0.0050	mg/L	14-JUL-20	14-JUL-20	R5153583
Manganese (Mn)-Dissolved	0.00776		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Molybdenum (Mo)-Dissolved	0.000496		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Nickel (Ni)-Dissolved	0.00080		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	14-JUL-20	14-JUL-20	R5153583
Potassium (K)-Dissolved	4.49		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Rubidium (Rb)-Dissolved	0.00249		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Selenium (Se)-Dissolved	0.000318		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silicon (Si)-Dissolved	16.2		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sodium (Na)-Dissolved	11.8		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Strontium (Sr)-Dissolved	0.175		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sulfur (S)-Dissolved	16.6		0.50	mg/L	14-JUL-20	14-JUL-20	R5153583
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	14-JUL-20	14-JUL-20	R5153583
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Uranium (U)-Dissolved	0.000829		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Zinc (Zn)-Dissolved	0.0030		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
L2472215-5 FIELD BLANK							
Sampled By: BS,TS on 08-JUL-20 @ 17:35							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		14-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		14-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUL-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		13-JUL-20	R5152186
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		10-JUL-20	R5154959
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		10-JUL-20	R5154959
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		10-JUL-20	R5154959
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		10-JUL-20	R5154959
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		10-JUL-20	R5154959
BTEX plus F1-F4							

* 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
L2472215-5 FIELD BLANK							
Sampled By: BS,TS on 08-JUL-20 @ 17:35							
Matrix: WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
Toluene	<0.0010		0.0010	mg/L		10-JUL-20	R5149839
Ethyl benzene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-20	R5149839
m+p-Xylenes	<0.00040		0.00040	mg/L		10-JUL-20	R5149839
F1 (C6-C10)	<0.10		0.10	mg/L		10-JUL-20	R5149839
Surrogate: 4-Bromofluorobenzene (SS)	82.1		70-130	%		10-JUL-20	R5149839
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	10-JUL-20	10-JUL-20	R5151499
F3 (C16-C34)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
F4 (C34-C50)	<0.25		0.25	mg/L	10-JUL-20	10-JUL-20	R5151499
Surrogate: 2-Bromobenzotrifluoride	98.5		60-140	%	10-JUL-20	10-JUL-20	R5151499
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		15-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		15-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUL-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		14-JUL-20	R5153737
Hardness (as CaCO3)	<0.20		0.20	mg/L		20-JUL-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		21-JUL-20	R5159586
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		21-JUL-20	R5159586
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		21-JUL-20	
Total Dissolved Solids	<4.0		4.0	mg/L		13-JUL-20	R5154182
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	10-JUL-20	14-JUL-20	R5152198
Total Nitrogen	<0.20		0.20	mg/L		16-JUL-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-JUL-20	R5154572
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		09-JUL-20	R5147722
Escherichia Coli	<1		1	MPN/100mL		09-JUL-20	R5147722
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0048		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Arsenic (As)-Total	0.00014		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Barium (Ba)-Total	<0.00010		0.00010	mg/L	14-JUL-20	17-JUL-20	R5158577
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Boron (B)-Total	<0.010		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cadmium (Cd)-Total	0.0000588		0.0000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Calcium (Ca)-Total	0.080		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Copper (Cu)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Iron (Fe)-Total	<0.010		0.010	mg/L	14-JUL-20	15-JUL-20	R5154985
Lead (Pb)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Lithium (Li)-Total	<0.0010		0.0010	mg/L	14-JUL-20	15-JUL-20	R5154985
Magnesium (Mg)-Total	0.0068		0.0050	mg/L	14-JUL-20	15-JUL-20	R5154985
Manganese (Mn)-Total	0.00027		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985

* 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
L2472215-5 FIELD BLANK							
Sampled By: BS,TS on 08-JUL-20 @ 17:35							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	<0.050		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Phosphorus (P)-Total	<0.030		0.030	mg/L	14-JUL-20	15-JUL-20	R5154985
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Selenium (Se)-Total	0.000128		0.000050	mg/L	14-JUL-20	15-JUL-20	R5154985
Silicon (Si)-Total	<0.10		0.10	mg/L	14-JUL-20	15-JUL-20	R5154985
Silver (Ag)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Sodium (Na)-Total	0.055		0.050	mg/L	14-JUL-20	15-JUL-20	R5154985
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Sulfur (S)-Total	<0.50		0.50	mg/L	14-JUL-20	15-JUL-20	R5154985
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Thorium (Th)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Tin (Sn)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	14-JUL-20	15-JUL-20	R5154985
Tungsten (W)-Total	<0.00010		0.00010	mg/L	14-JUL-20	15-JUL-20	R5154985
Uranium (U)-Total	<0.000010		0.000010	mg/L	14-JUL-20	15-JUL-20	R5154985
Vanadium (V)-Total	<0.00050		0.00050	mg/L	14-JUL-20	15-JUL-20	R5154985
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	14-JUL-20	15-JUL-20	R5154985
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	14-JUL-20	15-JUL-20	R5154985
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					14-JUL-20	R5153050
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	17-JUL-20	R5158051
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Boron (B)-Dissolved	<0.010		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Copper (Cu)-Dissolved	0.00105		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	14-JUL-20	14-JUL-20	R5153583
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	14-JUL-20	14-JUL-20	R5153583
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	14-JUL-20	14-JUL-20	R5153583
Potassium (K)-Dissolved	<0.050		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silicon (Si)-Dissolved	<0.050		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	14-JUL-20	14-JUL-20	R5153583
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	14-JUL-20	14-JUL-20	R5153583
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583

* 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
L2472215-5 FIELD BLANK							
Sampled By: BS,TS on 08-JUL-20 @ 17:35							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	14-JUL-20	14-JUL-20	R5153583
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	14-JUL-20	14-JUL-20	R5153583
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	14-JUL-20	14-JUL-20	R5153583
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	14-JUL-20	14-JUL-20	R5153583
Zinc (Zn)-Dissolved	0.0042		0.0010	mg/L	14-JUL-20	14-JUL-20	R5153583
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	14-JUL-20	14-JUL-20	R5153583

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP	Water	Hardness Calculated	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.

MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-T-L-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TD-L-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

P-TPART-L-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TOTSUS-LR-WP	Water	Total Suspended Solids	APHA 2540 D (modified)

Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97

This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5152186								
WG3361824-29 LCS								
Alkalinity, Total (as CaCO3)			102.6		%		85-115	13-JUL-20
WG3361824-34 LCS								
Alkalinity, Total (as CaCO3)			103.0		%		85-115	13-JUL-20
WG3361824-26 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	13-JUL-20
WG3361824-31 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	13-JUL-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5149839								
WG3360814-2 LCS								
Benzene			119.4		%		70-130	10-JUL-20
Toluene			101.3		%		70-130	10-JUL-20
Ethyl benzene			104.1		%		70-130	10-JUL-20
o-Xylene			109.4		%		70-130	10-JUL-20
m+p-Xylenes			106.5		%		70-130	10-JUL-20
WG3360814-3 LCS								
F1 (C6-C10)			103.8		%		70-130	10-JUL-20
WG3360814-1 MB								
Benzene			<0.00050		mg/L		0.0005	10-JUL-20
Toluene			<0.0010		mg/L		0.001	10-JUL-20
Ethyl benzene			<0.00050		mg/L		0.0005	10-JUL-20
o-Xylene			<0.00050		mg/L		0.0005	10-JUL-20
m+p-Xylenes			<0.00040		mg/L		0.0004	10-JUL-20
F1 (C6-C10)			<0.10		mg/L		0.1	10-JUL-20
Surrogate: 4-Bromofluorobenzene (SS)			82.7		%		70-130	10-JUL-20
CL-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-6 LCS								
Chloride (Cl)			99.3		%		90-110	10-JUL-20
WG3359928-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	10-JUL-20
F-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-6 LCS								
Fluoride (F)			102.5		%		90-110	10-JUL-20
WG3359928-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	10-JUL-20
F2-F4-FID-WP	**Water**							
Batch R5147430								
WG3358906-4 LCS								
F2 (C10-C16)			103.2		%		70-130	09-JUL-20
F3 (C16-C34)			92.3		%		70-130	09-JUL-20
F4 (C34-C50)			101.7		%		70-130	09-JUL-20
WG3359658-2 LCS								
F2 (C10-C16)			98.6		%		70-130	10-JUL-20
F3 (C16-C34)			93.2		%		70-130	10-JUL-20
F4 (C34-C50)			106.5		%		70-130	10-JUL-20
WG3358906-3 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	09-JUL-20
F3 (C16-C34)			<0.25		mg/L		0.25	09-JUL-20
F4 (C34-C50)			<0.25		mg/L		0.25	09-JUL-20
Surrogate: 2-Bromobenzotrifluoride			98.9		%		60-140	09-JUL-20
WG3359658-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	10-JUL-20
F3 (C16-C34)			<0.25		mg/L		0.25	10-JUL-20
F4 (C34-C50)			<0.25		mg/L		0.25	10-JUL-20
Surrogate: 2-Bromobenzotrifluoride			101.1		%		60-140	10-JUL-20
MET-D-CCMS-WP	**Water**							
Batch R5153583								
WG3362270-2 LCS								
Aluminum (Al)-Dissolved			101.1		%		80-120	14-JUL-20
Antimony (Sb)-Dissolved			97.2		%		80-120	14-JUL-20
Arsenic (As)-Dissolved			100.1		%		80-120	14-JUL-20
Barium (Ba)-Dissolved			98.1		%		80-120	14-JUL-20
Beryllium (Be)-Dissolved			99.5		%		80-120	14-JUL-20
Bismuth (Bi)-Dissolved			96.6		%		80-120	14-JUL-20
Boron (B)-Dissolved			100.5		%		80-120	14-JUL-20
Cadmium (Cd)-Dissolved			99.0		%		80-120	14-JUL-20
Calcium (Ca)-Dissolved			97.6		%		80-120	14-JUL-20
Cesium (Cs)-Dissolved			100.6		%		80-120	14-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5153583								
WG3362270-2 LCS								
Chromium (Cr)-Dissolved			99.3		%		80-120	14-JUL-20
Cobalt (Co)-Dissolved			100.2		%		80-120	14-JUL-20
Copper (Cu)-Dissolved			100.4		%		80-120	14-JUL-20
Iron (Fe)-Dissolved			99.5		%		80-120	14-JUL-20
Lead (Pb)-Dissolved			97.7		%		80-120	14-JUL-20
Lithium (Li)-Dissolved			104.0		%		80-120	14-JUL-20
Magnesium (Mg)-Dissolved			104.7		%		80-120	14-JUL-20
Manganese (Mn)-Dissolved			100.6		%		80-120	14-JUL-20
Molybdenum (Mo)-Dissolved			98.3		%		80-120	14-JUL-20
Nickel (Ni)-Dissolved			100.0		%		80-120	14-JUL-20
Phosphorus (P)-Dissolved			106.9		%		80-120	14-JUL-20
Potassium (K)-Dissolved			101.2		%		80-120	14-JUL-20
Rubidium (Rb)-Dissolved			100.4		%		80-120	14-JUL-20
Selenium (Se)-Dissolved			101.4		%		80-120	14-JUL-20
Silicon (Si)-Dissolved			98.7		%		80-120	14-JUL-20
Silver (Ag)-Dissolved			97.6		%		80-120	14-JUL-20
Sodium (Na)-Dissolved			99.5		%		80-120	14-JUL-20
Strontium (Sr)-Dissolved			102.4		%		80-120	14-JUL-20
Sulfur (S)-Dissolved			93.3		%		80-120	14-JUL-20
Tellurium (Te)-Dissolved			97.2		%		80-120	14-JUL-20
Thallium (Tl)-Dissolved			97.9		%		80-120	14-JUL-20
Thorium (Th)-Dissolved			95.3		%		80-120	14-JUL-20
Tin (Sn)-Dissolved			98.2		%		80-120	14-JUL-20
Titanium (Ti)-Dissolved			96.6		%		80-120	14-JUL-20
Tungsten (W)-Dissolved			97.1		%		80-120	14-JUL-20
Uranium (U)-Dissolved			97.4		%		80-120	14-JUL-20
Vanadium (V)-Dissolved			100.2		%		80-120	14-JUL-20
Zinc (Zn)-Dissolved			100.7		%		80-120	14-JUL-20
Zirconium (Zr)-Dissolved			98.3		%		80-120	14-JUL-20
WG3362270-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	14-JUL-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5153583								
WG3362270-1 MB								
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	14-JUL-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	14-JUL-20
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	14-JUL-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-JUL-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	14-JUL-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	14-JUL-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	14-JUL-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	14-JUL-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	14-JUL-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	14-JUL-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	14-JUL-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	14-JUL-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	14-JUL-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	14-JUL-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	14-JUL-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	14-JUL-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	14-JUL-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	14-JUL-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	14-JUL-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	14-JUL-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	14-JUL-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	14-JUL-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	14-JUL-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	14-JUL-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	14-JUL-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	14-JUL-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	14-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5153583								
WG3362270-1 MB								
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	14-JUL-20
MET-T-CCMS-WP	**Water**							
Batch R5152460								
WG3360137-4 DUP		**L2472215-1**						
Aluminum (Al)-Total		0.0325	0.0347		mg/L	6.5	20	13-JUL-20
Antimony (Sb)-Total		0.00023	0.00021		mg/L	9.4	20	13-JUL-20
Arsenic (As)-Total		0.00220	0.00223		mg/L	1.4	20	13-JUL-20
Barium (Ba)-Total		0.0417	0.0421		mg/L	1.0	20	13-JUL-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-JUL-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-JUL-20
Boron (B)-Total		0.102	0.107		mg/L	4.5	20	13-JUL-20
Cadmium (Cd)-Total		<0.0000050	<0.000005(	RPD-NA	mg/L	N/A	20	13-JUL-20
Calcium (Ca)-Total		39.2	40.2		mg/L	2.6	20	13-JUL-20
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	13-JUL-20
Chromium (Cr)-Total		0.00015	0.00014		mg/L	5.7	20	13-JUL-20
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-JUL-20
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	13-JUL-20
Iron (Fe)-Total		0.038	0.040		mg/L	4.6	20	13-JUL-20
Lead (Pb)-Total		0.000089	0.000085		mg/L	5.3	20	13-JUL-20
Lithium (Li)-Total		0.0354	0.0350		mg/L	1.2	20	13-JUL-20
Magnesium (Mg)-Total		39.1	38.7		mg/L	1.0	20	13-JUL-20
Manganese (Mn)-Total		0.00624	0.00628		mg/L	0.7	20	13-JUL-20
Molybdenum (Mo)-Total		0.00210	0.00210		mg/L	0.1	20	13-JUL-20
Nickel (Ni)-Total		0.00065	0.00065		mg/L	0.7	20	13-JUL-20
Potassium (K)-Total		9.97	9.91		mg/L	0.6	20	13-JUL-20
Phosphorus (P)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	13-JUL-20
Rubidium (Rb)-Total		0.00369	0.00357		mg/L	3.3	20	13-JUL-20
Selenium (Se)-Total		0.000108	0.000097		mg/L	11	20	13-JUL-20
Silicon (Si)-Total		3.79	3.79		mg/L	0.1	20	13-JUL-20
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	13-JUL-20
Sodium (Na)-Total		122	121		mg/L	0.5	20	13-JUL-20
Strontium (Sr)-Total		0.260	0.271		mg/L	4.0	20	13-JUL-20
Sulfur (S)-Total		34.3	34.6		mg/L	0.8	20	13-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5152460								
WG3360137-4 DUP		**L2472215-1**						
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	13-JUL-20
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	13-JUL-20
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-JUL-20
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-JUL-20
Titanium (Ti)-Total		0.00132	0.00138		mg/L	4.0	20	13-JUL-20
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-JUL-20
Uranium (U)-Total		0.00162	0.00162		mg/L	0.1	20	13-JUL-20
Vanadium (V)-Total		0.00142	0.00150		mg/L	5.5	20	13-JUL-20
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	13-JUL-20
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	13-JUL-20
WG3360137-2 LCS								
Aluminum (Al)-Total			102.8		%		80-120	13-JUL-20
Antimony (Sb)-Total			100.9		%		80-120	13-JUL-20
Arsenic (As)-Total			99.8		%		80-120	13-JUL-20
Barium (Ba)-Total			99.7		%		80-120	13-JUL-20
Beryllium (Be)-Total			102.2		%		80-120	13-JUL-20
Bismuth (Bi)-Total			98.7		%		80-120	13-JUL-20
Boron (B)-Total			100.4		%		80-120	13-JUL-20
Cadmium (Cd)-Total			101.5		%		80-120	13-JUL-20
Calcium (Ca)-Total			103.1		%		80-120	13-JUL-20
Cesium (Cs)-Total			99.4		%		80-120	13-JUL-20
Chromium (Cr)-Total			101.6		%		80-120	13-JUL-20
Cobalt (Co)-Total			99.5		%		80-120	13-JUL-20
Copper (Cu)-Total			101.0		%		80-120	13-JUL-20
Iron (Fe)-Total			98.0		%		80-120	13-JUL-20
Lead (Pb)-Total			99.0		%		80-120	13-JUL-20
Lithium (Li)-Total			101.3		%		80-120	13-JUL-20
Magnesium (Mg)-Total			108.8		%		80-120	13-JUL-20
Manganese (Mn)-Total			100.7		%		80-120	13-JUL-20
Molybdenum (Mo)-Total			101.6		%		80-120	13-JUL-20
Nickel (Ni)-Total			98.8		%		80-120	13-JUL-20
Potassium (K)-Total			99.3		%		80-120	13-JUL-20
Phosphorus (P)-Total			101.0		%		80-120	13-JUL-20
Rubidium (Rb)-Total			99.2		%		80-120	13-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5152460								
WG3360137-2 LCS								
Selenium (Se)-Total			102.1		%		80-120	13-JUL-20
Silicon (Si)-Total			109.4		%		80-120	13-JUL-20
Silver (Ag)-Total			99.2		%		80-120	13-JUL-20
Sodium (Na)-Total			101.9		%		80-120	13-JUL-20
Strontium (Sr)-Total			101.8		%		80-120	13-JUL-20
Sulfur (S)-Total			105.1		%		80-120	13-JUL-20
Tellurium (Te)-Total			103.3		%		80-120	13-JUL-20
Thallium (Tl)-Total			101.3		%		80-120	13-JUL-20
Thorium (Th)-Total			96.5		%		80-120	13-JUL-20
Tin (Sn)-Total			100.4		%		80-120	13-JUL-20
Titanium (Ti)-Total			97.0		%		80-120	13-JUL-20
Tungsten (W)-Total			100.6		%		80-120	13-JUL-20
Uranium (U)-Total			96.3		%		80-120	13-JUL-20
Vanadium (V)-Total			101.3		%		80-120	13-JUL-20
Zinc (Zn)-Total			100.5		%		80-120	13-JUL-20
Zirconium (Zr)-Total			96.2		%		80-120	13-JUL-20
WG3360137-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	13-JUL-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	13-JUL-20
Boron (B)-Total			<0.010		mg/L		0.01	13-JUL-20
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	13-JUL-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	13-JUL-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	13-JUL-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	13-JUL-20
Iron (Fe)-Total			<0.010		mg/L		0.01	13-JUL-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	13-JUL-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	13-JUL-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	13-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5152460								
WG3360137-1 MB								
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	13-JUL-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	13-JUL-20
Potassium (K)-Total			<0.050		mg/L		0.05	13-JUL-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	13-JUL-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	13-JUL-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	13-JUL-20
Silicon (Si)-Total			<0.10		mg/L		0.1	13-JUL-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	13-JUL-20
Sodium (Na)-Total			<0.050		mg/L		0.05	13-JUL-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	13-JUL-20
Sulfur (S)-Total			<0.50		mg/L		0.5	13-JUL-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	13-JUL-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	13-JUL-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	13-JUL-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	13-JUL-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	13-JUL-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	13-JUL-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	13-JUL-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	13-JUL-20
WG3360137-5 MS		**L2472215-1**						
Aluminum (Al)-Total			103.7		%		70-130	13-JUL-20
Antimony (Sb)-Total			98.6		%		70-130	13-JUL-20
Arsenic (As)-Total			95.8		%		70-130	13-JUL-20
Barium (Ba)-Total			N/A	MS-B	%		-	13-JUL-20
Beryllium (Be)-Total			103.5		%		70-130	13-JUL-20
Bismuth (Bi)-Total			85.1		%		70-130	13-JUL-20
Boron (B)-Total			N/A	MS-B	%		-	13-JUL-20
Cadmium (Cd)-Total			92.9		%		70-130	13-JUL-20
Calcium (Ca)-Total			N/A	MS-B	%		-	13-JUL-20
Cesium (Cs)-Total			96.3		%		70-130	13-JUL-20
Chromium (Cr)-Total			98.5		%		70-130	13-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5152460								
WG3360137-5 MS		**L2472215-1**						
Cobalt (Co)-Total			95.4		%		70-130	13-JUL-20
Copper (Cu)-Total			91.7		%		70-130	13-JUL-20
Iron (Fe)-Total			97.1		%		70-130	13-JUL-20
Lead (Pb)-Total			88.3		%		70-130	13-JUL-20
Lithium (Li)-Total			102.0		%		70-130	13-JUL-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	13-JUL-20
Manganese (Mn)-Total			97.4		%		70-130	13-JUL-20
Molybdenum (Mo)-Total			103.0		%		70-130	13-JUL-20
Nickel (Ni)-Total			91.5		%		70-130	13-JUL-20
Potassium (K)-Total			N/A	MS-B	%		-	13-JUL-20
Phosphorus (P)-Total			106.7		%		70-130	13-JUL-20
Rubidium (Rb)-Total			94.2		%		70-130	13-JUL-20
Selenium (Se)-Total			101.5		%		70-130	13-JUL-20
Silicon (Si)-Total			103.5		%		70-130	13-JUL-20
Silver (Ag)-Total			93.4		%		70-130	13-JUL-20
Sodium (Na)-Total			N/A	MS-B	%		-	13-JUL-20
Strontium (Sr)-Total			N/A	MS-B	%		-	13-JUL-20
Sulfur (S)-Total			N/A	MS-B	%		-	13-JUL-20
Tellurium (Te)-Total			91.5		%		70-130	13-JUL-20
Thallium (Tl)-Total			86.6		%		70-130	13-JUL-20
Thorium (Th)-Total			93.0		%		70-130	13-JUL-20
Tin (Sn)-Total			99.6		%		70-130	13-JUL-20
Titanium (Ti)-Total			102.2		%		70-130	13-JUL-20
Tungsten (W)-Total			98.3		%		70-130	13-JUL-20
Uranium (U)-Total			89.3		%		70-130	13-JUL-20
Vanadium (V)-Total			100.7		%		70-130	13-JUL-20
Zinc (Zn)-Total			90.2		%		70-130	13-JUL-20
Zirconium (Zr)-Total			101.7		%		70-130	13-JUL-20
Batch R5154985								
WG3361340-2 LCS								
Aluminum (Al)-Total			94.4		%		80-120	15-JUL-20
Antimony (Sb)-Total			102.3		%		80-120	15-JUL-20
Arsenic (As)-Total			104.7		%		80-120	15-JUL-20
Barium (Ba)-Total			101.0		%		80-120	15-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5154985								
WG3361340-2 LCS								
Beryllium (Be)-Total			104.2		%		80-120	15-JUL-20
Bismuth (Bi)-Total			99.3		%		80-120	15-JUL-20
Boron (B)-Total			102.3		%		80-120	15-JUL-20
Cadmium (Cd)-Total			95.8		%		80-120	15-JUL-20
Calcium (Ca)-Total			101.4		%		80-120	15-JUL-20
Cesium (Cs)-Total			94.9		%		80-120	15-JUL-20
Chromium (Cr)-Total			90.6		%		80-120	15-JUL-20
Cobalt (Co)-Total			91.5		%		80-120	15-JUL-20
Copper (Cu)-Total			91.8		%		80-120	15-JUL-20
Iron (Fe)-Total			92.6		%		80-120	15-JUL-20
Lead (Pb)-Total			93.5		%		80-120	15-JUL-20
Lithium (Li)-Total			108.5		%		80-120	15-JUL-20
Magnesium (Mg)-Total			101.8		%		80-120	15-JUL-20
Manganese (Mn)-Total			95.7		%		80-120	15-JUL-20
Molybdenum (Mo)-Total			99.0		%		80-120	15-JUL-20
Nickel (Ni)-Total			90.5		%		80-120	15-JUL-20
Potassium (K)-Total			100.5		%		80-120	15-JUL-20
Phosphorus (P)-Total			99.5		%		80-120	15-JUL-20
Rubidium (Rb)-Total			101.3		%		80-120	15-JUL-20
Selenium (Se)-Total			91.0		%		80-120	15-JUL-20
Silicon (Si)-Total			93.9		%		80-120	15-JUL-20
Silver (Ag)-Total			93.8		%		80-120	15-JUL-20
Sodium (Na)-Total			97.4		%		80-120	15-JUL-20
Strontium (Sr)-Total			96.5		%		80-120	15-JUL-20
Sulfur (S)-Total			107.1		%		80-120	15-JUL-20
Tellurium (Te)-Total			100.9		%		80-120	15-JUL-20
Thallium (Tl)-Total			96.6		%		80-120	15-JUL-20
Thorium (Th)-Total			88.7		%		80-120	15-JUL-20
Tin (Sn)-Total			97.3		%		80-120	15-JUL-20
Titanium (Ti)-Total			88.7		%		80-120	15-JUL-20
Tungsten (W)-Total			95.6		%		80-120	15-JUL-20
Uranium (U)-Total			90.2		%		80-120	15-JUL-20
Vanadium (V)-Total			93.8		%		80-120	15-JUL-20
Zinc (Zn)-Total			104.0		%		80-120	15-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5154985								
WG3361340-2 LCS								
Zirconium (Zr)-Total			91.5		%		80-120	15-JUL-20
WG3361340-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	15-JUL-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Arsenic (As)-Total			0.00011	B	mg/L		0.0001	15-JUL-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	15-JUL-20
Boron (B)-Total			<0.010		mg/L		0.01	15-JUL-20
Cadmium (Cd)-Total			0.0000440	B	mg/L		0.000005	15-JUL-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	15-JUL-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	15-JUL-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	15-JUL-20
Iron (Fe)-Total			<0.010		mg/L		0.01	15-JUL-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	15-JUL-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	15-JUL-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	15-JUL-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	15-JUL-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	15-JUL-20
Potassium (K)-Total			<0.050		mg/L		0.05	15-JUL-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	15-JUL-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	15-JUL-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	15-JUL-20
Silicon (Si)-Total			<0.10		mg/L		0.1	15-JUL-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	15-JUL-20
Sodium (Na)-Total			0.050		mg/L		0.05	15-JUL-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	15-JUL-20
Sulfur (S)-Total			0.66	B	mg/L		0.5	15-JUL-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	15-JUL-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	15-JUL-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	15-JUL-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5154985								
WG3361340-1 MB								
Tin (Sn)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	15-JUL-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	15-JUL-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	15-JUL-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-JUL-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	15-JUL-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	15-JUL-20
N-TOTKJ-WP	**Water**							
Batch R5152198								
WG3359199-10 LCS								
Total Kjeldahl Nitrogen			92.2		%		75-125	14-JUL-20
WG3359199-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	14-JUL-20
NH3-COL-WP	**Water**							
Batch R5153737								
WG3362284-18 LCS								
Ammonia, Total (as N)			101.5		%		85-115	14-JUL-20
WG3362284-17 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	14-JUL-20
NO2-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-6 LCS								
Nitrite (as N)			102.1		%		90-110	10-JUL-20
WG3359928-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	10-JUL-20
NO3-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-6 LCS								
Nitrate (as N)			98.6		%		90-110	10-JUL-20
WG3359928-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	10-JUL-20
P-T-COL-WP	**Water**							
Batch R5153892								
WG3362448-2 LCS								
Phosphorus (P)-Total			98.6		%		80-120	15-JUL-20
WG3362448-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WP	**Water**							
Batch R5153892								
WG3362448-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	15-JUL-20
P-T-L-COL-WP	**Water**							
Batch R5159586								
WG3366662-3 DUP		**L2472215-5**						
Phosphorus (P)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	21-JUL-20
WG3366662-2 LCS								
Phosphorus (P)-Total			107.9		%		80-120	21-JUL-20
WG3366662-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	21-JUL-20
P-TD-COL-WP	**Water**							
Batch R5153892								
WG3362442-2 LCS								
Phosphorus (P)-Total	Dissolved		97.1		%		80-120	15-JUL-20
WG3362442-6 LCS								
Phosphorus (P)-Total	Dissolved		97.9		%		80-120	15-JUL-20
WG3362442-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	15-JUL-20
WG3362442-5 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	15-JUL-20
P-TD-L-COL-WP	**Water**							
Batch R5159586								
WG3366661-2 LCS								
Phosphorus (P)-Total	Dissolved		97.2		%		80-120	21-JUL-20
WG3366661-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	21-JUL-20
SO4-IC-N-WP	**Water**							
Batch R5154959								
WG3359928-6 LCS								
Sulfate (SO4)			99.4		%		90-110	10-JUL-20
WG3359928-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	10-JUL-20
SOLIDS-TOTSUS-LR-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-LR-WP	**Water**							
Batch R5154572								
WG3361113-6 DUP		**L2472215-1**						
Total Suspended Solids		8.6	9.0		mg/L	3.8	20	13-JUL-20
WG3361113-5 LCS								
Total Suspended Solids			95.8		%		85-115	13-JUL-20
WG3361113-4 MB								
Total Suspended Solids			<1.0		mg/L		1	13-JUL-20
TC,EC-QT97-WP	**Water**							
Batch R5147722								
WG3359402-1 MB								
Total Coliforms			<1		MPN/100mL		1	09-JUL-20
Escherichia Coli			<1		MPN/100mL		1	09-JUL-20
TDS-WP	**Water**							
Batch R5154182								
WG3361161-5 LCS								
Total Dissolved Solids			94.7		%		85-115	13-JUL-20
WG3361161-4 MB								
Total Dissolved Solids			<4.0		mg/L		4	13-JUL-20

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.
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

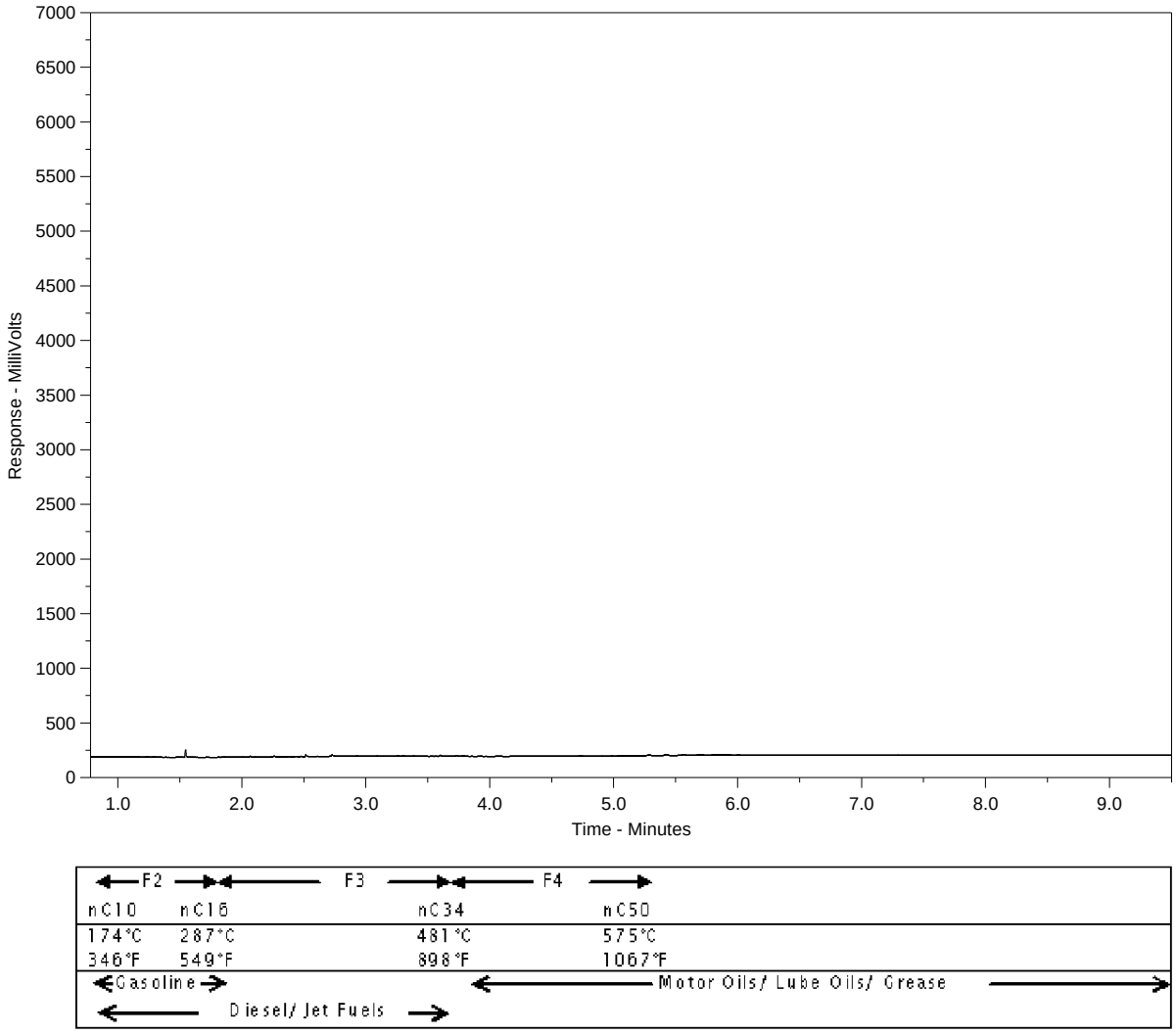
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2472215-1
Client Sample ID: D1



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

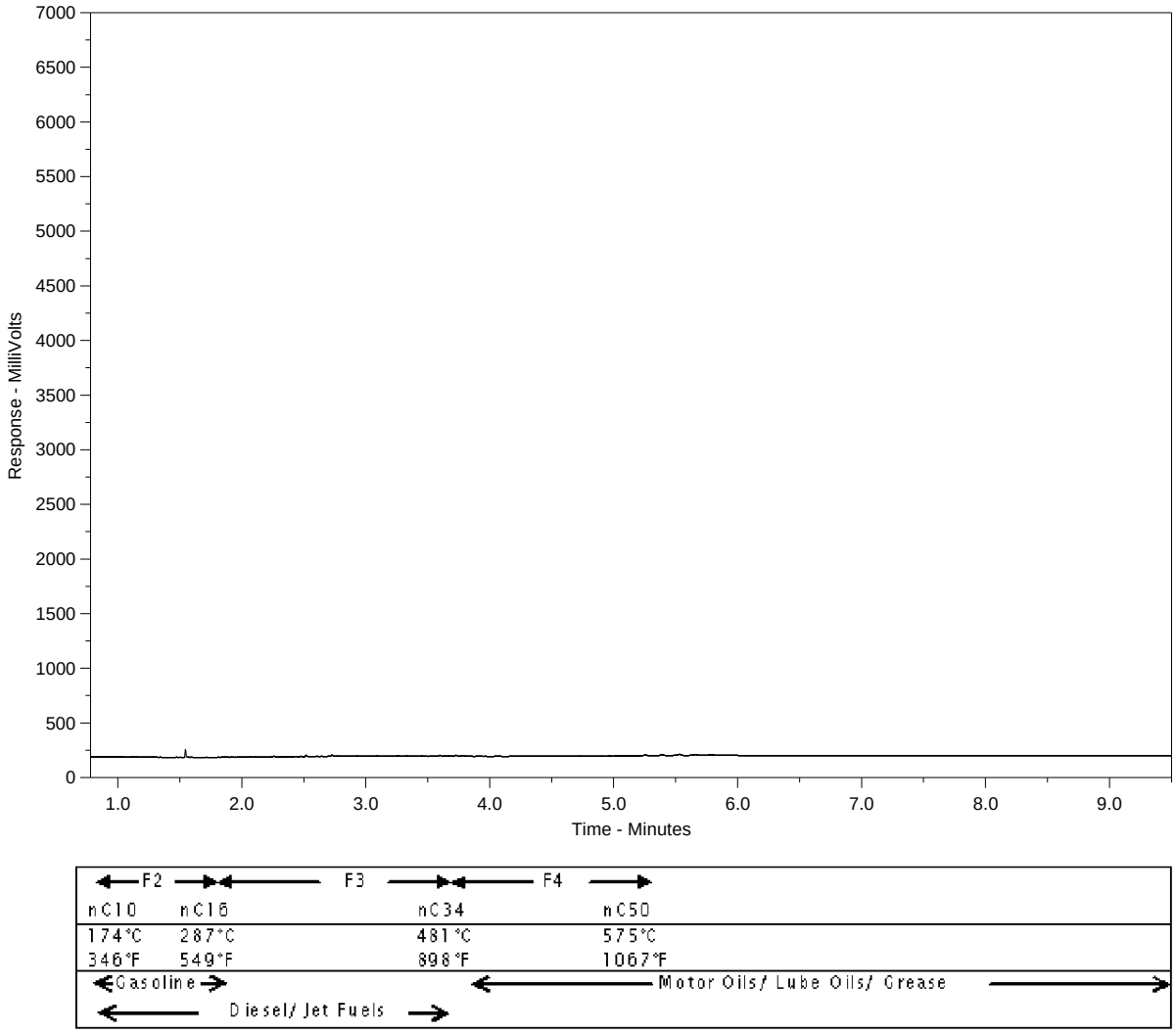
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2472215-2
Client Sample ID: D9



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

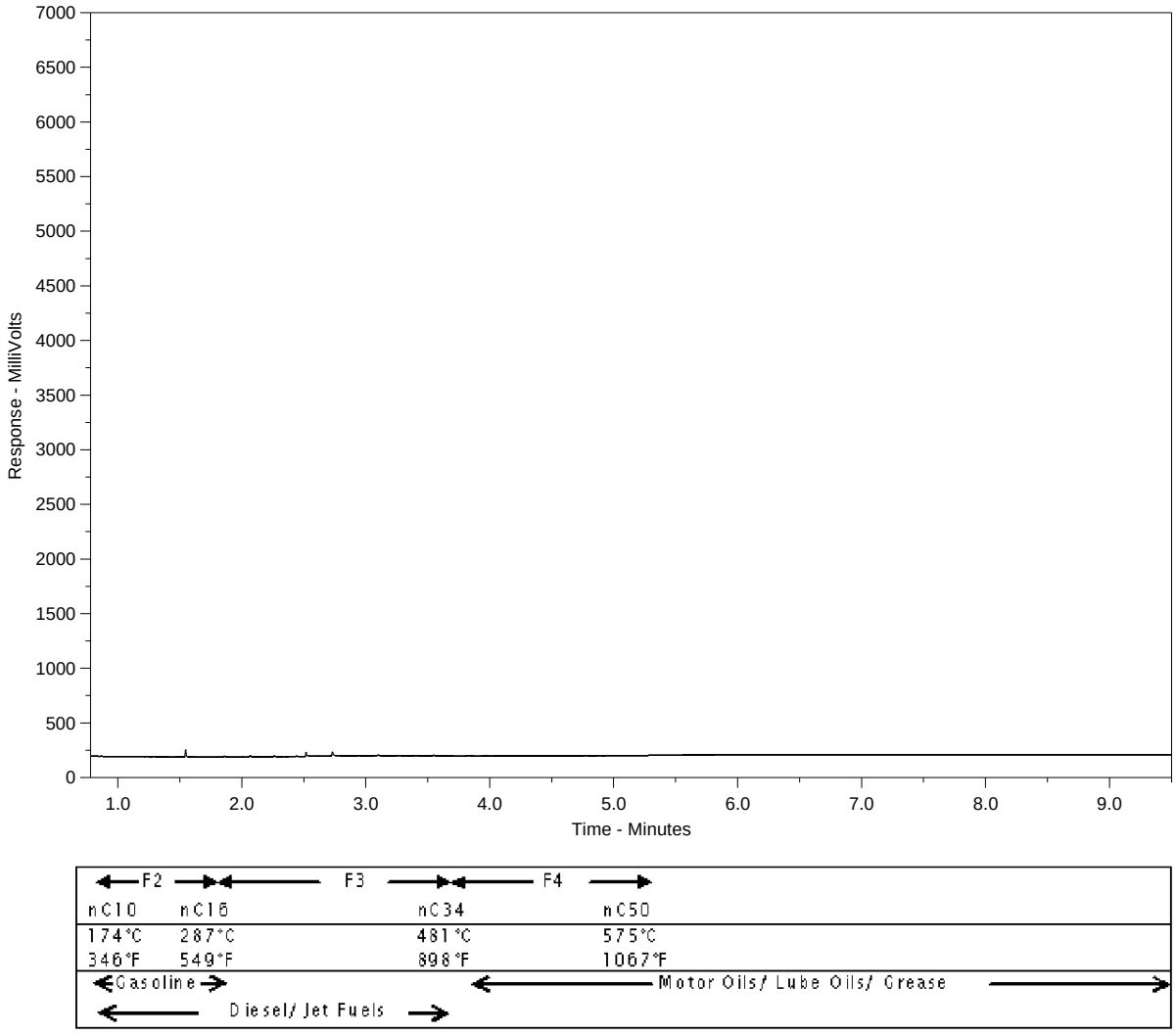
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2472215-3
Client Sample ID: BH19-12



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

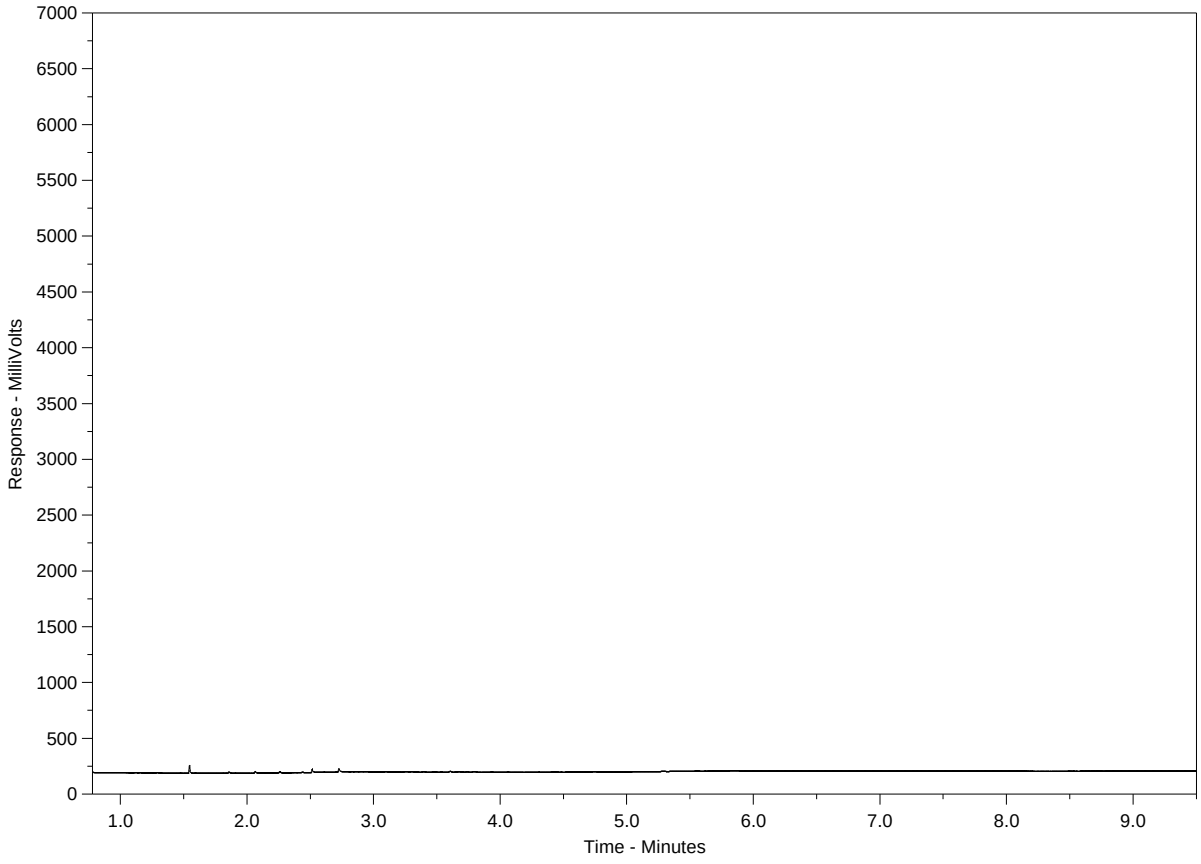
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

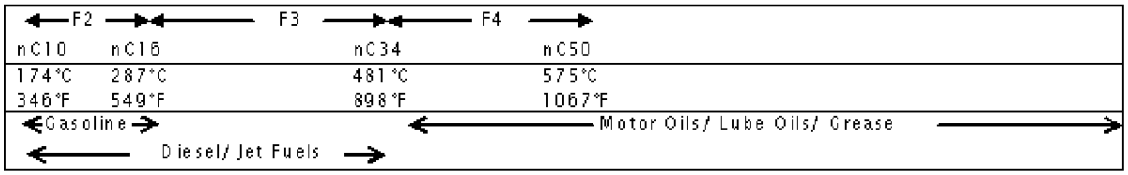
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2472215-4
Client Sample ID: D6





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

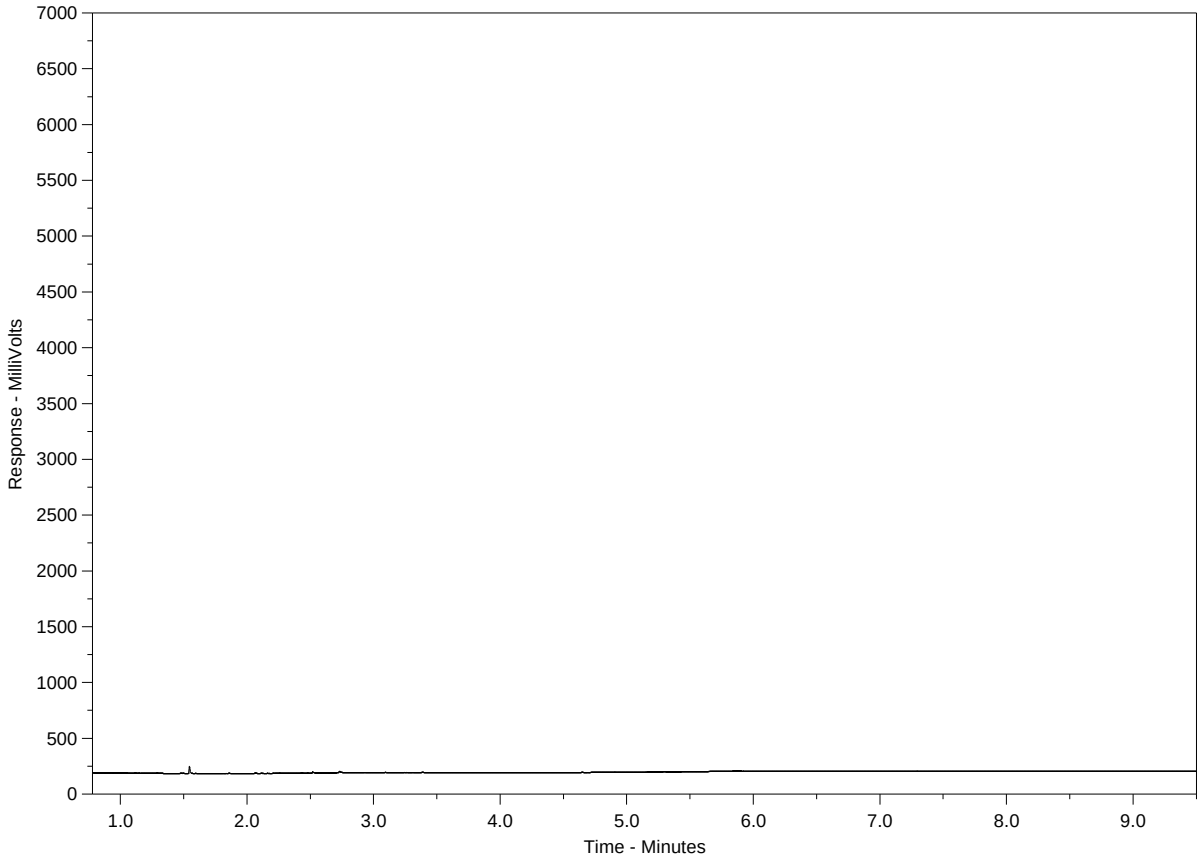
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

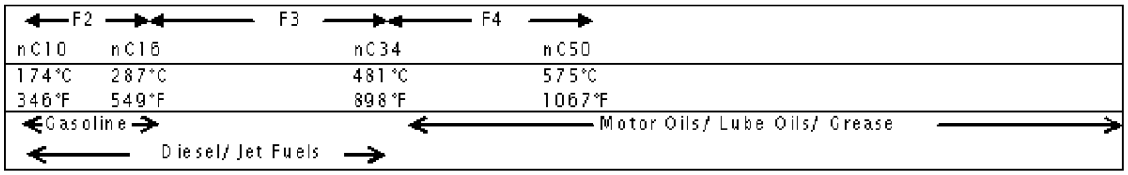
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2472215-5
Client Sample ID: FIELD BLANK





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.

ALS Environmental

L2472215-COFC

COC # 2215

Page 1 of 1

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Stantec - W2077			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON			☑ PDF	☑ Excel	☑ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave			Email 1:	tassia.stainton@stantec.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9			Email 2:	karen.mathers@stantec.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615	Fax:		Email 3:				
Invoice To	Same as Report ?	☑ Yes	☐ No	Client / Project Information				Analysis Request
Hardcopy of Invoice with Report?		☐ Yes	☐ No	Job #:				Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q74061			
Lab Work Order # (lab use only)				ALS Contact:		Sampler:	BG, TS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	ETL-N-TOT-ANY-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	NH3-COL-WP + N-TOTKJ-W	P-T-COL-WP + P-TD-COL-W	P-TPART-CALC-WP	TSS + TDS	TC,EC-QT97-WP	Number of Containers
						(P)	(P)		(F/P)	(P)		(P)	(P)	(P)		(P)	
1	DL	08-07-20	1312	Water ~~Tissue~~ AC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
2	D9		1539														
3	BH19-12		1635														
4	D6		1707														
5	Field Blank		1735														

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	08-07-20	14:45	GE	July 9, 2020	3 pm	10.6 °C				

GENF 18.01 Front

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 06-OCT-20
Report Date: 05-NOV-20 10:59 (MT)
Version: FINAL REV. 3

Client Phone: 204-928-7615

Certificate of Analysis

Lab Work Order #: L2512953

Project P.O. #: 111475107
Job Reference: 111475107.1714.2404.200
C of C Numbers:
Legal Site Desc:

Comments:

28-OCT-2020 Revised report - ID on fraction 3 updated
5-NOV-2020 Revised report - Copper result on fraction 7 changed and P-T part calculation added

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2512953-1 CH19-08							
Sampled By: CLIENT on 05-OCT-20 @ 08:20							
Matrix: GROUNDWATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	303		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	4.08		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.2		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.272		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	141		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		08-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
m+p-Xylenes	<0.00040		0.00040	mg/L		08-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		08-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	85.0		70-130	%		08-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	91.4		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	255		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.119		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	345		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.322		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Particulate	0.321		0.0032	mg/L		21-OCT-20	
Total Dissolved Solids	529		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	0.25		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	0.25		0.20	mg/L		14-OCT-20	
Total Suspended Solids	5260	HTD	6.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	<1	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							

* 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
L2512953-1 CH19-08							
Sampled By: CLIENT on 05-OCT-20 @ 08:20							
Matrix: GROUNDWATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	3.98		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00151		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0493		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	0.00034		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	0.000121		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.444		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000438		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	232		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.00156		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.0102		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00254		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.0229		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	4.71		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.00568		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0394		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	129		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.177		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000965		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.0135		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	7.87		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.369		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.0149		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	13.5		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	0.000053		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	45.1		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.705		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	51.8		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	0.000158		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	0.00442		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	0.00024		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.142		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	0.00037		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00214		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.0117		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0435		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	0.00193		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	0.0028		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00039		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0277		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.377		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	59.9		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-1 CH19-08							
Sampled By: CLIENT on 05-OCT-20 @ 08:20							
Matrix: GROUNDWATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	0.00015		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00038		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.287		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0302		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	47.4		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0284		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.00110		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	0.00097		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	5.72		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00263		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	5.06		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	44.2		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.625		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	46.3		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	0.00050		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.00124		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0042		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-2 D8							
Sampled By: CLIENT on 05-OCT-20 @ 10:00							
Matrix: SURFACE WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	432		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	28.1		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	18.1		1.0	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.335		0.040	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	0.048		0.040	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	141		0.60	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							

* 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
L2512953-2 D8							
Sampled By: CLIENT on 05-OCT-20 @ 10:00							
Matrix: SURFACE WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		08-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
m+p-Xylenes	<0.00040		0.00040	mg/L		08-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		08-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	84.4		70-130	%		08-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	96.8		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	401		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.089		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	520		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0602		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0348		0.0030	mg/L		08-OCT-20	R5251642
Phosphorus (P)-Total Particulate	0.0254		0.0042	mg/L		09-OCT-20	
Total Dissolved Solids	663		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	2.47		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	2.47		0.20	mg/L		14-OCT-20	
Total Suspended Solids	12.6		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	>2420	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	727	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0465		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00013		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00177		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0494		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.142		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000069		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	71.9		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00025		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00019		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00153		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.059		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0276		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	83.9		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0477		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.00121		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-2 D8							
Sampled By: CLIENT on 05-OCT-20 @ 10:00							
Matrix: SURFACE WATER							
Total Metals in Water by CRC ICPMS							
Nickel (Ni)-Total	0.00112		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	13.7		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.059		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00422		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000184		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	7.50		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	17.2		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.225		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	51.5		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	0.000017		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00182		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00337		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.00136		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	0.00033		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	0.0042		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	0.00012		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00181		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0505		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.134		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	65.5		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	0.00017		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	0.00014		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00190		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.029		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0266		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	86.6		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0346		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.00117		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	0.00098		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	12.6		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00368		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	0.000235		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	6.53		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	17.4		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.215		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	46.0		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-2 D8							
Sampled By: CLIENT on 05-OCT-20 @ 10:00							
Matrix: SURFACE WATER							
Dissolved Metals in Water by CRC ICPMS							
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	0.00031		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.00287		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	0.00118		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0028		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	0.00030		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-3 OW19-18							
Sampled By: CLIENT on 05-OCT-20 @ 11:30							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	344		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	2.28		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.38		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.801		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	111		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		08-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		08-OCT-20	R5252076
m+p-Xylenes	<0.00040		0.00040	mg/L		08-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		08-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	83.0		70-130	%		08-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	92.6		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							

* 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
L2512953-3 OW19-18							
Sampled By: CLIENT on 05-OCT-20 @ 11:30							
Matrix: GW							
Alkalinity, Total (as CaCO3)	286		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.133		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	382		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0027		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Dissolved	0.0012		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		13-OCT-20	
Total Dissolved Solids	483		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	<0.20		0.20	mg/L		14-OCT-20	
Total Suspended Solids	3.7		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	<1	MBHT	1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0113		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00013		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0190		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.544		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	77.1		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.000027		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00096		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.049		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.000144		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0355		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	46.8		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0155		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000244		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	11.0		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00671		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	5.91		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	32.4		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.554		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	41.2		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00057		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.000700		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0065		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-3 OW19-18							
Sampled By: CLIENT on 05-OCT-20 @ 11:30							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0206		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.491		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	72.8		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	0.000021		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00068		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.037		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0344		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	48.5		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0139		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.000235		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	10.2		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00622		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	5.16		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	32.8		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.549		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	35.8		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.000638		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0054		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-4 BH19-12							
Sampled By: CLIENT on 05-OCT-20 @ 15:05							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	322		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	3.72		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							

* 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
L2512953-4 BH19-12							
Sampled By: CLIENT on 05-OCT-20 @ 15:05							
Matrix: GW							
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	5.73		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.608		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	116		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	84.0		70-130	%		09-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	90.7		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	270		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.114		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	359		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0050		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Particulate	0.0043		0.0028	mg/L		13-OCT-20	
Total Dissolved Solids	447		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	<0.20		0.20	mg/L		14-OCT-20	
Total Suspended Solids	1.8		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	<1		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0198		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00013		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0186		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-4 BH19-12							
Sampled By: CLIENT on 05-OCT-20 @ 15:05							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.517		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000079		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	74.3		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.000024		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00400		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.055		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.00167		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0328		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	44.3		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.00650		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000838		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	9.57		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00606		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	5.34		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	32.9		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.511		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	43.2		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00065		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.000551		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0278		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00013		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0202		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.473		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	69.1		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	0.000018		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00052		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.050		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-4 BH19-12							
Sampled By: CLIENT on 05-OCT-20 @ 15:05							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Lithium (Li)-Dissolved	0.0312		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	45.3		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.00468		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.000459		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	9.03		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00561		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	4.59		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	30.7		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.485		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	38.8		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.000482		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0028		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-5 D6							
Sampled By: CLIENT on 05-OCT-20 @ 12:16							
Matrix: SW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	430		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	30.0		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	15.7		1.0	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.331		0.040	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	0.066		0.040	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	93.1		0.60	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076

* 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
L2512953-5 D6							
Sampled By: CLIENT on 05-OCT-20 @ 12:16							
Matrix: SW							
BTX plus F1 by GCMS							
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	84.7		70-130	%		09-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	93.3		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	403		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.030		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	478		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0297		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0168		0.0030	mg/L		08-OCT-20	R5251642
Phosphorus (P)-Total Particulate	0.0129		0.0042	mg/L		09-OCT-20	
Total Dissolved Solids	565		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	1.90		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	1.90		0.20	mg/L		14-OCT-20	
Total Suspended Solids	2.9		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1990		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	72		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0521		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00018		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00139		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0334		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.148		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000083		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	68.1		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00025		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00012		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00182		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.061		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.000142		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0255		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	77.6		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0224		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000965		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00093		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	8.61		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.139		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00281		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-5 D6							
Sampled By: CLIENT on 05-OCT-20 @ 12:16							
Matrix: SW							
Total Metals in Water by CRC ICPMS							
Selenium (Se)-Total	0.000192		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	7.86		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	0.000015		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	16.5		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.221		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	34.2		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00198		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00211		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.00064		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0055		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00134		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0347		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.136		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	60.6		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00122		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.017		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0248		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	79.3		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0118		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.000578		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	0.00081		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	8.13		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00263		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	0.000147		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	6.62		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	16.3		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.217		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	29.6		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-5 D6							
Sampled By: CLIENT on 05-OCT-20 @ 12:16							
Matrix: SW							
Dissolved Metals in Water by CRC ICPMS							
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.00159		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0030		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-6 D12							
Sampled By: CLIENT on 05-OCT-20 @ 15:30							
Matrix: SW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	406		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	26.8		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	19.3		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.300		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	82.1		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252076
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252076
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252076
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252076
Surrogate: 4-Bromofluorobenzene (SS)	84.0		70-130	%		09-OCT-20	R5252076
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	93.2		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	377		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.022		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	447		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0276		0.0030	mg/L		09-OCT-20	R5252266

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2512953-6 D12							
Sampled By: CLIENT on 05-OCT-20 @ 15:30							
Matrix: SW							
Phosphorus (P)-Total Dissolved	0.0089		0.0030	mg/L		08-OCT-20	R5251642
Phosphorus (P)-Total Particulate	0.0187		0.0042	mg/L		09-OCT-20	
Total Dissolved Solids	552		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	1.56		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	1.56		0.20	mg/L		14-OCT-20	
Total Suspended Solids	2.3		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1120		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	4		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0171		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00122		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0436		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.113		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	66.6		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00012		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00112		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.050		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.000109		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0260		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	66.9		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0176		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000375		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	10.7		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00419		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000149		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	14.0		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	14.6		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.206		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	31.1		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00070		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00116		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0054		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-6 D12							
Sampled By: CLIENT on 05-OCT-20 @ 15:30							
Matrix: SW							
Dissolved Metals in Water by CRC ICPMS							
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00129		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0460		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.104		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	63.7		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00100		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.029		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0255		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	69.9		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.00972		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.000335		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	9.85		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00382		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	0.000141		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	11.8		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	14.7		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.201		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	26.5		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.00101		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0032		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-7 OW19-05							
Sampled By: CLIENT on 05-OCT-20 @ 18:48							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	245		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	8.28		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.9		0.50	mg/L		07-OCT-20	R5252407

* 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
L2512953-7 OW19-05							
Sampled By: CLIENT on 05-OCT-20 @ 18:48							
Matrix: GW							
Fluoride in Water by IC							
Fluoride (F)	0.574		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	100		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	88.3		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	96.8		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	215		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.100		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	238		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0310		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0027		0.0010	mg/L		13-OCT-20	R5253357
Total Dissolved Solids	342		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	<0.20		0.20	mg/L		14-OCT-20	
Total Suspended Solids	181		1.0	mg/L		09-OCT-20	R5253347
Phosphorus, Total Particulate							
Phosphorus (P)-Total Particulate	0.0283		0.0032	mg/L		21-OCT-20	
Phosphorus (P)-Total Particulate	0.0283		0.0032	mg/L		13-OCT-20	
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	<1		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.695		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00014		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00253		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0409		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	0.00014		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.447		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000170		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-7 OW19-05							
Sampled By: CLIENT on 05-OCT-20 @ 18:48							
Matrix: GW							
Total Metals in Water by CRC ICPMS							
Calcium (Ca)-Total	77.4		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.000187		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00142		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00162		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00489		0.00050	mg/L	09-OCT-20	02-NOV-20	R5275295
Iron (Fe)-Total	1.73		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.00219		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0204		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	48.3		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0452		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.00199		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00265		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	6.68		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.038		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00565		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000143		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	5.13		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	37.3		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.328		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	37.1		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	0.000024		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	0.00113		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	0.00012		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.0202		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	0.00114		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.000779		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.00364		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0123		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	0.00102		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00172		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0402		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.384		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	43.5		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	0.000021		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00031		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.182		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0183		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	31.4		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0309		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-7 OW19-05							
Sampled By: CLIENT on 05-OCT-20 @ 18:48							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Molybdenum (Mo)-Dissolved	0.00177		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	6.10		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00379		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	3.40		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	36.8		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.312		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	31.1		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	0.00143		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.000109		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Zinc (Zn)-Dissolved	0.0019		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-8 D11							
Sampled By: CLIENT on 06-OCT-20 @ 10:15							
Matrix: SW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	336		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	18.7		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	8.39		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.265		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	91.5		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	86.7		70-130	%		09-OCT-20	R5252077

* 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
L2512953-8 D11							
Sampled By: CLIENT on 06-OCT-20 @ 10:15							
Matrix: SW							
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	92.1		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	307		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.028		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	388		0.20	mg/L		13-OCT-20	
Phosphorus (P)-Total	0.0208		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0159		0.0030	mg/L		08-OCT-20	R5251642
Phosphorus (P)-Total Particulate	0.0049		0.0042	mg/L		09-OCT-20	
Total Dissolved Solids	425		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	1.57		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	1.57		0.20	mg/L		14-OCT-20	
Total Suspended Solids	4.3		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	921		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	58		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0519		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00102		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0305		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.096		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	53.6		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00017		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00177		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.072		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.000103		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0252		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	65.7		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0156		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000589		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00060		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	6.91		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.031		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00296		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000142		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	1.85		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	13.1		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-8 D11							
Sampled By: CLIENT on 06-OCT-20 @ 10:15							
Matrix: SW							
Total Metals in Water by CRC ICPMS							
Strontium (Sr)-Total	0.179		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	36.3		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00178		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00154		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.00069		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0036		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					08-OCT-20	R5251469
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Arsenic (As)-Dissolved	0.00104		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Barium (Ba)-Dissolved	0.0312		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Boron (B)-Dissolved	0.089		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Calcium (Ca)-Dissolved	47.6		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Chromium (Cr)-Dissolved	0.00012		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Copper (Cu)-Dissolved	0.00122		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Iron (Fe)-Dissolved	0.031		0.010	mg/L	08-OCT-20	09-OCT-20	R5252425
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Lithium (Li)-Dissolved	0.0237		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Magnesium (Mg)-Dissolved	65.4		0.0050	mg/L	08-OCT-20	09-OCT-20	R5252425
Manganese (Mn)-Dissolved	0.0126		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Molybdenum (Mo)-Dissolved	0.000544		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	08-OCT-20	09-OCT-20	R5252425
Potassium (K)-Dissolved	6.27		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Rubidium (Rb)-Dissolved	0.00264		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Selenium (Se)-Dissolved	0.000145		0.000050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silicon (Si)-Dissolved	1.45		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sodium (Na)-Dissolved	12.8		0.050	mg/L	08-OCT-20	09-OCT-20	R5252425
Strontium (Sr)-Dissolved	0.173		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Sulfur (S)-Dissolved	30.6		0.50	mg/L	08-OCT-20	09-OCT-20	R5252425
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-20	09-OCT-20	R5252425
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-20	09-OCT-20	R5252425
Uranium (U)-Dissolved	0.00135		0.000010	mg/L	08-OCT-20	09-OCT-20	R5252425
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-20	09-OCT-20	R5252425

* 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
L2512953-8 D11							
Sampled By: CLIENT on 06-OCT-20 @ 10:15							
Matrix: SW							
Dissolved Metals in Water by CRC ICPMS							
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	08-OCT-20	09-OCT-20	R5252425
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	08-OCT-20	09-OCT-20	R5252425
L2512953-9 BH19-29							
Sampled By: CLIENT on 06-OCT-20 @ 09:50							
Matrix: GW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	248		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	5.40		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.2		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.829		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	138		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	83.9		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	93.1		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	212		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.191		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	278		0.20	mg/L		15-OCT-20	
Phosphorus (P)-Total	0.0058		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0012		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Particulate	0.0046		0.0032	mg/L		21-OCT-20	
Total Dissolved Solids	396		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	0.21		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826

* 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
L2512953-9 BH19-29							
Sampled By: CLIENT on 06-OCT-20 @ 09:50							
Matrix: GW							
Total Nitrogen	0.21		0.20	mg/L		14-OCT-20	
Total Suspended Solids	9.8		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	<1		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0891		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00197		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0214		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.589		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000081		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	58.0		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.000017		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00022		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00028		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00487		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.210		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.00118		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0274		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	35.7		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0168		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.00110		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00069		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	7.46		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	<0.030		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00343		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	5.39		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	42.3		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.428		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	48.1		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	0.000012		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00483		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00101		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	0.0169		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253531
Aluminum (Al)-Dissolved	0.0022		0.0010	mg/L	13-OCT-20	14-OCT-20	R5254895
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00195		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0235		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2512953-9 BH19-29							
Sampled By: CLIENT on 06-OCT-20 @ 09:50							
Matrix: GW							
Dissolved Metals in Water by CRC ICPMS							
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.550		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	54.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	0.00023		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00554		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.131		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0261		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	34.3		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.0155		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.00117		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	7.24		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00330		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	5.15		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	42.7		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.406		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	50.3		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00100		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0025		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2512953-10 D2							
Sampled By: CLIENT on 06-OCT-20 @ 11:30							
Matrix: SW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	361		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	21.5		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	65.7		1.0	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.210		0.040	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		07-OCT-20	R5252407

* 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
L2512953-10 D2							
Sampled By: CLIENT on 06-OCT-20 @ 11:30							
Matrix: SW							
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	146		0.60	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	87.1		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	07-OCT-20	07-OCT-20	R5251349
F3 (C16-C34)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
F4 (C34-C50)	<0.25		0.25	mg/L	07-OCT-20	07-OCT-20	R5251349
Surrogate: 2-Bromobenzotrifluoride	88.6		60-140	%	07-OCT-20	07-OCT-20	R5251349
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	331		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.022		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	490		0.20	mg/L		15-OCT-20	
Phosphorus (P)-Total	0.0294		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0218		0.0030	mg/L		08-OCT-20	R5251642
Phosphorus (P)-Total Particulate	0.0075		0.0042	mg/L		09-OCT-20	
Total Dissolved Solids	639		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	1.18		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	1.18		0.20	mg/L		14-OCT-20	
Total Suspended Solids	36.9		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	308		1	MPN/100mL		06-OCT-20	R5250812
Escherichia Coli	6		1	MPN/100mL		06-OCT-20	R5250812
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0163		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00014		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00100		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0333		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.121		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	78.1		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00011		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00011		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00057		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	0.054		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-10 D2							
Sampled By: CLIENT on 06-OCT-20 @ 11:30							
Matrix: SW							
Total Metals in Water by CRC ICPMS							
Lead (Pb)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0482		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	78.5		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0230		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.000728		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00092		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	4.36		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.049		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00206		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000083		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	0.49		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	29.5		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.218		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	54.2		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Titanium (Ti)-Total	0.00072		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.00277		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	<0.00050		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253531
Aluminum (Al)-Dissolved	0.0018		0.0010	mg/L	13-OCT-20	14-OCT-20	R5254895
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00101		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0341		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.114		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	74.6		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	0.00012		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00082		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.027		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0471		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	73.7		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.0137		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.000769		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	0.00088		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	4.16		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00191		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	0.000119		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2512953-10 D2							
Sampled By: CLIENT on 06-OCT-20 @ 11:30							
Matrix: SW							
Dissolved Metals in Water by CRC ICPMS							
Silicon (Si)-Dissolved	0.407		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	30.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.199		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	52.7		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00259		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0024		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2512953-11 QC-1 (NOT ON COC)							
Sampled By: CLIENT							
Matrix: QC							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	246		1.2	mg/L		14-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	8.04		0.60	mg/L		14-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-OCT-20	
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	10.9		0.50	mg/L		07-OCT-20	R5252407
Fluoride in Water by IC							
Fluoride (F)	0.577		0.020	mg/L		07-OCT-20	R5252407
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		07-OCT-20	R5252407
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		07-OCT-20	R5252407
Sulfate in Water by IC							
Sulfate (SO4)	101		0.30	mg/L		07-OCT-20	R5252407
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	85.6		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	08-OCT-20	08-OCT-20	R5252019
F3 (C16-C34)	<0.25		0.25	mg/L	08-OCT-20	08-OCT-20	R5252019
F4 (C34-C50)	<0.25		0.25	mg/L	08-OCT-20	08-OCT-20	R5252019
Surrogate: 2-Bromobenzotrifluoride	94.3		60-140	%	08-OCT-20	08-OCT-20	R5252019
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-OCT-20	

* 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
L2512953-11 QC-1 (NOT ON COC)							
Sampled By: CLIENT							
Matrix: QC							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		13-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	215		1.0	mg/L		15-OCT-20	R5257498
Ammonia, Total (as N)	0.098		0.010	mg/L		08-OCT-20	R5252250
Hardness (as CaCO3)	245		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	0.0307		0.0030	mg/L		09-OCT-20	R5252266
Phosphorus (P)-Total Dissolved	0.0032		0.0010	mg/L		13-OCT-20	R5253357
Phosphorus (P)-Total Particulate	0.0276		0.0032	mg/L		21-OCT-20	
Total Dissolved Solids	365		20	mg/L		09-OCT-20	R5253981
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	09-OCT-20	13-OCT-20	R5253826
Total Nitrogen	<0.20		0.20	mg/L		14-OCT-20	
Total Suspended Solids	86.0		1.0	mg/L		09-OCT-20	R5253347
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		07-OCT-20	R5251551
Escherichia Coli	<1		1	MPN/100mL		07-OCT-20	R5251551
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.485		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Antimony (Sb)-Total	0.00011		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Arsenic (As)-Total	0.00226		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Barium (Ba)-Total	0.0400		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Boron (B)-Total	0.447		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cadmium (Cd)-Total	0.0000075		0.0000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Calcium (Ca)-Total	54.0		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Cesium (Cs)-Total	0.000149		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Chromium (Cr)-Total	0.00091		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Cobalt (Co)-Total	0.00099		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Copper (Cu)-Total	0.00131		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Iron (Fe)-Total	1.16		0.010	mg/L	09-OCT-20	09-OCT-20	R5253339
Lead (Pb)-Total	0.000923		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Lithium (Li)-Total	0.0204		0.0010	mg/L	09-OCT-20	09-OCT-20	R5253339
Magnesium (Mg)-Total	34.7		0.0050	mg/L	09-OCT-20	09-OCT-20	R5253339
Manganese (Mn)-Total	0.0378		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Molybdenum (Mo)-Total	0.00191		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Nickel (Ni)-Total	0.00165		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Potassium (K)-Total	6.51		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Phosphorus (P)-Total	0.042		0.030	mg/L	09-OCT-20	09-OCT-20	R5253339
Rubidium (Rb)-Total	0.00499		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Selenium (Se)-Total	0.000094		0.000050	mg/L	09-OCT-20	09-OCT-20	R5253339
Silicon (Si)-Total	4.78		0.10	mg/L	09-OCT-20	09-OCT-20	R5253339
Silver (Ag)-Total	<0.000010		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Sodium (Na)-Total	37.4		0.050	mg/L	09-OCT-20	09-OCT-20	R5253339
Strontium (Sr)-Total	0.332		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Sulfur (S)-Total	37.0		0.50	mg/L	09-OCT-20	09-OCT-20	R5253339
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Thallium (Tl)-Total	0.000013		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Thorium (Th)-Total	0.00082		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339

* 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
L2512953-11 QC-1 (NOT ON COC)							
Sampled By: CLIENT							
Matrix: QC							
Total Metals in Water by CRC ICPMS							
Titanium (Ti)-Total	0.0146		0.00030	mg/L	09-OCT-20	09-OCT-20	R5253339
Tungsten (W)-Total	0.00125		0.00010	mg/L	09-OCT-20	09-OCT-20	R5253339
Uranium (U)-Total	0.000594		0.000010	mg/L	09-OCT-20	09-OCT-20	R5253339
Vanadium (V)-Total	0.00239		0.00050	mg/L	09-OCT-20	09-OCT-20	R5253339
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-OCT-20	09-OCT-20	R5253339
Zirconium (Zr)-Total	0.00114		0.00020	mg/L	09-OCT-20	09-OCT-20	R5253339
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253531
Aluminum (Al)-Dissolved	0.0069		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00164		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0370		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.447		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	47.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	0.000027		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.160		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0188		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	31.0		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.0328		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.00189		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	6.22		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00394		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	3.87		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	37.7		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.308		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	36.7		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	0.00155		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.000126		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP Water CCME PHC F2-F4 in Water EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP Water Hardness Calculated 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.

MET-D-CCMS-WP Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020B (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-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020B (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.

N-TOTKJ-WP Water Total Kjeldahl Nitrogen APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-T-L-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TD-L-COL-WP Water Phosphorus, Total Dissolved APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

P-TPART-L-CALC-WP Water Phosphorus, Total Particulate CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-LR-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5257498								
WG3427529-19 LCS								
Alkalinity, Total (as CaCO3)			94.3		%		85-115	15-OCT-20
WG3427529-24 LCS								
Alkalinity, Total (as CaCO3)			94.4		%		85-115	15-OCT-20
WG3427529-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	15-OCT-20
WG3427529-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	15-OCT-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5252076								
WG3420411-2 LCS								
Benzene			119.7		%		70-130	08-OCT-20
Toluene			96.6		%		70-130	08-OCT-20
Ethyl benzene			104.4		%		70-130	08-OCT-20
o-Xylene			122.9		%		70-130	08-OCT-20
m+p-Xylenes			119.6		%		70-130	08-OCT-20
WG3420411-3 LCS								
F1 (C6-C10)			104.2		%		70-130	08-OCT-20
WG3420411-1 MB								
Benzene			<0.00050		mg/L		0.0005	08-OCT-20
Toluene			<0.0010		mg/L		0.001	08-OCT-20
Ethyl benzene			<0.00050		mg/L		0.0005	08-OCT-20
o-Xylene			<0.00050		mg/L		0.0005	08-OCT-20
m+p-Xylenes			<0.00040		mg/L		0.0004	08-OCT-20
F1 (C6-C10)			<0.10		mg/L		0.1	08-OCT-20
Surrogate: 4-Bromofluorobenzene (SS)			87.8		%		70-130	08-OCT-20
Batch R5252077								
WG3420949-4 DUP		**L2512953-7**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-OCT-20
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	09-OCT-20
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-OCT-20
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	09-OCT-20
m+p-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	09-OCT-20
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	09-OCT-20
WG3420949-2 LCS								
Benzene			97.1		%		70-130	09-OCT-20
Toluene			84.7		%		70-130	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Water**							
Batch R5252077								
WG3420949-2 LCS								
Ethyl benzene			90.0		%		70-130	09-OCT-20
o-Xylene			108.8		%		70-130	09-OCT-20
m+p-Xylenes			104.5		%		70-130	09-OCT-20
WG3420949-3 LCS								
F1 (C6-C10)			82.2		%		70-130	09-OCT-20
WG3420949-1 MB								
Benzene			<0.00050		mg/L		0.0005	09-OCT-20
Toluene			<0.0010		mg/L		0.001	09-OCT-20
Ethyl benzene			<0.00050		mg/L		0.0005	09-OCT-20
o-Xylene			<0.00050		mg/L		0.0005	09-OCT-20
m+p-Xylenes			<0.00040		mg/L		0.0004	09-OCT-20
F1 (C6-C10)			<0.10		mg/L		0.1	09-OCT-20
Surrogate: 4-Bromofluorobenzene (SS)			83.0		%		70-130	09-OCT-20
WG3420949-5 MS		**L2512953-8**						
Benzene			90.1		%		50-150	09-OCT-20
Toluene			83.3		%		50-150	09-OCT-20
Ethyl benzene			90.5		%		50-150	09-OCT-20
o-Xylene			109.2		%		50-150	09-OCT-20
m+p-Xylenes			100.7		%		50-150	09-OCT-20
WG3420949-6 MS		**L2512953-9**						
F1 (C6-C10)			75.3		%		50-150	09-OCT-20
CL-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-11 DUP		**L2512953-9**						
Chloride (Cl)		11.2	11.2		mg/L	0.3	20	07-OCT-20
WG3420506-3 DUP		**L2512953-3**						
Chloride (Cl)		6.38	6.35		mg/L	0.4	20	07-OCT-20
WG3420506-7 DUP		**L2512953-4**						
Chloride (Cl)		5.73	5.71		mg/L	0.4	20	07-OCT-20
WG3420506-10 LCS								
Chloride (Cl)			101.0		%		90-110	07-OCT-20
WG3420506-2 LCS								
Chloride (Cl)			100.8		%		90-110	07-OCT-20
WG3420506-6 LCS								
Chloride (Cl)			100.6		%		90-110	07-OCT-20
WG3420506-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	07-OCT-20
WG3420506-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	07-OCT-20
WG3420506-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	07-OCT-20
WG3420506-12 MS		**L2512953-9**						
Chloride (Cl)			105.5		%		75-125	07-OCT-20
WG3420506-4 MS		**L2512953-3**						
Chloride (Cl)			103.6		%		75-125	07-OCT-20
WG3420506-8 MS		**L2512953-4**						
Chloride (Cl)			104.8		%		75-125	07-OCT-20
F-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-11 DUP		**L2512953-9**						
Fluoride (F)		0.829	0.820		mg/L	1.1	20	07-OCT-20
WG3420506-3 DUP		**L2512953-3**						
Fluoride (F)		0.801	0.793		mg/L	0.9	20	07-OCT-20
WG3420506-7 DUP		**L2512953-4**						
Fluoride (F)		0.608	0.604		mg/L	0.6	20	07-OCT-20
WG3420506-10 LCS								
Fluoride (F)			103.0		%		90-110	07-OCT-20
WG3420506-2 LCS								
Fluoride (F)			101.6		%		90-110	07-OCT-20
WG3420506-6 LCS								
Fluoride (F)			102.5		%		90-110	07-OCT-20
WG3420506-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-9 MB								
Fluoride (F)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-12 MS		**L2512953-9**						
Fluoride (F)			102.6		%		75-125	07-OCT-20
WG3420506-4 MS		**L2512953-3**						
Fluoride (F)			102.6		%		75-125	07-OCT-20
WG3420506-8 MS		**L2512953-4**						
Fluoride (F)			101.1		%		75-125	07-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	**Water**							
Batch R5251349								
WG3420707-2 LCS								
F2 (C10-C16)			95.0		%		70-130	07-OCT-20
F3 (C16-C34)			87.3		%		70-130	07-OCT-20
F4 (C34-C50)			96.0		%		70-130	07-OCT-20
WG3420707-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	07-OCT-20
F3 (C16-C34)			<0.25		mg/L		0.25	07-OCT-20
F4 (C34-C50)			<0.25		mg/L		0.25	07-OCT-20
Surrogate: 2-Bromobenzotrifluoride			99.1		%		60-140	07-OCT-20
Batch R5252019								
WG3420897-2 LCS								
F2 (C10-C16)			98.4		%		70-130	08-OCT-20
F3 (C16-C34)			90.0		%		70-130	08-OCT-20
F4 (C34-C50)			98.0		%		70-130	08-OCT-20
WG3420897-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	08-OCT-20
F3 (C16-C34)			<0.25		mg/L		0.25	08-OCT-20
F4 (C34-C50)			<0.25		mg/L		0.25	08-OCT-20
Surrogate: 2-Bromobenzotrifluoride			98.8		%		60-140	08-OCT-20
MET-D-CCMS-WP	**Water**							
Batch R5252425								
WG3421015-2 LCS								
Aluminum (Al)-Dissolved			98.3		%		80-120	09-OCT-20
Antimony (Sb)-Dissolved			96.9		%		80-120	09-OCT-20
Arsenic (As)-Dissolved			102.5		%		80-120	09-OCT-20
Barium (Ba)-Dissolved			103.9		%		80-120	09-OCT-20
Beryllium (Be)-Dissolved			100.8		%		80-120	09-OCT-20
Bismuth (Bi)-Dissolved			100.3		%		80-120	09-OCT-20
Boron (B)-Dissolved			91.6		%		80-120	09-OCT-20
Cadmium (Cd)-Dissolved			102.1		%		80-120	09-OCT-20
Calcium (Ca)-Dissolved			101.9		%		80-120	09-OCT-20
Cesium (Cs)-Dissolved			96.9		%		80-120	09-OCT-20
Chromium (Cr)-Dissolved			99.5		%		80-120	09-OCT-20
Cobalt (Co)-Dissolved			101.9		%		80-120	09-OCT-20
Copper (Cu)-Dissolved			104.2		%		80-120	09-OCT-20
Iron (Fe)-Dissolved			99.9		%		80-120	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5252425								
WG3421015-2 LCS								
Lead (Pb)-Dissolved			96.7		%		80-120	09-OCT-20
Lithium (Li)-Dissolved			107.8		%		80-120	09-OCT-20
Magnesium (Mg)-Dissolved			109.1		%		80-120	09-OCT-20
Manganese (Mn)-Dissolved			100.8		%		80-120	09-OCT-20
Molybdenum (Mo)-Dissolved			96.7		%		80-120	09-OCT-20
Nickel (Ni)-Dissolved			101.8		%		80-120	09-OCT-20
Phosphorus (P)-Dissolved			103.2		%		80-120	09-OCT-20
Potassium (K)-Dissolved			97.3		%		80-120	09-OCT-20
Rubidium (Rb)-Dissolved			100.3		%		80-120	09-OCT-20
Selenium (Se)-Dissolved			98.8		%		80-120	09-OCT-20
Silicon (Si)-Dissolved			97.8		%		80-120	09-OCT-20
Silver (Ag)-Dissolved			94.8		%		80-120	09-OCT-20
Sodium (Na)-Dissolved			108.9		%		80-120	09-OCT-20
Strontium (Sr)-Dissolved			97.6		%		80-120	09-OCT-20
Sulfur (S)-Dissolved			88.0		%		80-120	09-OCT-20
Tellurium (Te)-Dissolved			95.9		%		80-120	09-OCT-20
Thallium (Tl)-Dissolved			96.5		%		80-120	09-OCT-20
Thorium (Th)-Dissolved			92.9		%		80-120	09-OCT-20
Tin (Sn)-Dissolved			96.9		%		80-120	09-OCT-20
Titanium (Ti)-Dissolved			96.2		%		80-120	09-OCT-20
Tungsten (W)-Dissolved			96.5		%		80-120	09-OCT-20
Uranium (U)-Dissolved			97.7		%		80-120	09-OCT-20
Vanadium (V)-Dissolved			102.7		%		80-120	09-OCT-20
Zinc (Zn)-Dissolved			101.9		%		80-120	09-OCT-20
Zirconium (Zr)-Dissolved			90.6		%		80-120	09-OCT-20
WG3421015-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	09-OCT-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	09-OCT-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	09-OCT-20
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5252425								
WG3421015-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	09-OCT-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	09-OCT-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	09-OCT-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	09-OCT-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	09-OCT-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	09-OCT-20
Magnesium (Mg)-Dissolved			0.0062	B	mg/L		0.005	09-OCT-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	09-OCT-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	09-OCT-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	09-OCT-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	09-OCT-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	09-OCT-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	09-OCT-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	09-OCT-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	09-OCT-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	09-OCT-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	09-OCT-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	09-OCT-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	09-OCT-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	09-OCT-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	09-OCT-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	09-OCT-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	09-OCT-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	09-OCT-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5253986								
WG3423403-2 LCS								
Aluminum (Al)-Dissolved			100.7		%		80-120	13-OCT-20
Antimony (Sb)-Dissolved			100.8		%		80-120	13-OCT-20
Arsenic (As)-Dissolved			100.3		%		80-120	13-OCT-20
Barium (Ba)-Dissolved			102.0		%		80-120	13-OCT-20
Beryllium (Be)-Dissolved			99.4		%		80-120	13-OCT-20
Bismuth (Bi)-Dissolved			101.7		%		80-120	13-OCT-20
Boron (B)-Dissolved			101.5		%		80-120	13-OCT-20
Cadmium (Cd)-Dissolved			102.0		%		80-120	13-OCT-20
Calcium (Ca)-Dissolved			101.1		%		80-120	13-OCT-20
Cesium (Cs)-Dissolved			96.9		%		80-120	13-OCT-20
Chromium (Cr)-Dissolved			101.3		%		80-120	13-OCT-20
Cobalt (Co)-Dissolved			98.8		%		80-120	13-OCT-20
Copper (Cu)-Dissolved			100.1		%		80-120	13-OCT-20
Iron (Fe)-Dissolved			95.7		%		80-120	13-OCT-20
Lead (Pb)-Dissolved			100.6		%		80-120	13-OCT-20
Lithium (Li)-Dissolved			101.4		%		80-120	13-OCT-20
Magnesium (Mg)-Dissolved			96.1		%		80-120	13-OCT-20
Manganese (Mn)-Dissolved			99.5		%		80-120	13-OCT-20
Molybdenum (Mo)-Dissolved			102.0		%		80-120	13-OCT-20
Nickel (Ni)-Dissolved			99.8		%		80-120	13-OCT-20
Phosphorus (P)-Dissolved			113.5		%		80-120	13-OCT-20
Potassium (K)-Dissolved			102.1		%		80-120	13-OCT-20
Rubidium (Rb)-Dissolved			100.0		%		80-120	13-OCT-20
Selenium (Se)-Dissolved			101.2		%		80-120	13-OCT-20
Silicon (Si)-Dissolved			107.5		%		80-120	13-OCT-20
Silver (Ag)-Dissolved			102.6		%		80-120	13-OCT-20
Sodium (Na)-Dissolved			101.3		%		80-120	13-OCT-20
Strontium (Sr)-Dissolved			96.3		%		80-120	13-OCT-20
Sulfur (S)-Dissolved			105.2		%		80-120	13-OCT-20
Tellurium (Te)-Dissolved			103.1		%		80-120	13-OCT-20
Thallium (Tl)-Dissolved			100.7		%		80-120	13-OCT-20
Thorium (Th)-Dissolved			99.5		%		80-120	13-OCT-20
Tin (Sn)-Dissolved			100.9		%		80-120	13-OCT-20
Titanium (Ti)-Dissolved			93.1		%		80-120	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5253986								
WG3423403-2 LCS								
Tungsten (W)-Dissolved			98.6		%		80-120	13-OCT-20
Uranium (U)-Dissolved			97.7		%		80-120	13-OCT-20
Vanadium (V)-Dissolved			101.7		%		80-120	13-OCT-20
Zinc (Zn)-Dissolved			98.5		%		80-120	13-OCT-20
Zirconium (Zr)-Dissolved			96.4		%		80-120	13-OCT-20
WG3423403-1 MB								
Aluminum (Al)-Dissolved			0.0019	B	mg/L		0.001	13-OCT-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Barium (Ba)-Dissolved			0.00015	B	mg/L		0.0001	13-OCT-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	13-OCT-20
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	13-OCT-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	13-OCT-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	13-OCT-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	13-OCT-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	13-OCT-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	13-OCT-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5253986								
WG3423403-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	13-OCT-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	13-OCT-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	13-OCT-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	13-OCT-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421914-4 DUP		**L2512953-2**						
Aluminum (Al)-Total		0.0465	0.0506		mg/L	8.5	20	09-OCT-20
Antimony (Sb)-Total		0.00013	0.00012		mg/L	10	20	09-OCT-20
Arsenic (As)-Total		0.00177	0.00172		mg/L	2.7	20	09-OCT-20
Barium (Ba)-Total		0.0494	0.0488		mg/L	1.1	20	09-OCT-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-OCT-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-OCT-20
Boron (B)-Total		0.142	0.143		mg/L	0.8	20	09-OCT-20
Cadmium (Cd)-Total		0.0000069	0.0000053	J	mg/L	0.000001	0.00001	09-OCT-20
Calcium (Ca)-Total		71.9	72.1		mg/L	0.3	20	09-OCT-20
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-OCT-20
Chromium (Cr)-Total		0.00025	0.00027		mg/L	8.3	20	09-OCT-20
Cobalt (Co)-Total		0.00019	0.00018		mg/L	6.8	20	09-OCT-20
Copper (Cu)-Total		0.00153	0.00162		mg/L	5.6	20	09-OCT-20
Iron (Fe)-Total		0.059	0.058		mg/L	1.2	20	09-OCT-20
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-OCT-20
Lithium (Li)-Total		0.0276	0.0278		mg/L	0.8	20	09-OCT-20
Magnesium (Mg)-Total		83.9	85.2		mg/L	1.5	20	09-OCT-20
Manganese (Mn)-Total		0.0477	0.0478		mg/L	0.1	20	09-OCT-20
Molybdenum (Mo)-Total		0.00121	0.00127		mg/L	4.6	20	09-OCT-20
Nickel (Ni)-Total		0.00112	0.00105		mg/L	6.3	20	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421914-4 DUP		**L2512953-2**						
Potassium (K)-Total		13.7	14.0		mg/L	2.5	20	09-OCT-20
Phosphorus (P)-Total		0.059	0.053		mg/L	12	20	09-OCT-20
Rubidium (Rb)-Total		0.00422	0.00392		mg/L	7.2	20	09-OCT-20
Selenium (Se)-Total		0.000184	0.000187		mg/L	1.7	20	09-OCT-20
Silicon (Si)-Total		7.50	7.58		mg/L	1.0	20	09-OCT-20
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-OCT-20
Sodium (Na)-Total		17.2	17.6		mg/L	2.2	20	09-OCT-20
Strontium (Sr)-Total		0.225	0.224		mg/L	0.3	20	09-OCT-20
Sulfur (S)-Total		51.5	51.9		mg/L	0.7	20	09-OCT-20
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	09-OCT-20
Thallium (Tl)-Total		0.000017	<0.000010	RPD-NA	mg/L	N/A	20	09-OCT-20
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-OCT-20
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-OCT-20
Titanium (Ti)-Total		0.00182	0.00201		mg/L	9.6	20	09-OCT-20
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-OCT-20
Uranium (U)-Total		0.00337	0.00327		mg/L	2.9	20	09-OCT-20
Vanadium (V)-Total		0.00136	0.00140		mg/L	2.6	20	09-OCT-20
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	09-OCT-20
Zirconium (Zr)-Total		0.00033	0.00033		mg/L	2.5	20	09-OCT-20
WG3421910-2 LCS								
Aluminum (Al)-Total			104.4		%		80-120	09-OCT-20
Antimony (Sb)-Total			110.3		%		80-120	09-OCT-20
Arsenic (As)-Total			102.8		%		80-120	09-OCT-20
Barium (Ba)-Total			102.8		%		80-120	09-OCT-20
Beryllium (Be)-Total			105.9		%		80-120	09-OCT-20
Bismuth (Bi)-Total			104.0		%		80-120	09-OCT-20
Boron (B)-Total			106.0		%		80-120	09-OCT-20
Cadmium (Cd)-Total			102.9		%		80-120	09-OCT-20
Calcium (Ca)-Total			105.1		%		80-120	09-OCT-20
Cesium (Cs)-Total			106.6		%		80-120	09-OCT-20
Chromium (Cr)-Total			103.4		%		80-120	09-OCT-20
Cobalt (Co)-Total			101.5		%		80-120	09-OCT-20
Copper (Cu)-Total			102.1		%		80-120	09-OCT-20
Iron (Fe)-Total			98.2		%		80-120	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421910-2 LCS								
Lead (Pb)-Total			108.2		%		80-120	09-OCT-20
Lithium (Li)-Total			110.0		%		80-120	09-OCT-20
Magnesium (Mg)-Total			102.6		%		80-120	09-OCT-20
Manganese (Mn)-Total			104.0		%		80-120	09-OCT-20
Molybdenum (Mo)-Total			104.6		%		80-120	09-OCT-20
Nickel (Ni)-Total			101.9		%		80-120	09-OCT-20
Potassium (K)-Total			105.3		%		80-120	09-OCT-20
Phosphorus (P)-Total			109.3		%		80-120	09-OCT-20
Rubidium (Rb)-Total			105.4		%		80-120	09-OCT-20
Selenium (Se)-Total			99.3		%		80-120	09-OCT-20
Silicon (Si)-Total			110.9		%		80-120	09-OCT-20
Silver (Ag)-Total			108.5		%		80-120	09-OCT-20
Sodium (Na)-Total			109.4		%		80-120	09-OCT-20
Strontium (Sr)-Total			102.8		%		80-120	09-OCT-20
Sulfur (S)-Total			106.7		%		80-120	09-OCT-20
Tellurium (Te)-Total			110.0		%		80-120	09-OCT-20
Thallium (Tl)-Total			108.2		%		80-120	09-OCT-20
Thorium (Th)-Total			106.0		%		80-120	09-OCT-20
Tin (Sn)-Total			104.1		%		80-120	09-OCT-20
Titanium (Ti)-Total			99.2		%		80-120	09-OCT-20
Tungsten (W)-Total			109.6		%		80-120	09-OCT-20
Uranium (U)-Total			107.2		%		80-120	09-OCT-20
Vanadium (V)-Total			104.8		%		80-120	09-OCT-20
Zinc (Zn)-Total			100.5		%		80-120	09-OCT-20
Zirconium (Zr)-Total			99.7		%		80-120	09-OCT-20
WG3421914-2 LCS								
Aluminum (Al)-Total			107.7		%		80-120	09-OCT-20
Antimony (Sb)-Total			107.9		%		80-120	09-OCT-20
Arsenic (As)-Total			104.2		%		80-120	09-OCT-20
Barium (Ba)-Total			108.8		%		80-120	09-OCT-20
Beryllium (Be)-Total			106.0		%		80-120	09-OCT-20
Bismuth (Bi)-Total			105.7		%		80-120	09-OCT-20
Boron (B)-Total			105.8		%		80-120	09-OCT-20
Cadmium (Cd)-Total			102.8		%		80-120	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421914-2 LCS								
Calcium (Ca)-Total			105.7		%		80-120	09-OCT-20
Cesium (Cs)-Total			106.2		%		80-120	09-OCT-20
Chromium (Cr)-Total			104.1		%		80-120	09-OCT-20
Cobalt (Co)-Total			102.0		%		80-120	09-OCT-20
Copper (Cu)-Total			102.0		%		80-120	09-OCT-20
Iron (Fe)-Total			97.3		%		80-120	09-OCT-20
Lead (Pb)-Total			109.2		%		80-120	09-OCT-20
Lithium (Li)-Total			109.3		%		80-120	09-OCT-20
Magnesium (Mg)-Total			100.8		%		80-120	09-OCT-20
Manganese (Mn)-Total			105.2		%		80-120	09-OCT-20
Molybdenum (Mo)-Total			105.2		%		80-120	09-OCT-20
Nickel (Ni)-Total			101.6		%		80-120	09-OCT-20
Potassium (K)-Total			107.0		%		80-120	09-OCT-20
Phosphorus (P)-Total			107.7		%		80-120	09-OCT-20
Rubidium (Rb)-Total			106.6		%		80-120	09-OCT-20
Selenium (Se)-Total			102.9		%		80-120	09-OCT-20
Silicon (Si)-Total			112.3		%		80-120	09-OCT-20
Silver (Ag)-Total			107.4		%		80-120	09-OCT-20
Sodium (Na)-Total			101.7		%		80-120	09-OCT-20
Strontium (Sr)-Total			103.5		%		80-120	09-OCT-20
Sulfur (S)-Total			107.4		%		80-120	09-OCT-20
Tellurium (Te)-Total			103.5		%		80-120	09-OCT-20
Thallium (Tl)-Total			108.9		%		80-120	09-OCT-20
Thorium (Th)-Total			107.3		%		80-120	09-OCT-20
Tin (Sn)-Total			105.5		%		80-120	09-OCT-20
Titanium (Ti)-Total			100.8		%		80-120	09-OCT-20
Tungsten (W)-Total			112.5		%		80-120	09-OCT-20
Uranium (U)-Total			108.3		%		80-120	09-OCT-20
Vanadium (V)-Total			104.8		%		80-120	09-OCT-20
Zinc (Zn)-Total			103.1		%		80-120	09-OCT-20
Zirconium (Zr)-Total			100.9		%		80-120	09-OCT-20
WG3421910-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	09-OCT-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421910-1 MB								
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Boron (B)-Total			<0.010		mg/L		0.01	09-OCT-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	09-OCT-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	09-OCT-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Iron (Fe)-Total			<0.010		mg/L		0.01	09-OCT-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	09-OCT-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	09-OCT-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Potassium (K)-Total			<0.050		mg/L		0.05	09-OCT-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	09-OCT-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	09-OCT-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Silicon (Si)-Total			<0.10		mg/L		0.1	09-OCT-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Sodium (Na)-Total			<0.050		mg/L		0.05	09-OCT-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	09-OCT-20
Sulfur (S)-Total			<0.50		mg/L		0.5	09-OCT-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	09-OCT-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	09-OCT-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421910-1 MB								
Vanadium (V)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	09-OCT-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	09-OCT-20
WG3421914-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	09-OCT-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Boron (B)-Total			<0.010		mg/L		0.01	09-OCT-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	09-OCT-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	09-OCT-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Iron (Fe)-Total			<0.010		mg/L		0.01	09-OCT-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	09-OCT-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	09-OCT-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Potassium (K)-Total			<0.050		mg/L		0.05	09-OCT-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	09-OCT-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	09-OCT-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	09-OCT-20
Silicon (Si)-Total			<0.10		mg/L		0.1	09-OCT-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Sodium (Na)-Total			<0.050		mg/L		0.05	09-OCT-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	09-OCT-20
Sulfur (S)-Total			<0.50		mg/L		0.5	09-OCT-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421914-1 MB								
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	09-OCT-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	09-OCT-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	09-OCT-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	09-OCT-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	09-OCT-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	09-OCT-20
WG3421914-5 MS		**L2512953-2**						
Aluminum (Al)-Total			98.7		%		70-130	09-OCT-20
Antimony (Sb)-Total			100.3		%		70-130	09-OCT-20
Arsenic (As)-Total			99.2		%		70-130	09-OCT-20
Barium (Ba)-Total			N/A	MS-B	%		-	09-OCT-20
Beryllium (Be)-Total			95.9		%		70-130	09-OCT-20
Bismuth (Bi)-Total			93.2		%		70-130	09-OCT-20
Boron (B)-Total			N/A	MS-B	%		-	09-OCT-20
Cadmium (Cd)-Total			97.9		%		70-130	09-OCT-20
Calcium (Ca)-Total			N/A	MS-B	%		-	09-OCT-20
Cesium (Cs)-Total			100.6		%		70-130	09-OCT-20
Chromium (Cr)-Total			97.1		%		70-130	09-OCT-20
Cobalt (Co)-Total			96.5		%		70-130	09-OCT-20
Copper (Cu)-Total			95.9		%		70-130	09-OCT-20
Iron (Fe)-Total			95.9		%		70-130	09-OCT-20
Lead (Pb)-Total			95.5		%		70-130	09-OCT-20
Lithium (Li)-Total			94.9		%		70-130	09-OCT-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	09-OCT-20
Manganese (Mn)-Total			N/A	MS-B	%		-	09-OCT-20
Molybdenum (Mo)-Total			99.2		%		70-130	09-OCT-20
Nickel (Ni)-Total			94.9		%		70-130	09-OCT-20
Potassium (K)-Total			N/A	MS-B	%		-	09-OCT-20
Phosphorus (P)-Total			100.7		%		70-130	09-OCT-20
Rubidium (Rb)-Total			100.7		%		70-130	09-OCT-20
Selenium (Se)-Total			100.0		%		70-130	09-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253339								
WG3421914-5 MS		**L2512953-2**						
Silicon (Si)-Total			100.8		%		70-130	09-OCT-20
Silver (Ag)-Total			101.5		%		70-130	09-OCT-20
Sodium (Na)-Total			N/A	MS-B	%		-	09-OCT-20
Strontium (Sr)-Total			N/A	MS-B	%		-	09-OCT-20
Sulfur (S)-Total			N/A	MS-B	%		-	09-OCT-20
Tellurium (Te)-Total			98.8		%		70-130	09-OCT-20
Thallium (Tl)-Total			96.5		%		70-130	09-OCT-20
Thorium (Th)-Total			96.3		%		70-130	09-OCT-20
Tin (Sn)-Total			99.2		%		70-130	09-OCT-20
Titanium (Ti)-Total			98.9		%		70-130	09-OCT-20
Tungsten (W)-Total			99.3		%		70-130	09-OCT-20
Uranium (U)-Total			90.8		%		70-130	09-OCT-20
Vanadium (V)-Total			99.1		%		70-130	09-OCT-20
Zinc (Zn)-Total			94.0		%		70-130	09-OCT-20
Zirconium (Zr)-Total			96.6		%		70-130	09-OCT-20
N-TOTKJ-WP	**Water**							
Batch R5253826								
WG3421261-7 DUP		**L2512953-1**						
Total Kjeldahl Nitrogen		0.25	<0.20	RPD-NA	mg/L	N/A	20	13-OCT-20
WG3421261-6 LCS								
Total Kjeldahl Nitrogen			96.0		%		75-125	13-OCT-20
WG3421261-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	13-OCT-20
WG3421261-8 MS		**L2512953-1**						
Total Kjeldahl Nitrogen			98.5		%		70-130	13-OCT-20
NH3-COL-WP	**Water**							
Batch R5252250								
WG3421078-2 LCS								
Ammonia, Total (as N)			103.3		%		85-115	08-OCT-20
WG3421078-6 LCS								
Ammonia, Total (as N)			102.3		%		85-115	08-OCT-20
WG3421078-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	08-OCT-20
WG3421078-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	08-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-11 DUP		**L2512953-9**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-3 DUP		**L2512953-3**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-7 DUP		**L2512953-4**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-10 LCS								
Nitrite (as N)			100.7		%		90-110	07-OCT-20
WG3420506-2 LCS								
Nitrite (as N)			98.9		%		90-110	07-OCT-20
WG3420506-6 LCS								
Nitrite (as N)			99.5		%		90-110	07-OCT-20
WG3420506-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	07-OCT-20
WG3420506-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	07-OCT-20
WG3420506-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	07-OCT-20
WG3420506-12 MS		**L2512953-9**						
Nitrite (as N)			103.2		%		75-125	07-OCT-20
WG3420506-4 MS		**L2512953-3**						
Nitrite (as N)			102.1		%		75-125	07-OCT-20
WG3420506-8 MS		**L2512953-4**						
Nitrite (as N)			101.6		%		75-125	07-OCT-20
NO3-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-11 DUP		**L2512953-9**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-3 DUP		**L2512953-3**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-7 DUP		**L2512953-4**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-OCT-20
WG3420506-10 LCS								
Nitrate (as N)			102.1		%		90-110	07-OCT-20
WG3420506-2 LCS								
Nitrate (as N)			101.8		%		90-110	07-OCT-20
WG3420506-6 LCS								
Nitrate (as N)			101.8		%		90-110	07-OCT-20
WG3420506-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	07-OCT-20
WG3420506-12 MS		**L2512953-9**						
Nitrate (as N)			105.6		%		75-125	07-OCT-20
WG3420506-4 MS		**L2512953-3**						
Nitrate (as N)			105.0		%		75-125	07-OCT-20
WG3420506-8 MS		**L2512953-4**						
Nitrate (as N)			105.7		%		75-125	07-OCT-20
P-T-COL-WP	**Water**							
Batch R5252266								
WG3421621-2 LCS								
Phosphorus (P)-Total			93.3		%		80-120	09-OCT-20
WG3421621-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	09-OCT-20
P-T-L-COL-WP	**Water**							
Batch R5253357								
WG3422907-2 LCS								
Phosphorus (P)-Total			91.5		%		80-120	13-OCT-20
WG3422907-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	13-OCT-20
P-TD-COL-WP	**Water**							
Batch R5251642								
WG3420802-10 LCS								
Phosphorus (P)-Total	Dissolved		93.1		%		80-120	08-OCT-20
WG3420802-9 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	08-OCT-20
P-TD-L-COL-WP	**Water**							
Batch R5253357								
WG3422905-2 LCS								
Phosphorus (P)-Total	Dissolved		88.3		%		80-120	13-OCT-20
WG3422905-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	13-OCT-20
SO4-IC-N-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP	**Water**							
Batch R5252407								
WG3420506-11 DUP		**L2512953-9**						
Sulfate (SO4)		138	139		mg/L	0.0	20	07-OCT-20
WG3420506-3 DUP		**L2512953-3**						
Sulfate (SO4)		111	111		mg/L	0.3	20	07-OCT-20
WG3420506-7 DUP		**L2512953-4**						
Sulfate (SO4)		116	116		mg/L	0.1	20	07-OCT-20
WG3420506-10 LCS								
Sulfate (SO4)			101.5		%		90-110	07-OCT-20
WG3420506-2 LCS								
Sulfate (SO4)			101.1		%		90-110	07-OCT-20
WG3420506-6 LCS								
Sulfate (SO4)			100.9		%		90-110	07-OCT-20
WG3420506-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	07-OCT-20
WG3420506-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	07-OCT-20
WG3420506-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	07-OCT-20
WG3420506-12 MS		**L2512953-9**						
Sulfate (SO4)			N/A	MS-B	%		-	07-OCT-20
WG3420506-4 MS		**L2512953-3**						
Sulfate (SO4)			N/A	MS-B	%		-	07-OCT-20
WG3420506-8 MS		**L2512953-4**						
Sulfate (SO4)			N/A	MS-B	%		-	07-OCT-20
SOLIDS-TOTSUS-LR-WP	**Water**							
Batch R5253347								
WG3421702-2 LCS								
Total Suspended Solids			87.9		%		85-115	09-OCT-20
WG3421702-1 MB								
Total Suspended Solids			<1.0		mg/L		1	09-OCT-20
Batch R5254168								
WG3423019-5 LCS								
Total Suspended Solids			94.6		%		85-115	13-OCT-20
WG3423019-4 MB								
Total Suspended Solids			<1.0		mg/L		1	13-OCT-20
TC,EC-QT97-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC-QT97-WP	**Water**							
Batch R5250812								
WG3419634-1 MB								
Total Coliforms			<1		MPN/100mL		1	06-OCT-20
Escherichia Coli			<1		MPN/100mL		1	06-OCT-20
Batch R5251551								
WG3420389-3 DUP		**L2512953-11**						
Total Coliforms		<1	<1	RPD-NA	MPN/100mL	N/A	65	07-OCT-20
Escherichia Coli		<1	<1	RPD-NA	MPN/100mL	N/A	65	07-OCT-20
WG3420389-1 MB								
Total Coliforms			<1		MPN/100mL		1	07-OCT-20
Escherichia Coli			<1		MPN/100mL		1	07-OCT-20
TDS-WP	**Water**							
Batch R5253981								
WG3421703-2 LCS								
Total Dissolved Solids			93.5		%		85-115	09-OCT-20
WG3421703-5 LCS								
Total Dissolved Solids			90.9		%		85-115	09-OCT-20
WG3421703-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	09-OCT-20
WG3421703-4 MB								
Total Dissolved Solids			<4.0		mg/L		4	09-OCT-20

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.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Suspended Solids							
	1	05-OCT-20 08:20	13-OCT-20 10:00	7	8	days	EHT
Bacteriological Tests							
Total Coliform and E.coli by MPN QT97							
	1	05-OCT-20 08:20	06-OCT-20 18:05	30	34	hours	EHTR
	2	05-OCT-20 10:00	06-OCT-20 18:05	30	32	hours	EHTL

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 L2512953 were received on 06-OCT-20 15:10.

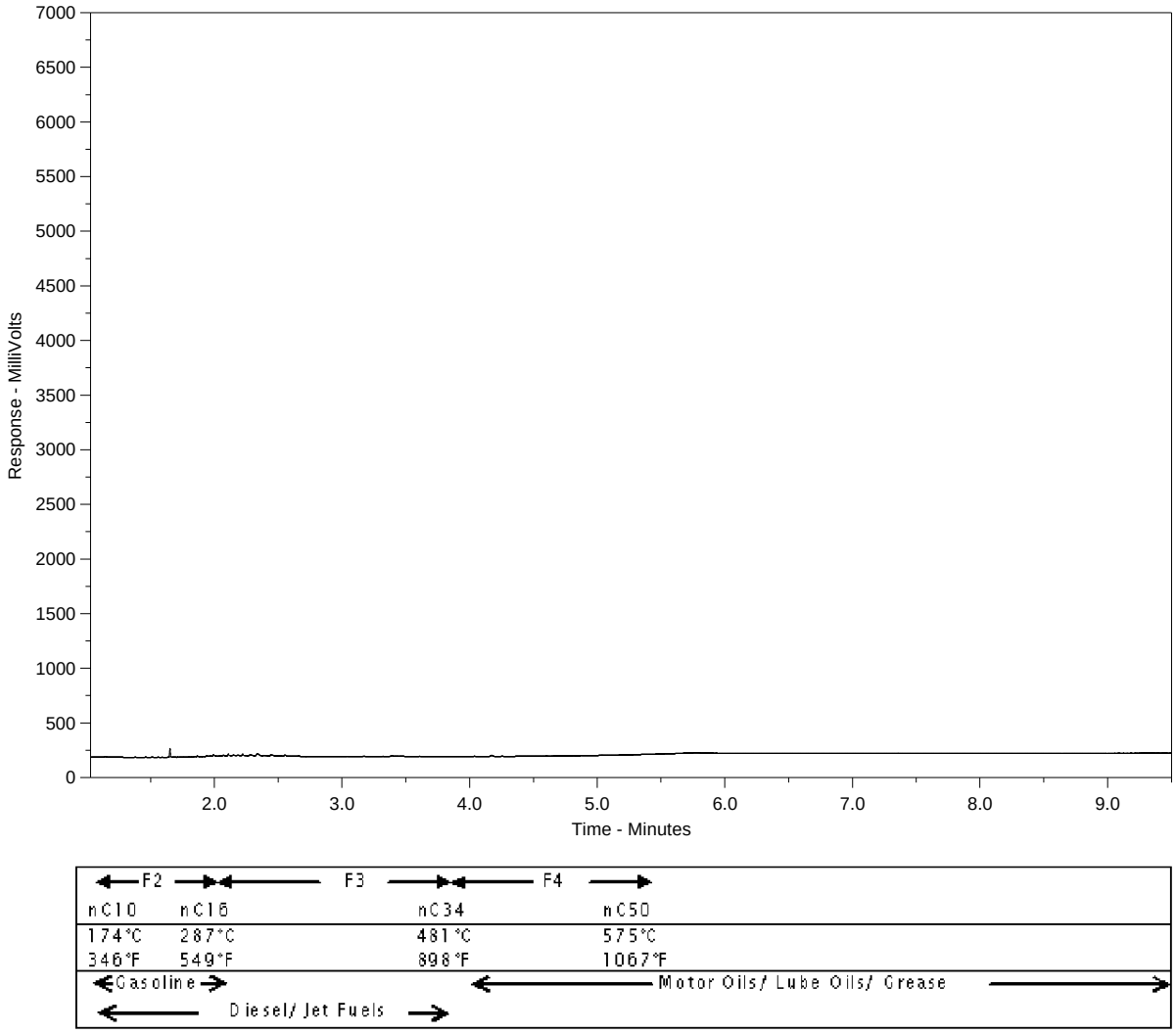
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2512953-1
Client Sample ID: CH19-08



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

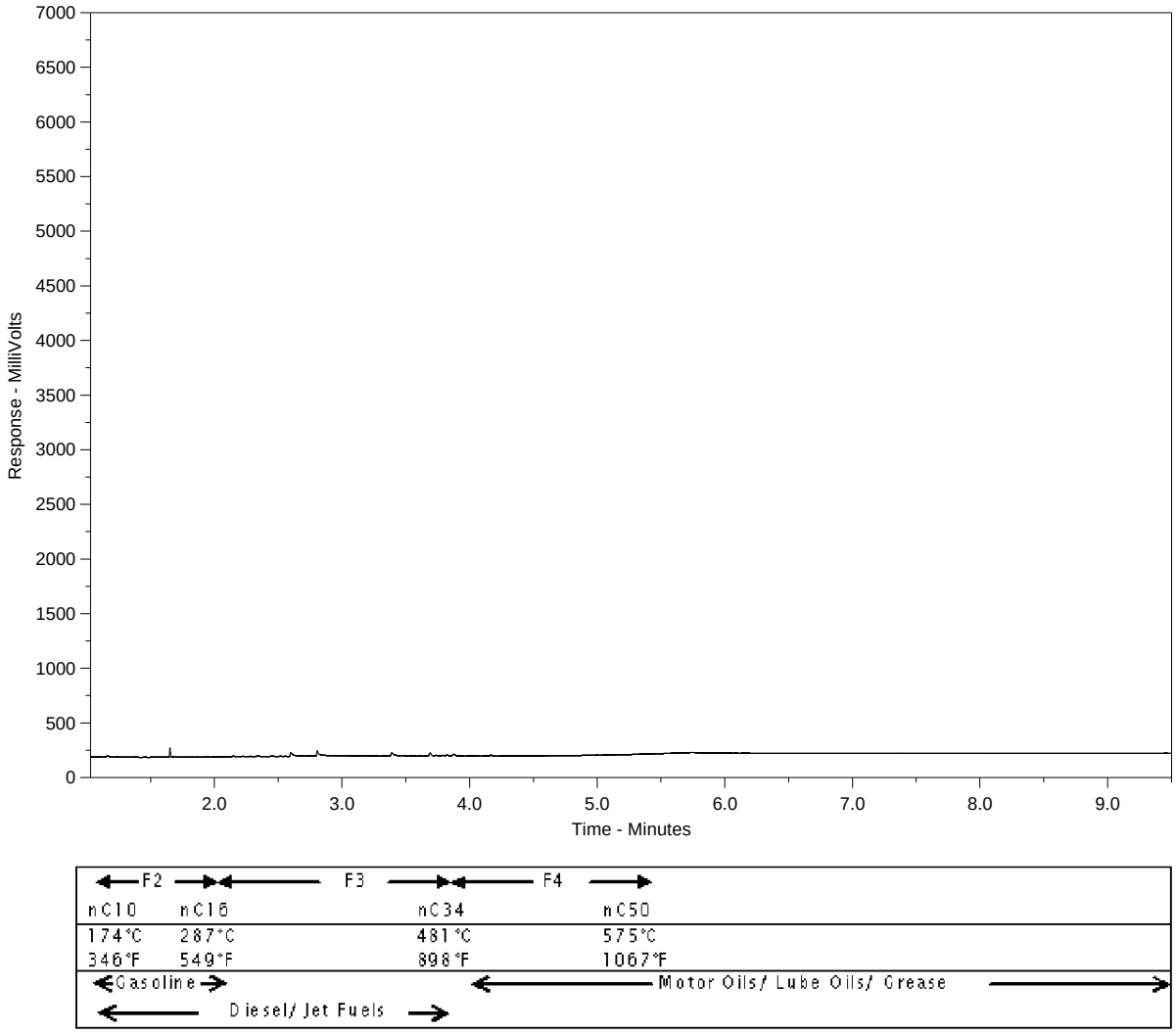
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-2
Client Sample ID: D8



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

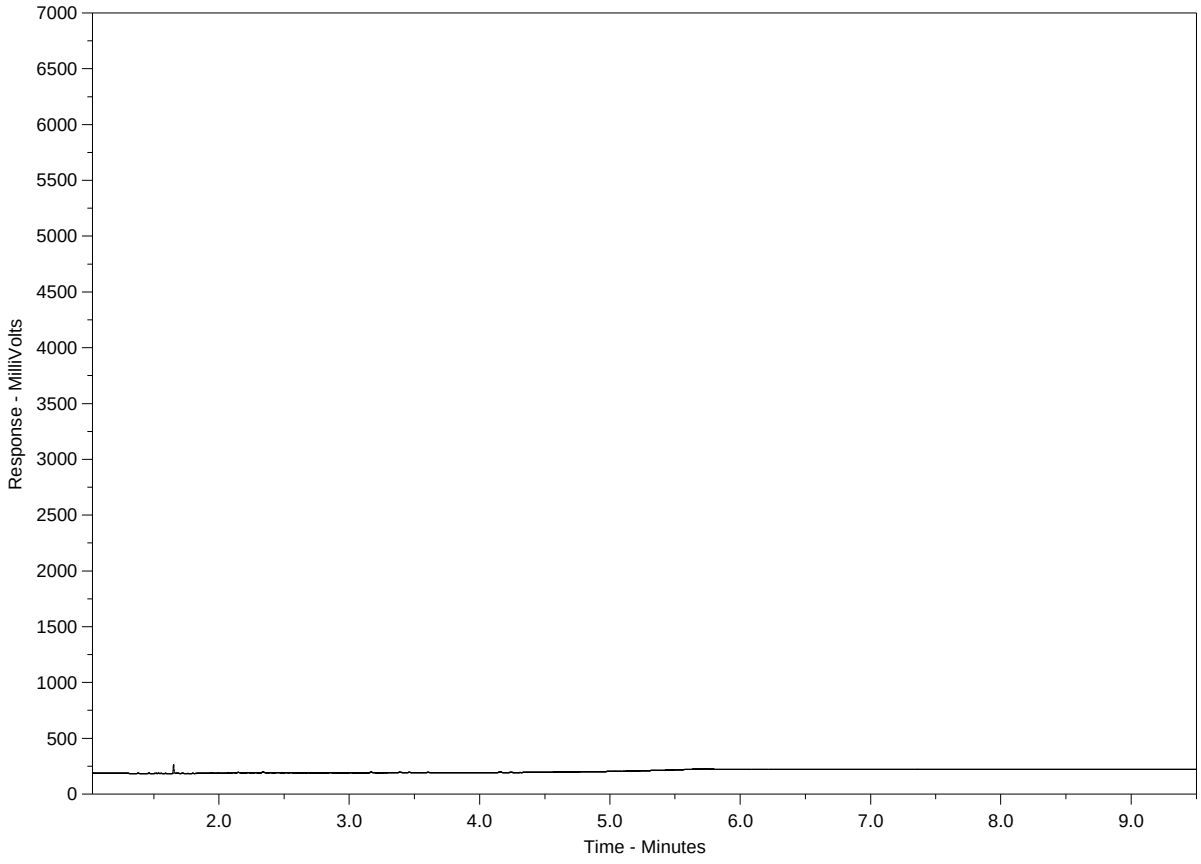
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

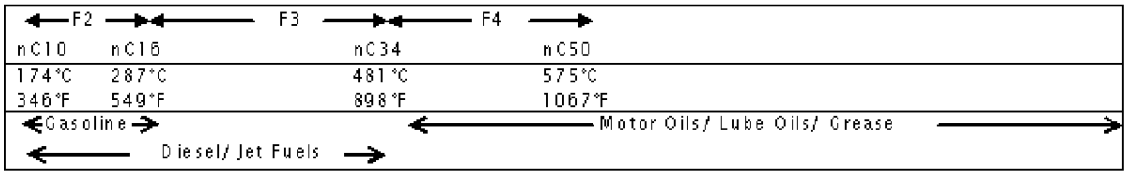
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2512953-3
Client Sample ID: DW19-18





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

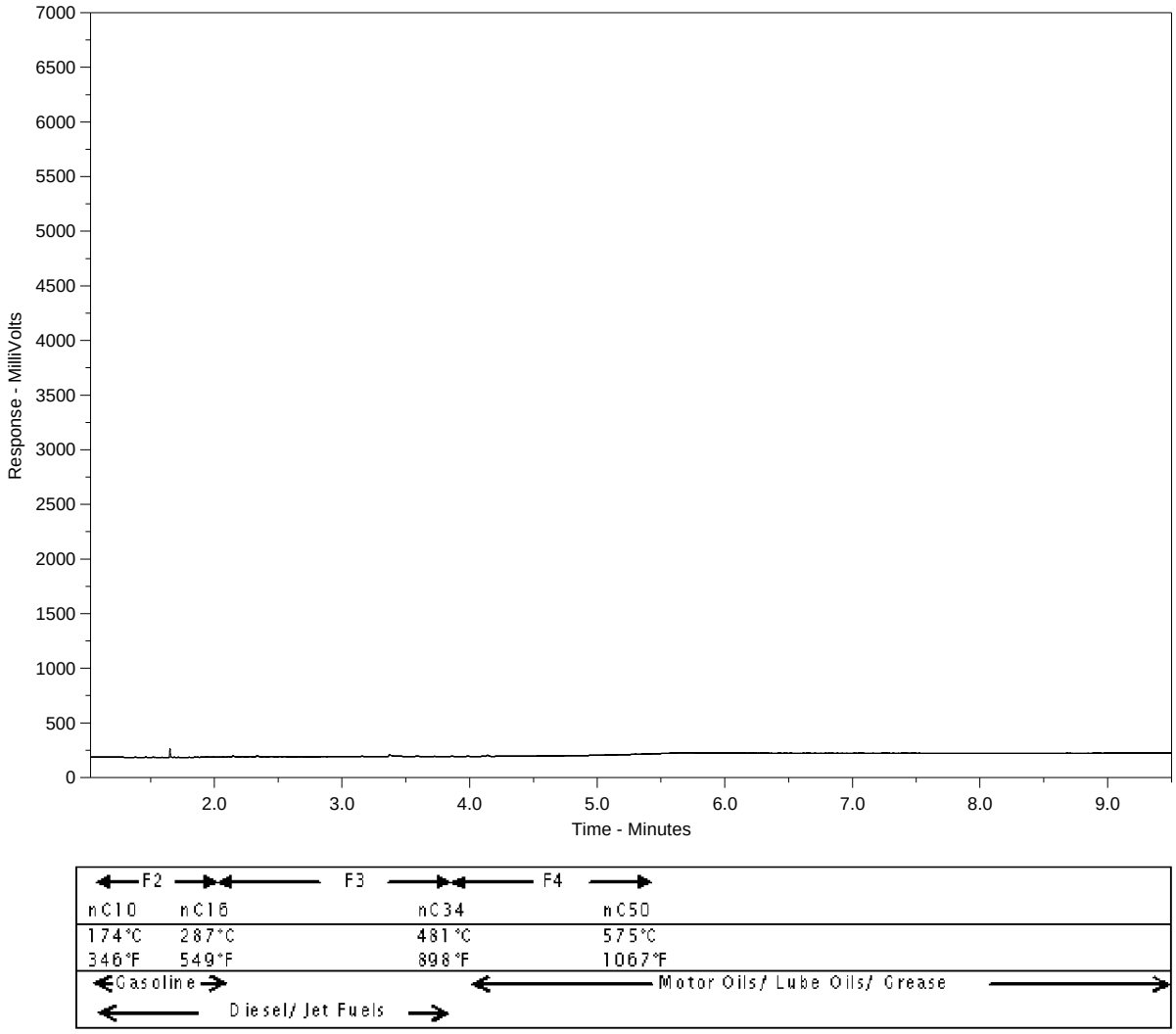
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-4
Client Sample ID: BH19-12



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

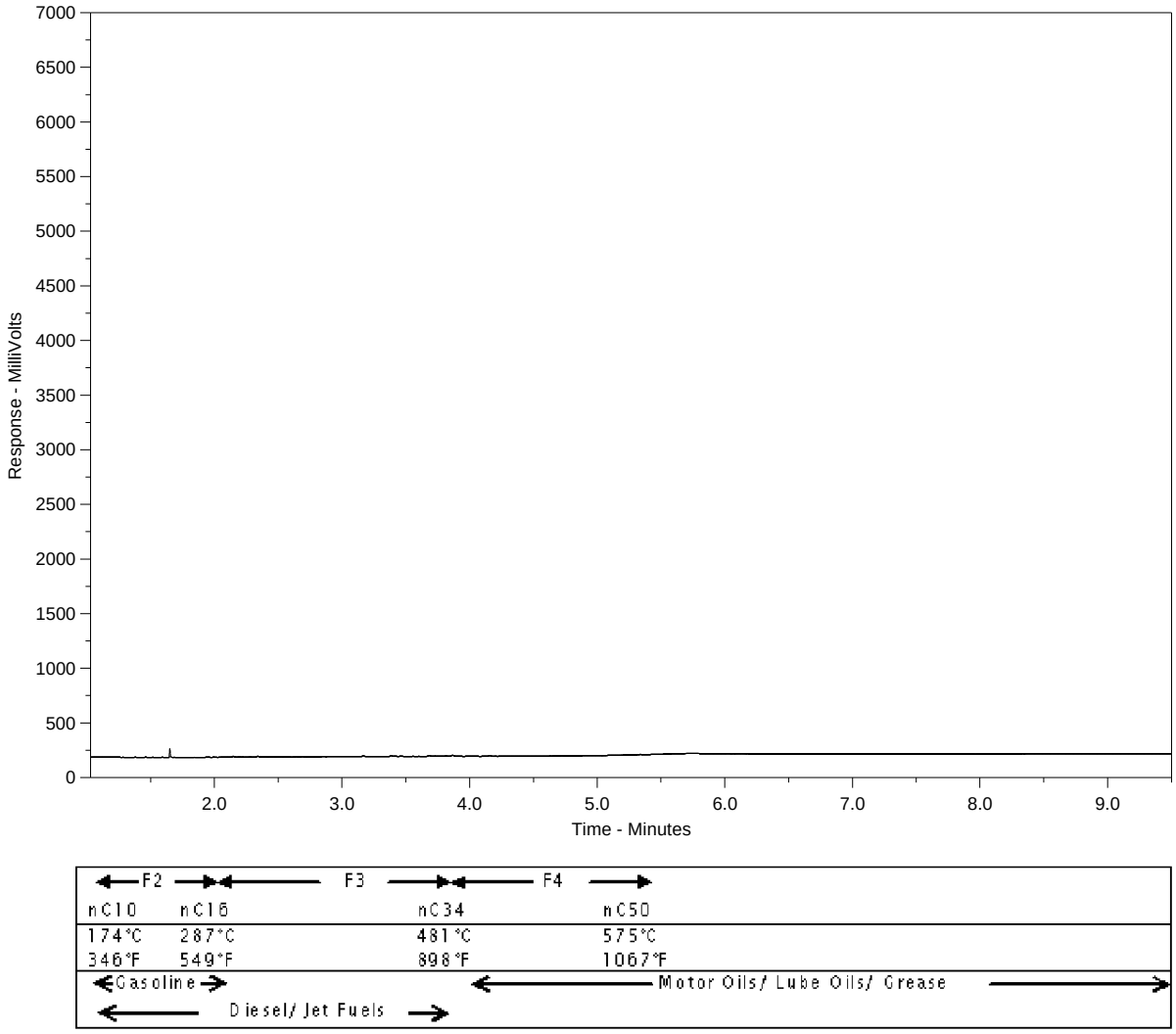
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-5
Client Sample ID: D6



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

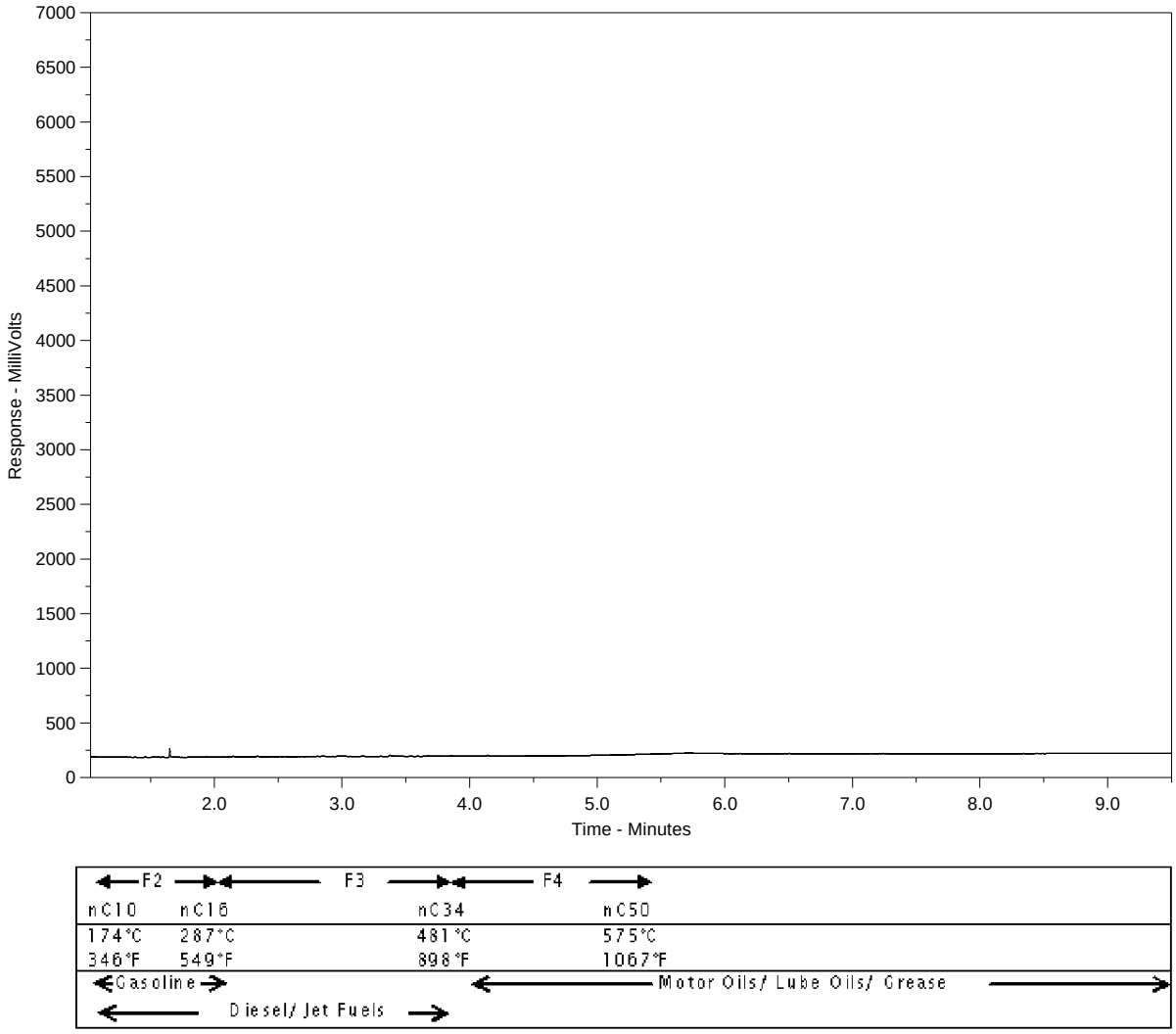
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-6
Client Sample ID: D12



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

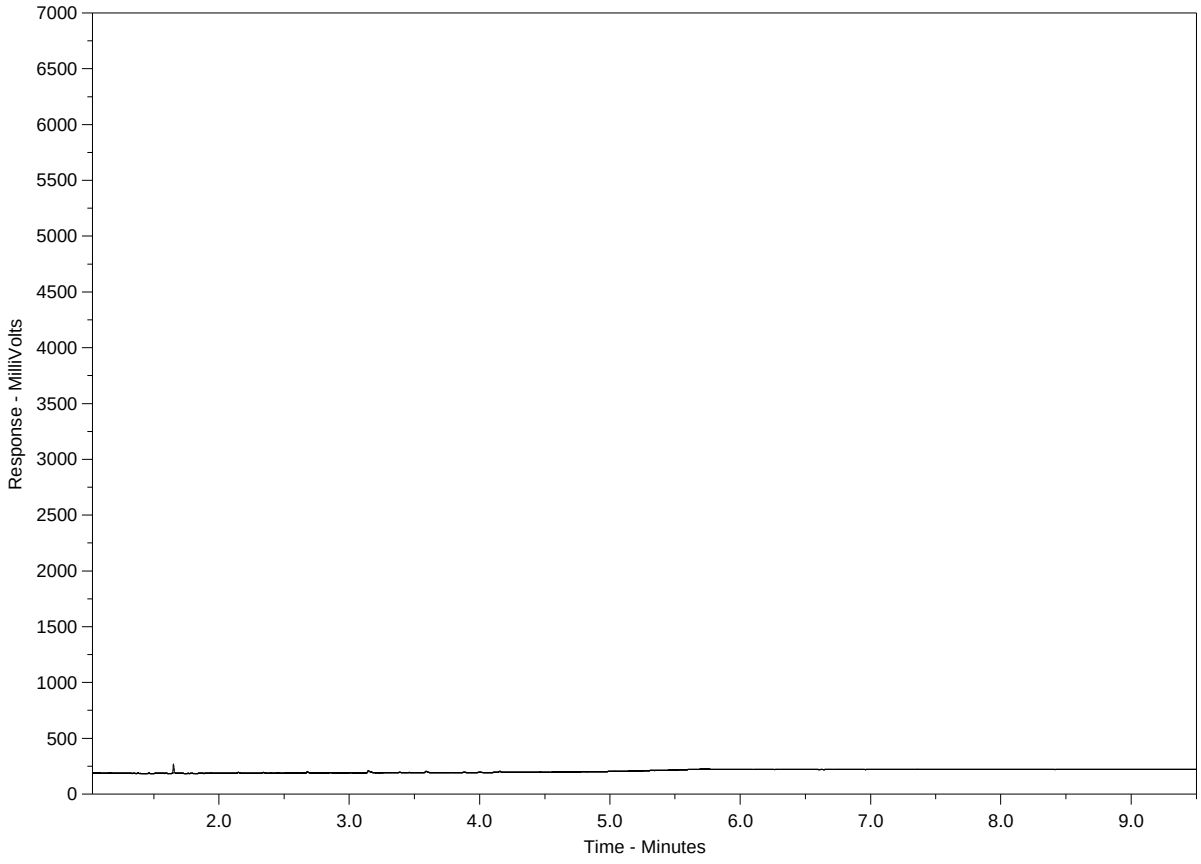
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

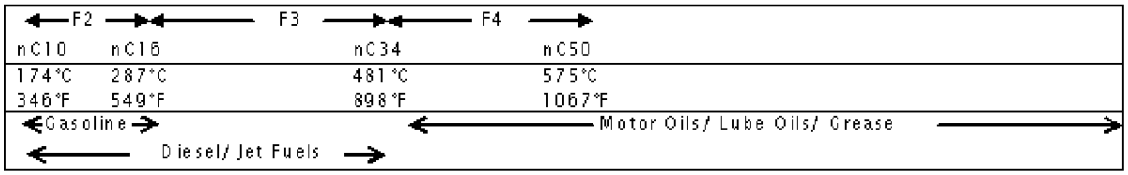
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2512953-7
Client Sample ID: OW19-05





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

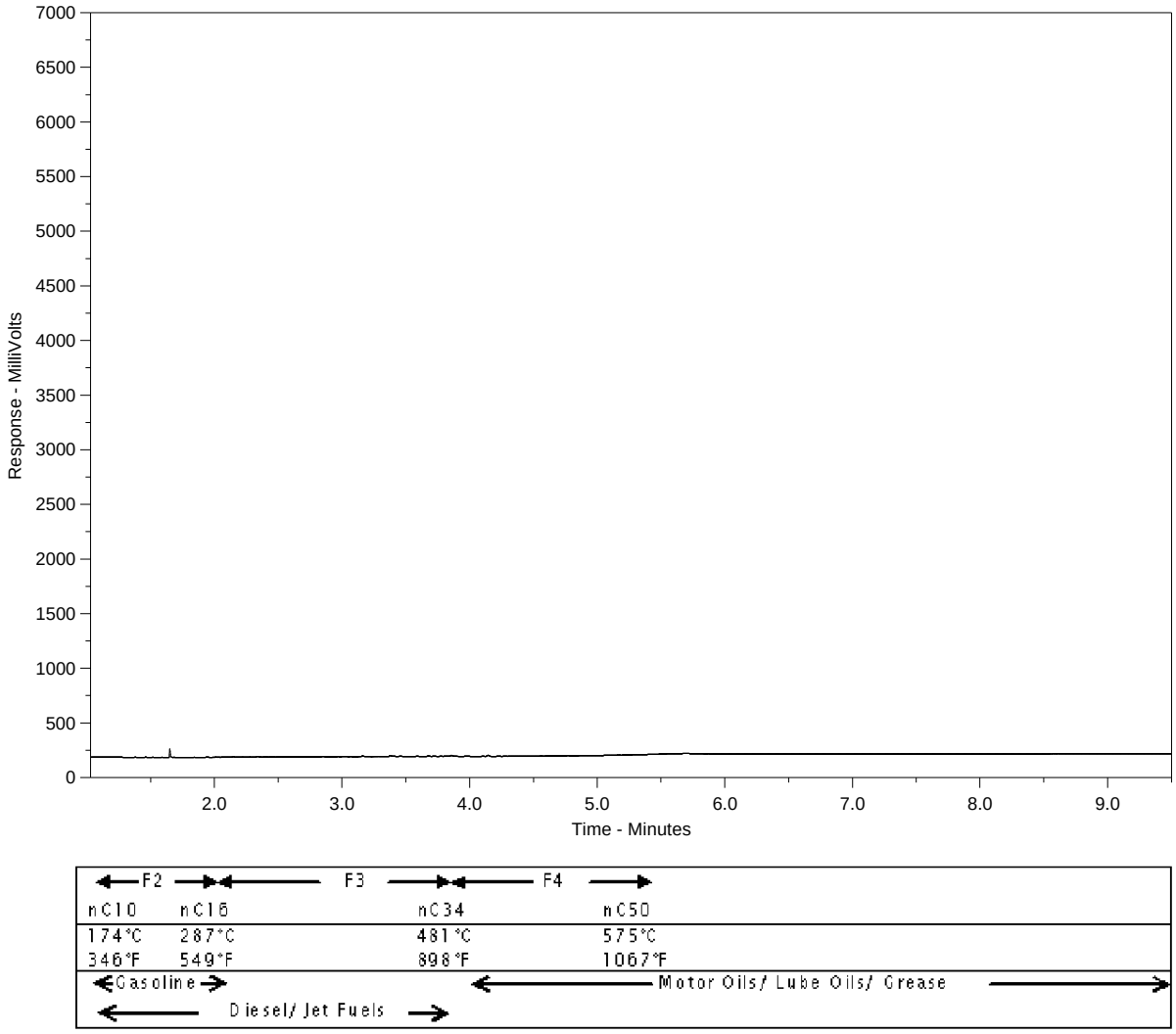
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-8
Client Sample ID: D11



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

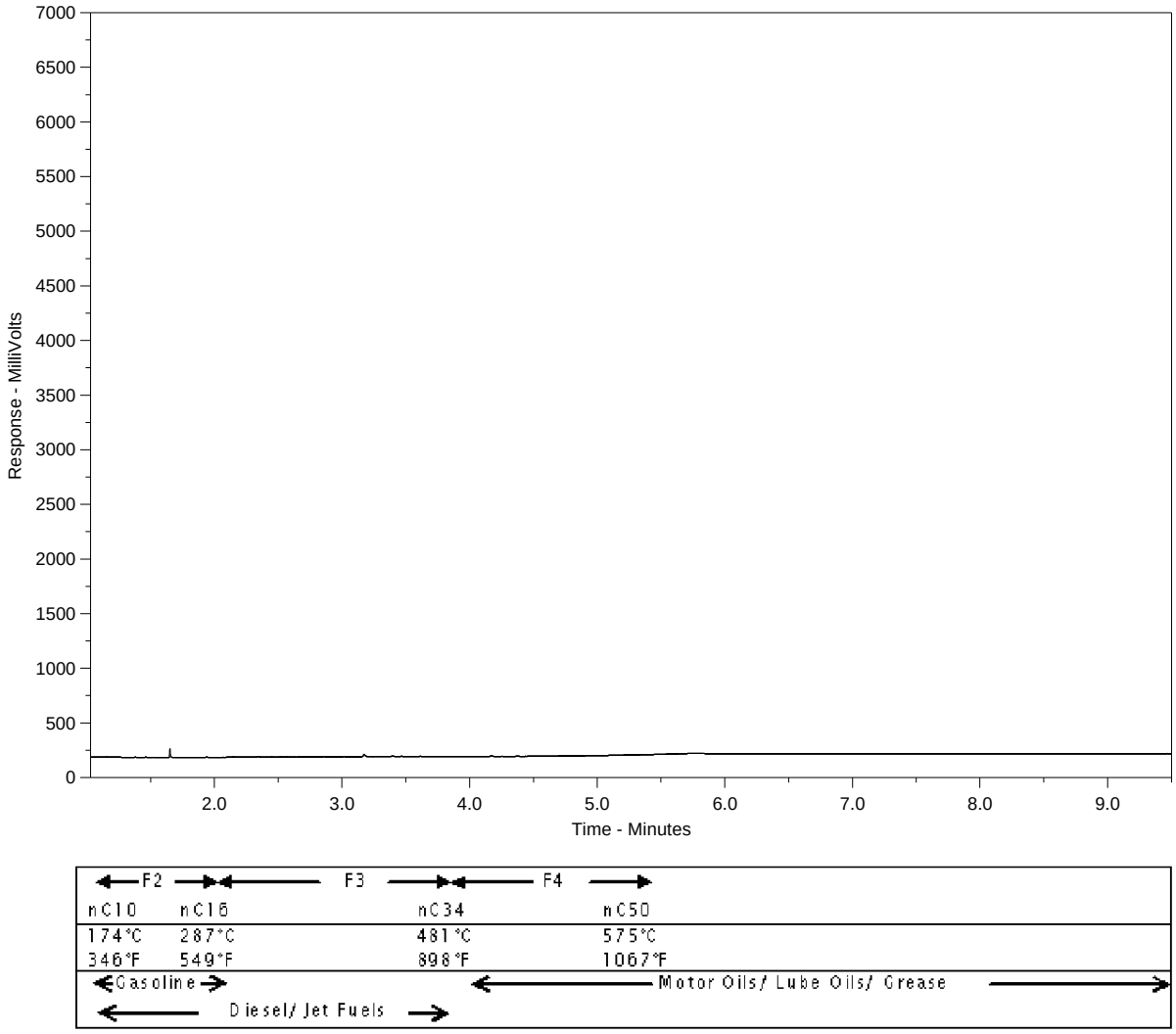
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-9
Client Sample ID: BH19-29



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

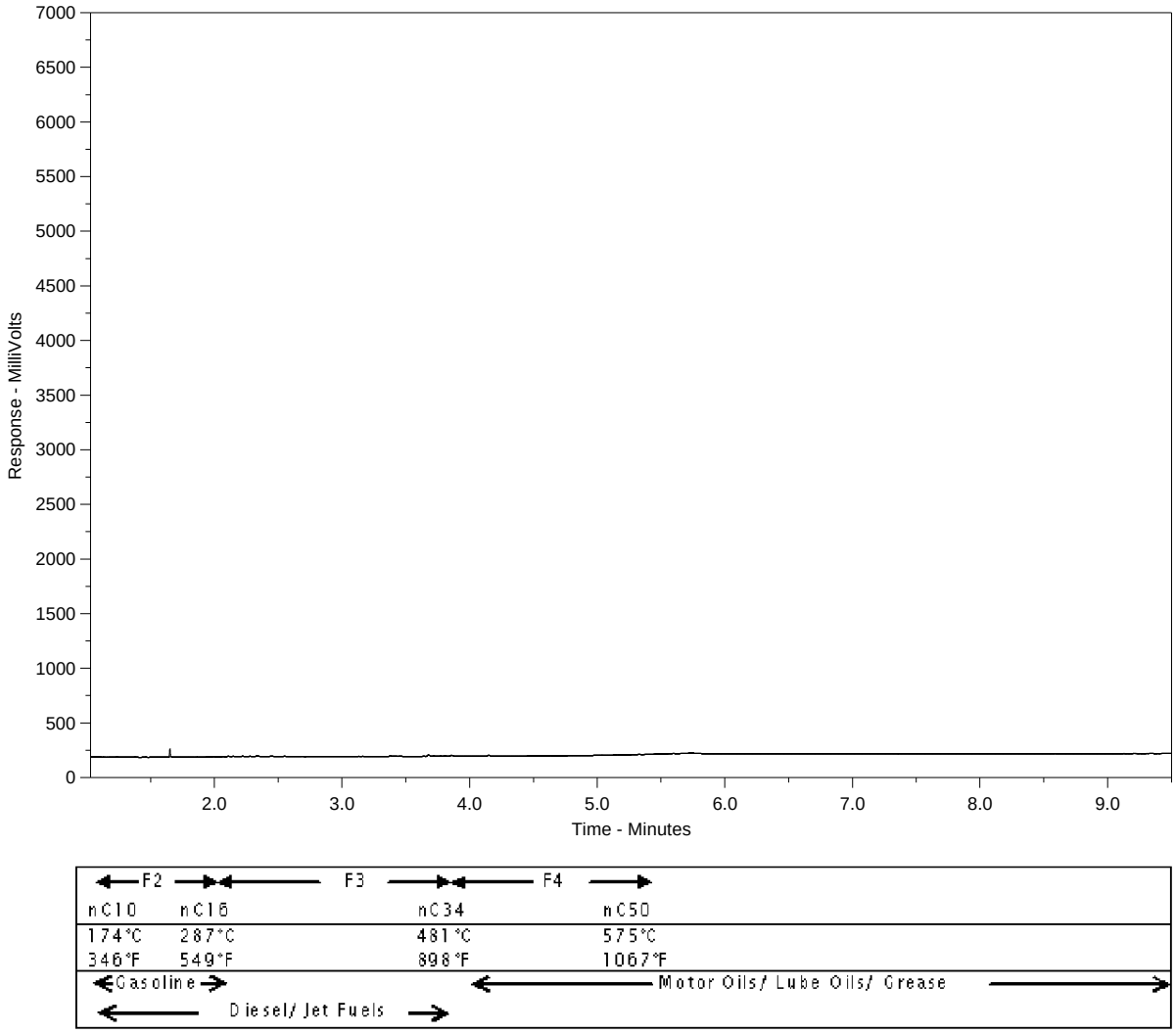
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-10
Client Sample ID: D2



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

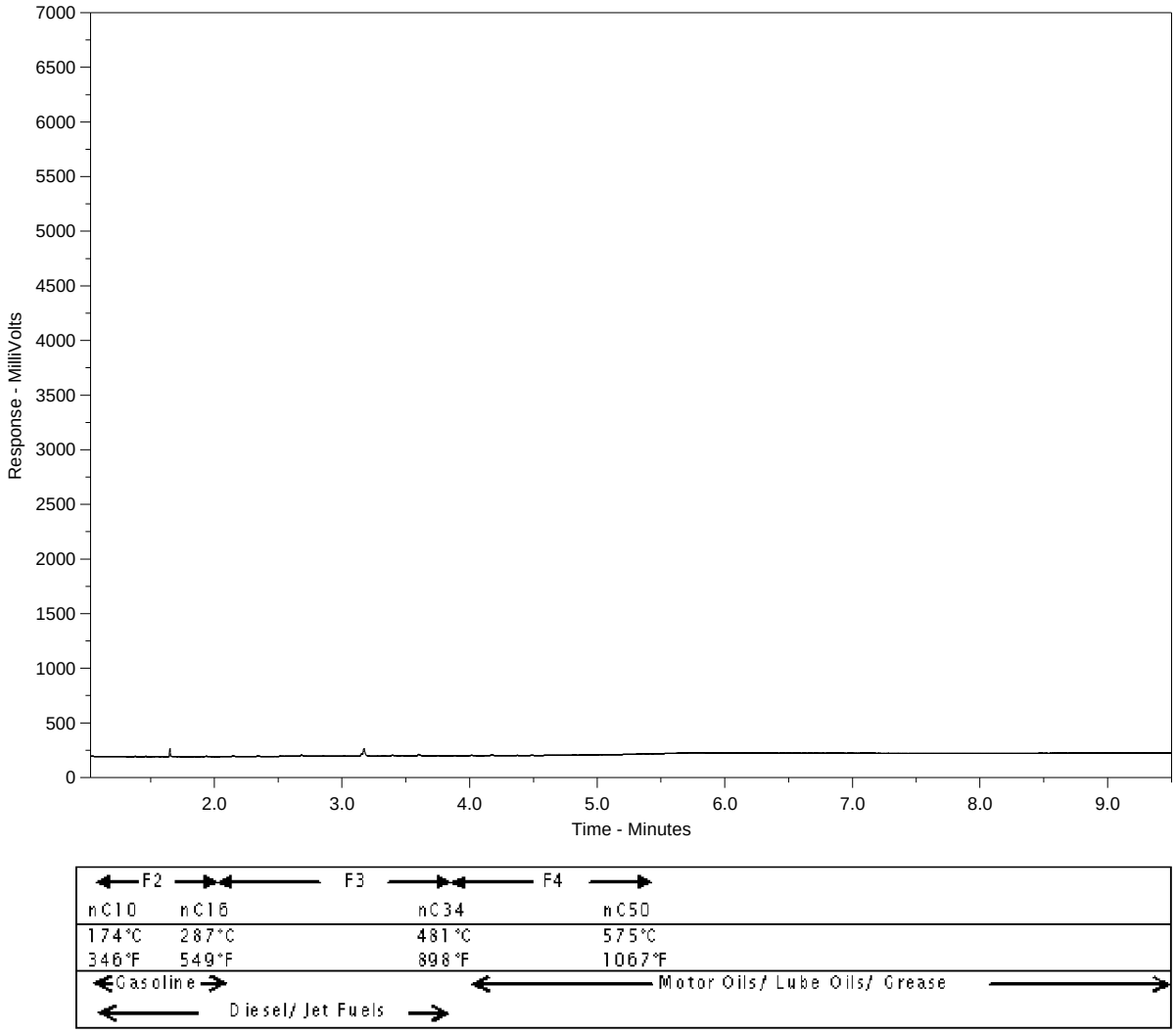
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2512953-11
Client Sample ID: QC-1 (NOT ON COC)



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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2512953-COFC

COC Number: 17 - 884600

Page of

Report To	Contact and company name below will appear on the final report
Company:	STANTEC Consulting Ltd.
Contact:	Tassia Stainton
Phone:	204-982-7615
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Wpg, MB
Postal Code:	R3B 2B9

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL | EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax	tassia.stainton@stantec.com
Email 2	karena.mathers@stantec.com
Email 3	niloofar.firoozy@stantec.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days): 4 day [P4-20%] ☐	EMERGENCY: 1 Business day [E - 100%] ☐
3 day [P3-25%] ☐	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
2 day [P2-50%] ☐	
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ YES ☐ NO	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK_SPEC_WP	ANIONS_IC_N_WP	BTX,F1-F4_WP	ETL_N_TOT_ANY_WP	HARDNESS_CALC_WP	MET_D_CCMS_WP	MET_T_CCMS_WP	NH3_COL_WP,N_TOT_WP	P_T_COL_WP,P_TD_COL_WP	P_TPART_CALC_WP	TSS+TDS	TC,EC_QT97_WP			SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
								P	P		F/P	P	P	P	P		P				
1	~~EXAMPLE~~ CH19-08	05-Oct-20	8:20 am	Groundwater	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
2	D8	05-Oct-20	10:00 am	surface water																	
3	DW19-18		11:30 am	GW																	
4	BH19-12		3:05pm	GW																	
5	D6		12:16 pm	SW																	
6	D12		3:30 pm	SW																	
7	DW19-05		6:48pm	GW																	
8	D11	06-Oct-20	10:15 am	SW																	
9	BH19-29	06-Oct-20	9:50 am	GW																	
10	D2	06-Oct-20	11:30 am	SW																	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? | | YES | | NO	

SAMPLE CONDITION AS RECEIVED (lab use only)			
Frozen ☐	SIF Observations	Yes ☐	No ☐
Ice Packs ☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated ☐			

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			12-6				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				OCT 06 2020	20		OCT 06 2020	20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2512953-COFC

COC Number: 17 - 884600

Page of

Report To	Contact and company name below will appear on the final report
Company:	STANTEC Consulting Ltd.
Contact:	Tassia Stainton
Phone:	204-982-7615
	Company address below will appear on the final report
Street:	500-311 Portage Ave
City/Province:	Wpg, MB
Postal Code:	R3B 2B9
Invoice To	Same as Report To [Y] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[Y] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[Y] YES [ ] NO
[Y] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[Y] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	tassia.stainton@stantec.com
Email 2	karen.mathers@stantec.com
Email 3	niloofar.firoozy@stantec.com

Invoice Distribution	
Select Invoice Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may ap

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E - 100%] | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	ALK_SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP	ETL-N-TOT-ANN-WP	HARDNESS-CALC-WP	MET-D-CCMS-WP	MET-T-CCMS-WP	NH3-COL-WP	P-T-COL-WP	P-TPART-CALC-WP	TSS+TDS	TC,EC-QT97-WP	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
						P	P		F/P	P	P	P	P	P		P			
1	~~CH19-08~~ CH19-08	05-Oct-20	8:20 am	Groundwater	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	D8	05-Oct-20	10:00 am	surface water															
3	DW19-18		11:30 am	GW															
4	BH19-12		3:05pm	GW															
5	D6		12:16 pm	SW															
6	D12		3:30 pm	SW															
7	DW19-05		6:48pm	GW															
8	D11	06-Oct-20	10:15 am	SW															
9	BH19-29	06-Oct-20	9:50am	GW															
10	D2	06-Oct-20	11:30am	SW															

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C: 12-6

FINAL COOLER TEMPERATURES °C:

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	OCT 06 2020	1230

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	OCT 06 2020	1230

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JUNE 2016 FRONT

[1] ...submit using an Authorized DW COC form.

Stantec Consulting (Winnipeg)
ATTN: Tassia Stainton
500 - 311 Portage Ave
Winnipeg MB R3B 2B9

Date Received: 08-OCT-20
Report Date: 05-NOV-20 11:02 (MT)
Version: FINAL REV. 2

Client Phone: 204-982-7615

Certificate of Analysis

Lab Work Order #: L2514453

Project P.O. #: 111475107
Job Reference: 111475107.1714.2404.200
C of C Numbers:
Legal Site Desc:

Comments:
5-NOV-2020 Revised report - Copper and Zinc on fraction 6 changed

Craig Riddell, B.Sc.Ag
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2514453-1 D4							
Sampled By: CLIENT on 07-OCT-20 @ 12:00							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	293		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	10.6		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	258		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.2		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.248		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	58.8		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	86.0		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	95.7		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.012		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	292		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	0.0154		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0099		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0055		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	380		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	1.51		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	1.51		0.20	mg/L		15-OCT-20	
Total Suspended Solids	2.5		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	1300		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	1		1	MPN/100mL		08-OCT-20	R5252343

* 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
L2514453-1 D4							
Sampled By: CLIENT on 07-OCT-20 @ 12:00							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0294		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00099		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0236		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.035		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	35.2		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00014		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.031		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0215		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	61.3		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.00578		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.000730		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	4.93		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00269		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000156		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	4.57		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	13.2		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.120		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	21.8		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.00111		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00170		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00075		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0012		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00098		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0249		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.029		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	33.6		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-1 D4							
Sampled By: CLIENT on 07-OCT-20 @ 12:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	0.00012		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00120		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.011		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0193		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	50.5		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.00356		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.000705		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	4.82		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00260		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	0.000180		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	4.29		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	12.1		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.108		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	20.2		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00163		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	0.00055		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0022		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-2 CH19-37							
Sampled By: CLIENT on 07-OCT-20 @ 13:55							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	272		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	9.72		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	239		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	15.3		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.428		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							

* 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
L2514453-2 CH19-37							
Sampled By: CLIENT on 07-OCT-20 @ 13:55							
Matrix: WATER							
Sulfate in Water by IC							
Sulfate (SO4)	154		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	85.5		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	94.7		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.131		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	315		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		15-OCT-20	
Total Dissolved Solids	453		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	<0.20		0.20	mg/L		15-OCT-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	<1		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.644		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00051		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0247		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.675		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000092		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	62.8		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000012		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00038		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00029		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00296		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.957		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000682		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0352		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	47.2		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-2 CH19-37							
Sampled By: CLIENT on 07-OCT-20 @ 13:55							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Manganese (Mn)-Total	0.0211		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.000505		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00083		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	7.83		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00324		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	6.61		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	41.7		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.474		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	55.3		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	0.00021		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	0.00041		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.0295		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00194		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00102		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	0.0124		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	0.00090		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0018		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00030		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0232		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.575		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	60.2		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00121		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.050		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0330		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	40.0		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.00622		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.000547		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	7.80		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00316		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	4.63		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	40.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-2 CH19-37							
Sampled By: CLIENT on 07-OCT-20 @ 13:55							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Strontium (Sr)-Dissolved	0.426		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	51.5		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00181		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0053		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-3 D3							
Sampled By: CLIENT on 07-OCT-20 @ 15:25							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	454		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	23.9		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	412		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	11.0		1.0	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.201		0.040	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	142		0.60	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	81.4		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	95.1		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	

* 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
L2514453-3 D3							
Sampled By: CLIENT on 07-OCT-20 @ 15:25							
Matrix: WATER							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.209		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	489		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	0.0704		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0241		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0463		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	649		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	3.99		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	3.99		0.20	mg/L		15-OCT-20	
Total Suspended Solids	36.1		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	687		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	11		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.273		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	0.00015		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00218		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0355		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.093		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000099		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	43.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000022		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00049		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00023		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00067		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.293		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000200		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0357		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	111		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.0305		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.00102		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00076		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	16.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	0.132		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00656		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000143		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	4.85		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	24.1		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.112		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	52.3		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.00925		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00223		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-3 D3							
Sampled By: CLIENT on 07-OCT-20 @ 15:25							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Vanadium (V)-Total	0.00141		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	0.0035		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	0.00021		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0022		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	0.00017		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00216		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0353		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.071		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	0.0000053		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	43.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	0.00011		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00079		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	0.000065		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0313		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	92.7		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.0100		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.00100		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	16.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00625		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	0.000139		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	3.98		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	22.8		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.0997		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	49.1		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	0.00036		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00203		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	0.00084		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0021		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-4 D10							
Sampled By: CLIENT on 07-OCT-20 @ 17:05							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	336		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							

* 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
L2514453-4 D10							
Sampled By: CLIENT on 07-OCT-20 @ 17:05							
Matrix: WATER							
Alkalinity, Carbonate							
Carbonate (CO3)	15.6		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	302		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	7.89		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.274		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	85.4		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	92.5		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	17-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	17-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	17-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	95.6		60-140	%	15-OCT-20	17-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.016		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	381		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	0.0357		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0138		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0219		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	456		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	1.95		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	1.95		0.20	mg/L		15-OCT-20	
Total Suspended Solids	38.7		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	921		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	27		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.374		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	0.00013		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-4 D10							
Sampled By: CLIENT on 07-OCT-20 @ 17:05							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00118		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0376		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.088		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000177		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	50.8		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000053		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00086		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00030		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00089		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.440		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000263		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0247		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	69.5		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.0241		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.000670		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00108		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	6.42		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	0.044		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00356		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000176		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	1.32		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	12.8		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.196		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	30.9		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	0.000012		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	0.00011		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.0153		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00169		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00155		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	0.00039		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0028		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00104		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0363		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.077		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	50.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-4 D10							
Sampled By: CLIENT on 07-OCT-20 @ 17:05							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	0.00107		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.026		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0215		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	61.7		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.00384		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.000624		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	0.00055		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	6.36		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00269		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	0.000177		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	0.446		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	12.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.169		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	29.9		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	0.00040		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00160		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	0.00074		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0024		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-5 D1							
Sampled By: CLIENT on 08-OCT-20 @ 09:20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	201		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	4.92		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	173		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	206		1.0	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.160		0.040	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	97.3		0.60	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							

* 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
L2514453-5 D1							
Sampled By: CLIENT on 08-OCT-20 @ 09:20							
Matrix: WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	0.0016		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	89.4		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	93.6		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	230		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	0.0232		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0070		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0162		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	631		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	1.11		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	1.11		0.20	mg/L		15-OCT-20	
Total Suspended Solids	11.4		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	548		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	55		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0928		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	0.00019		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00221		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0444		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.105		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	37.1		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00019		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.070		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000161		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0369		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	40.0		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.00590		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.00231		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00066		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-5 D1							
Sampled By: CLIENT on 08-OCT-20 @ 09:20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	10.6		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00419		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000086		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	4.41		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	138		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.278		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	34.6		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.00327		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00171		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00171		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	0.00018		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00189		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0440		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.094		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	36.4		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00119		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0328		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	33.9		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.00034		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.00230		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	10.2		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00393		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	0.000069		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	3.97		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	134		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.249		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	32.1		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-5 D1							
Sampled By: CLIENT on 08-OCT-20 @ 09:20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00168		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	0.00139		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0028		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-6 SW0							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	201		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	5.64		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	174		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	202		1.0	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.161		0.040	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	95.9		0.60	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	86.8		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	96.3		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							

* 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
L2514453-6 SW0							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Ammonia, Total (as N)	<0.010		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	237		0.20	mg/L		16-OCT-20	
Phosphorus (P)-Total	0.0248		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0117		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0131		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	567		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	1.05		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	1.05		0.20	mg/L		15-OCT-20	
Total Suspended Solids	8.7		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	387		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	58		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.100		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	0.00018		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00213		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0442		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.105		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	36.9		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00017		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.059		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000143		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0363		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	40.0		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.00540		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.00235		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00065		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	10.5		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	0.035		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00425		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000055		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	4.52		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	138		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.281		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	34.5		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.00304		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00172		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00172		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-6 SW0							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	0.0012		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	0.00018		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00196		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0408		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.097		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	37.7		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00039		0.00020	mg/L	13-OCT-20	30-OCT-20	R5272734
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	0.000404	RRV	0.000050	mg/L	13-OCT-20	14-OCT-20	R5254895
Lithium (Li)-Dissolved	0.0328		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	34.6		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.00026		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.00238		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	10.4		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00392		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	4.02		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	139		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.248		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	32.8		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	0.00011		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00177		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	0.00145		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	30-OCT-20	R5272734
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-7 FIELD BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							

* 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
L2514453-7 FIELD BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	0.00099		0.00050	mg/L		09-OCT-20	R5252077
Toluene	0.0048		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	0.00053		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	85.5		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	95.2		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	<0.20		0.20	mg/L		15-OCT-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		15-OCT-20	
Total Dissolved Solids	<4.0		4.0	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	<0.20		0.20	mg/L		15-OCT-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	<1		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-7 FIELD BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Boron (B)-Total	0.018		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	0.25		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	<0.50		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	0.0037		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.018	RRV	0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-7 FIELD BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Magnesium (Mg)-Dissolved	0.0104	RRV	0.0050	mg/L	13-OCT-20	14-OCT-20	R5254895
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	0.226	RRV	0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-8 TRIP BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	<1.2		1.2	mg/L		20-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	<1.0		1.0	mg/L		16-OCT-20	R5256988
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	<0.50		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	0.0014		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077

* 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
L2514453-8 TRIP BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
BTX plus F1 by GCMS							
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	86.0		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	94.0		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	<0.20		0.20	mg/L		14-OCT-20	
Phosphorus (P)-Total	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Dissolved	<0.0010		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Particulate	<0.0028		0.0028	mg/L		15-OCT-20	
Total Dissolved Solids	<4.0		4.0	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	<0.20		0.20	mg/L		15-OCT-20	
Total Suspended Solids	<1.0		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	<1		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.017		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-8 TRIP BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	0.24		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	<0.50		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.019		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	<0.0050		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	0.196		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	<0.50		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986

* 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
L2514453-8 TRIP BLANK							
Sampled By: CLIENT on 08-OCT-20							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	<0.0010		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-9 OW19-40							
Sampled By: CLIENT on 08-OCT-20 @ 10:30							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	300		1.2	mg/L		21-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	246		1.0	mg/L		19-OCT-20	R5262296
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	17.7		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.364		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	163		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	85.7		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	93.8		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.065		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	345		0.20	mg/L		15-OCT-20	

* 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
L2514453-9 OW19-40							
Sampled By: CLIENT on 08-OCT-20 @ 10:30							
Matrix: WATER							
Phosphorus (P)-Total	0.0303		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0015		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Particulate	0.0287		0.0032	mg/L		23-OCT-20	
Total Dissolved Solids	487		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	<0.20		0.20	mg/L		15-OCT-20	
Total Suspended Solids	136		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	<1		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.938		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00063		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0299		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.668		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000063		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	82.7		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000224		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00196		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00051		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00290		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	1.14		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000613		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0444		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	65.9		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.0375		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.000400		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00142		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	9.76		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	0.047		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00884		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	5.91		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	45.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.466		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	59.0		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	0.000014		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	0.00040		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.0395		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00125		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00350		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	0.0053		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	0.00078		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					13-OCT-20	R5253533

* 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
L2514453-9 OW19-40							
Sampled By: CLIENT on 08-OCT-20 @ 10:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0545		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Arsenic (As)-Dissolved	0.00044		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Barium (Ba)-Dissolved	0.0267		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Boron (B)-Dissolved	0.576		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cadmium (Cd)-Dissolved	0.0000673		0.0000050	mg/L	13-OCT-20	14-OCT-20	R5254895
Calcium (Ca)-Dissolved	65.0		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Cesium (Cs)-Dissolved	0.000016		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Chromium (Cr)-Dissolved	0.00014		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Cobalt (Co)-Dissolved	0.00011		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Copper (Cu)-Dissolved	0.00082		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Iron (Fe)-Dissolved	0.090		0.010	mg/L	13-OCT-20	13-OCT-20	R5253986
Lead (Pb)-Dissolved	0.000059		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Lithium (Li)-Dissolved	0.0381		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Magnesium (Mg)-Dissolved	44.5		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253986
Manganese (Mn)-Dissolved	0.0135		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Molybdenum (Mo)-Dissolved	0.000494		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253986
Potassium (K)-Dissolved	9.04		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Rubidium (Rb)-Dissolved	0.00636		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silicon (Si)-Dissolved	3.81		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sodium (Na)-Dissolved	43.6		0.050	mg/L	13-OCT-20	13-OCT-20	R5253986
Strontium (Sr)-Dissolved	0.420		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Sulfur (S)-Dissolved	56.0		0.50	mg/L	13-OCT-20	13-OCT-20	R5253986
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Titanium (Ti)-Dissolved	0.00266		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253986
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253986
Uranium (U)-Dissolved	0.00118		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253986
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253986
Zinc (Zn)-Dissolved	0.0023		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253986
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253986
L2514453-10 OW19-23							
Sampled By: CLIENT on 08-OCT-20 @ 11:30							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	260		1.2	mg/L		21-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	213		1.0	mg/L		19-OCT-20	R5262296

* 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
L2514453-10 OW19-23							
Sampled By: CLIENT on 08-OCT-20 @ 11:30							
Matrix: WATER							
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	21.1		0.50	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.827		0.020	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	134		0.30	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	85.4		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	93.1		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.141		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	269		0.20	mg/L		16-OCT-20	
Phosphorus (P)-Total	0.0304		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0023		0.0010	mg/L		15-OCT-20	R5254924
Phosphorus (P)-Total Particulate	0.0281		0.0032	mg/L		23-OCT-20	
Total Dissolved Solids	430		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	<0.20		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	<0.20		0.20	mg/L		15-OCT-20	
Total Suspended Solids	101		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	<1		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	<1		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.116		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00041		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0245		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.693		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000056		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-10 OW19-23							
Sampled By: CLIENT on 08-OCT-20 @ 11:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Calcium (Ca)-Total	54.4		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000036		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00021		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00013		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00145		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.128		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000372		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0349		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	38.7		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.0145		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.000857		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	9.03		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	<0.030		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00474		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	5.08		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	50.2		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.428		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	47.1		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.00551		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.000939		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	<0.00050		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	0.0036		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					15-OCT-20	R5254763
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Arsenic (As)-Dissolved	0.00039		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Barium (Ba)-Dissolved	0.0267		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Boron (B)-Dissolved	0.576		0.010	mg/L	15-OCT-20	15-OCT-20	R5255569
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Calcium (Ca)-Dissolved	50.9		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Cesium (Cs)-Dissolved	0.000012		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Copper (Cu)-Dissolved	0.00064		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Iron (Fe)-Dissolved	0.026		0.010	mg/L	15-OCT-20	15-OCT-20	R5255569
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Lithium (Li)-Dissolved	0.0330		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Magnesium (Mg)-Dissolved	34.5		0.0050	mg/L	15-OCT-20	15-OCT-20	R5255569
Manganese (Mn)-Dissolved	0.0133		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569

* 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
L2514453-10 OW19-23							
Sampled By: CLIENT on 08-OCT-20 @ 11:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Molybdenum (Mo)-Dissolved	0.000853		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	15-OCT-20	15-OCT-20	R5255569
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	15-OCT-20	15-OCT-20	R5255569
Potassium (K)-Dissolved	8.65		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Rubidium (Rb)-Dissolved	0.00432		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Selenium (Se)-Dissolved	<0.000050		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Silicon (Si)-Dissolved	4.37		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Sodium (Na)-Dissolved	49.5		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Strontium (Sr)-Dissolved	0.423		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Sulfur (S)-Dissolved	41.2		0.50	mg/L	15-OCT-20	15-OCT-20	R5255569
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Thallium (Tl)-Dissolved	0.000013		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	15-OCT-20	15-OCT-20	R5255569
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Uranium (U)-Dissolved	0.000909		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	15-OCT-20	15-OCT-20	R5255569
Zinc (Zn)-Dissolved	0.0022		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
L2514453-11 D9							
Sampled By: CLIENT on 08-OCT-20 @ 12:45							
Matrix: WATER							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	209		1.2	mg/L		21-OCT-20	
Alkalinity, Carbonate							
Carbonate (CO3)	6.12		0.60	mg/L		21-OCT-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-OCT-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	182		1.0	mg/L		19-OCT-20	R5262296
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	200		1.0	mg/L		09-OCT-20	R5253367
Fluoride in Water by IC							
Fluoride (F)	0.144		0.040	mg/L		09-OCT-20	R5253367
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		09-OCT-20	R5253367
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		09-OCT-20	R5253367
Sulfate in Water by IC							
Sulfate (SO4)	84.7		0.60	mg/L		09-OCT-20	R5253367
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
Toluene	<0.0010		0.0010	mg/L		09-OCT-20	R5252077
Ethyl benzene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
o-Xylene	<0.00050		0.00050	mg/L		09-OCT-20	R5252077
m+p-Xylenes	<0.00040		0.00040	mg/L		09-OCT-20	R5252077

* 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
L2514453-11 D9							
Sampled By: CLIENT on 08-OCT-20 @ 12:45							
Matrix: WATER							
BTX plus F1 by GCMS							
F1 (C6-C10)	<0.10		0.10	mg/L		09-OCT-20	R5252077
Surrogate: 4-Bromofluorobenzene (SS)	84.7		70-130	%		09-OCT-20	R5252077
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-OCT-20	16-OCT-20	R5256292
F3 (C16-C34)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
F4 (C34-C50)	<0.25		0.25	mg/L	15-OCT-20	16-OCT-20	R5256292
Surrogate: 2-Bromobenzotrifluoride	94.6		60-140	%	15-OCT-20	16-OCT-20	R5256292
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		13-OCT-20	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		09-OCT-20	R5252695
Hardness (as CaCO3)	241		0.20	mg/L		16-OCT-20	
Phosphorus (P)-Total	0.0389		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Dissolved	0.0077		0.0030	mg/L		14-OCT-20	R5254604
Phosphorus (P)-Total Particulate	0.0312		0.0042	mg/L		15-OCT-20	
Total Dissolved Solids	601		20	mg/L		13-OCT-20	R5254799
Total Kjeldahl Nitrogen	1.41		0.20	mg/L	14-OCT-20	15-OCT-20	R5255083
Total Nitrogen	1.41		0.20	mg/L		15-OCT-20	
Total Suspended Solids	45.0		1.0	mg/L		13-OCT-20	R5254168
Total Coliform and E.coli by MPN QT97							
Total Coliforms	272		1	MPN/100mL		08-OCT-20	R5252343
Escherichia Coli	86		1	MPN/100mL		08-OCT-20	R5252343
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.331		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Antimony (Sb)-Total	0.00020		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Arsenic (As)-Total	0.00236		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Barium (Ba)-Total	0.0468		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Boron (B)-Total	0.115		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cadmium (Cd)-Total	0.0000062		0.0000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Calcium (Ca)-Total	40.5		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Cesium (Cs)-Total	0.000038		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Chromium (Cr)-Total	0.00076		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Cobalt (Co)-Total	0.00025		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Copper (Cu)-Total	0.00082		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Iron (Fe)-Total	0.370		0.010	mg/L	13-OCT-20	13-OCT-20	R5253823
Lead (Pb)-Total	0.000440		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Lithium (Li)-Total	0.0352		0.0010	mg/L	13-OCT-20	13-OCT-20	R5253823
Magnesium (Mg)-Total	39.8		0.0050	mg/L	13-OCT-20	13-OCT-20	R5253823
Manganese (Mn)-Total	0.0151		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Molybdenum (Mo)-Total	0.00258		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Nickel (Ni)-Total	0.00121		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Potassium (K)-Total	9.77		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Phosphorus (P)-Total	0.040		0.030	mg/L	13-OCT-20	13-OCT-20	R5253823
Rubidium (Rb)-Total	0.00469		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Selenium (Se)-Total	0.000082		0.000050	mg/L	13-OCT-20	13-OCT-20	R5253823
Silicon (Si)-Total	4.92		0.10	mg/L	13-OCT-20	13-OCT-20	R5253823

* 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
L2514453-11 D9							
Sampled By: CLIENT on 08-OCT-20 @ 12:45							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Silver (Ag)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Sodium (Na)-Total	135		0.050	mg/L	13-OCT-20	13-OCT-20	R5253823
Strontium (Sr)-Total	0.268		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Sulfur (S)-Total	31.7		0.50	mg/L	13-OCT-20	13-OCT-20	R5253823
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Thorium (Th)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Tin (Sn)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Titanium (Ti)-Total	0.0152		0.00030	mg/L	13-OCT-20	13-OCT-20	R5253823
Tungsten (W)-Total	<0.00010		0.00010	mg/L	13-OCT-20	13-OCT-20	R5253823
Uranium (U)-Total	0.00197		0.000010	mg/L	13-OCT-20	13-OCT-20	R5253823
Vanadium (V)-Total	0.00259		0.00050	mg/L	13-OCT-20	13-OCT-20	R5253823
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	13-OCT-20	13-OCT-20	R5253823
Zirconium (Zr)-Total	0.00023		0.00020	mg/L	13-OCT-20	13-OCT-20	R5253823
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					15-OCT-20	R5254763
Aluminum (Al)-Dissolved	0.0045		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Antimony (Sb)-Dissolved	0.00025		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Arsenic (As)-Dissolved	0.00206		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Barium (Ba)-Dissolved	0.0432		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Boron (B)-Dissolved	0.103		0.010	mg/L	15-OCT-20	15-OCT-20	R5255569
Cadmium (Cd)-Dissolved	<0.0000050		0.0000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Calcium (Ca)-Dissolved	36.5		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Cesium (Cs)-Dissolved	0.000013		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Chromium (Cr)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Copper (Cu)-Dissolved	0.00103		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	15-OCT-20	15-OCT-20	R5255569
Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Lithium (Li)-Dissolved	0.0317		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Magnesium (Mg)-Dissolved	36.4		0.0050	mg/L	15-OCT-20	15-OCT-20	R5255569
Manganese (Mn)-Dissolved	0.00049		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Molybdenum (Mo)-Dissolved	0.00258		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Nickel (Ni)-Dissolved	0.00060		0.00050	mg/L	15-OCT-20	15-OCT-20	R5255569
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	15-OCT-20	15-OCT-20	R5255569
Potassium (K)-Dissolved	9.38		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Rubidium (Rb)-Dissolved	0.00378		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Selenium (Se)-Dissolved	0.000120		0.000050	mg/L	15-OCT-20	15-OCT-20	R5255569
Silicon (Si)-Dissolved	3.75		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Sodium (Na)-Dissolved	133		0.050	mg/L	15-OCT-20	15-OCT-20	R5255569
Strontium (Sr)-Dissolved	0.255		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Sulfur (S)-Dissolved	27.5		0.50	mg/L	15-OCT-20	15-OCT-20	R5255569
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	15-OCT-20	15-OCT-20	R5255569
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	15-OCT-20	15-OCT-20	R5255569

* 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
L2514453-11 D9							
Sampled By: CLIENT on 08-OCT-20 @ 12:45							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Uranium (U)-Dissolved	0.00173		0.000010	mg/L	15-OCT-20	15-OCT-20	R5255569
Vanadium (V)-Dissolved	0.00170		0.00050	mg/L	15-OCT-20	15-OCT-20	R5255569
Zinc (Zn)-Dissolved	0.0017		0.0010	mg/L	15-OCT-20	15-OCT-20	R5255569
Zirconium (Zr)-Dissolved	<0.00020		0.00020	mg/L	15-OCT-20	15-OCT-20	R5255569

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HARDNESS-CALC-WP	Water	Hardness Calculated	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.

MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (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.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

P-T-L-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TD-L-COL-WP	Water	Phosphorus, Total Dissolved	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

P-TPART-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

P-TPART-L-CALC-WP	Water	Phosphorus, Total Particulate	CALCULATION-LOW

Total particulate phosphorus represents the difference between total phosphorus and total dissolved phosphorus. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
SOLIDS-TOTSUS-LR-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TC,EC-QT97-WP	Water	Total Coliform and E.coli by MPN QT97	APHA 9223B QT97
This analysis is carried out using procedures adapted from APHA Method 9223B "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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-adjusted weight
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: L2514453 Report Date: 05-NOV-20

Client: Stantec Consulting (Winnipeg)
500 - 311 Portage Ave
Winnipeg MB R3B 2B9
Contact: Tassia Stainton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5256988								
WG3427478-19 LCS								
Alkalinity, Total (as CaCO3)			94.3		%		85-115	16-OCT-20
WG3427478-16 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	16-OCT-20
Batch R5262296								
WG3429409-9 LCS								
Alkalinity, Total (as CaCO3)			98.3		%		85-115	19-OCT-20
WG3429409-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	19-OCT-20
BTEXS+F1-HSMS-WP	**Water**							
Batch R5252077								
WG3420949-2 LCS								
Benzene			97.1		%		70-130	09-OCT-20
Toluene			84.7		%		70-130	09-OCT-20
Ethyl benzene			90.0		%		70-130	09-OCT-20
o-Xylene			108.8		%		70-130	09-OCT-20
m+p-Xylenes			104.5		%		70-130	09-OCT-20
WG3420949-3 LCS								
F1 (C6-C10)			82.2		%		70-130	09-OCT-20
WG3420949-1 MB								
Benzene			<0.00050		mg/L		0.0005	09-OCT-20
Toluene			<0.0010		mg/L		0.001	09-OCT-20
Ethyl benzene			<0.00050		mg/L		0.0005	09-OCT-20
o-Xylene			<0.00050		mg/L		0.0005	09-OCT-20
m+p-Xylenes			<0.00040		mg/L		0.0004	09-OCT-20
F1 (C6-C10)			<0.10		mg/L		0.1	09-OCT-20
Surrogate: 4-Bromofluorobenzene (SS)			83.0		%		70-130	09-OCT-20
CL-IC-N-WP	**Water**							
Batch R5253367								
WG3421857-2 LCS								
Chloride (Cl)			102.4		%		90-110	09-OCT-20
WG3421857-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-OCT-20
F-IC-N-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WP	**Water**							
Batch R5253367								
WG3421857-2 LCS								
Fluoride (F)			104.8		%		90-110	09-OCT-20
WG3421857-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	09-OCT-20
F2-F4-FID-WP	**Water**							
Batch R5256292								
WG3424898-2 LCS								
F2 (C10-C16)			98.0		%		70-130	16-OCT-20
F3 (C16-C34)			92.4		%		70-130	16-OCT-20
F4 (C34-C50)			92.5		%		70-130	16-OCT-20
WG3424898-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	16-OCT-20
F3 (C16-C34)			<0.25		mg/L		0.25	16-OCT-20
F4 (C34-C50)			<0.25		mg/L		0.25	16-OCT-20
Surrogate: 2-Bromobenzotrifluoride			96.3		%		60-140	16-OCT-20
MET-D-CCMS-WP	**Water**							
Batch R5253986								
WG3423408-2 LCS								
Aluminum (Al)-Dissolved			99.8		%		80-120	13-OCT-20
Antimony (Sb)-Dissolved			96.9		%		80-120	13-OCT-20
Arsenic (As)-Dissolved			103.1		%		80-120	13-OCT-20
Barium (Ba)-Dissolved			106.1		%		80-120	13-OCT-20
Beryllium (Be)-Dissolved			91.3		%		80-120	13-OCT-20
Bismuth (Bi)-Dissolved			100.8		%		80-120	13-OCT-20
Boron (B)-Dissolved			88.2		%		80-120	13-OCT-20
Cadmium (Cd)-Dissolved			99.4		%		80-120	13-OCT-20
Calcium (Ca)-Dissolved			98.5		%		80-120	13-OCT-20
Cesium (Cs)-Dissolved			96.3		%		80-120	13-OCT-20
Chromium (Cr)-Dissolved			102.0		%		80-120	13-OCT-20
Cobalt (Co)-Dissolved			99.7		%		80-120	13-OCT-20
Copper (Cu)-Dissolved			100.3		%		80-120	13-OCT-20
Iron (Fe)-Dissolved			93.0		%		80-120	13-OCT-20
Lead (Pb)-Dissolved			100.7		%		80-120	13-OCT-20
Lithium (Li)-Dissolved			88.4		%		80-120	13-OCT-20
Magnesium (Mg)-Dissolved			92.2		%		80-120	13-OCT-20
Manganese (Mn)-Dissolved			103.3		%		80-120	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch	**R5253986**							
WG3423408-2	**LCS**							
Molybdenum (Mo)-Dissolved			102.4		%		80-120	13-OCT-20
Nickel (Ni)-Dissolved			98.3		%		80-120	13-OCT-20
Phosphorus (P)-Dissolved			105.7		%		80-120	13-OCT-20
Potassium (K)-Dissolved			101.8		%		80-120	13-OCT-20
Rubidium (Rb)-Dissolved			104.2		%		80-120	13-OCT-20
Selenium (Se)-Dissolved			100.2		%		80-120	13-OCT-20
Silicon (Si)-Dissolved			96.7		%		80-120	13-OCT-20
Silver (Ag)-Dissolved			98.1		%		80-120	13-OCT-20
Sodium (Na)-Dissolved			97.6		%		80-120	13-OCT-20
Strontium (Sr)-Dissolved			98.0		%		80-120	13-OCT-20
Sulfur (S)-Dissolved			96.0		%		80-120	13-OCT-20
Tellurium (Te)-Dissolved			100.5		%		80-120	13-OCT-20
Thallium (Tl)-Dissolved			101.5		%		80-120	13-OCT-20
Thorium (Th)-Dissolved			96.2		%		80-120	13-OCT-20
Tin (Sn)-Dissolved			97.6		%		80-120	13-OCT-20
Titanium (Ti)-Dissolved			93.3		%		80-120	13-OCT-20
Tungsten (W)-Dissolved			102.4		%		80-120	13-OCT-20
Uranium (U)-Dissolved			100.6		%		80-120	13-OCT-20
Vanadium (V)-Dissolved			101.9		%		80-120	13-OCT-20
Zinc (Zn)-Dissolved			101.8		%		80-120	13-OCT-20
Zirconium (Zr)-Dissolved			96.1		%		80-120	13-OCT-20
WG3423408-1	**MB**							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	13-OCT-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	13-OCT-20
Cadmium (Cd)-Dissolved			<0.000005C		mg/L		0.000005	13-OCT-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5253986								
WG3423408-1 MB								
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	13-OCT-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	13-OCT-20
Magnesium (Mg)-Dissolved			0.0059	B	mg/L		0.005	13-OCT-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	13-OCT-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	13-OCT-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	13-OCT-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	13-OCT-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	13-OCT-20
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	13-OCT-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	13-OCT-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	13-OCT-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	13-OCT-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	13-OCT-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	13-OCT-20
Batch R5255569								
WG3424954-4 DUP		**L2514453-10**						
Aluminum (Al)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-OCT-20
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Arsenic (As)-Dissolved		0.00039	0.00040		mg/L	2.5	20	15-OCT-20
Barium (Ba)-Dissolved		0.0267	0.0264		mg/L	1.0	20	15-OCT-20
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5255569								
WG3424954-4 DUP		**L2514453-10**						
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-OCT-20
Boron (B)-Dissolved		0.576	0.579		mg/L	0.5	20	15-OCT-20
Cadmium (Cd)-Dissolved		<0.0000050	<0.000005C	RPD-NA	mg/L	N/A	20	15-OCT-20
Calcium (Ca)-Dissolved		50.9	51.4		mg/L	1.0	20	15-OCT-20
Cesium (Cs)-Dissolved		0.000012	0.000011		mg/L	9.5	20	15-OCT-20
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Copper (Cu)-Dissolved		0.00064	0.00063		mg/L	1.7	20	15-OCT-20
Iron (Fe)-Dissolved		0.026	0.026		mg/L	1.3	20	15-OCT-20
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-OCT-20
Lithium (Li)-Dissolved		0.0330	0.0325		mg/L	1.4	20	15-OCT-20
Magnesium (Mg)-Dissolved		34.5	34.3		mg/L	0.5	20	15-OCT-20
Manganese (Mn)-Dissolved		0.0133	0.0132		mg/L	0.5	20	15-OCT-20
Molybdenum (Mo)-Dissolved		0.000853	0.000827		mg/L	3.2	20	15-OCT-20
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-OCT-20
Phosphorus (P)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	15-OCT-20
Potassium (K)-Dissolved		8.65	8.72		mg/L	0.8	20	15-OCT-20
Rubidium (Rb)-Dissolved		0.00432	0.00422		mg/L	2.2	20	15-OCT-20
Selenium (Se)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-OCT-20
Silicon (Si)-Dissolved		4.37	4.48		mg/L	2.4	20	15-OCT-20
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	15-OCT-20
Sodium (Na)-Dissolved		49.5	49.2		mg/L	0.7	20	15-OCT-20
Strontium (Sr)-Dissolved		0.423	0.424		mg/L	0.1	20	15-OCT-20
Sulfur (S)-Dissolved		41.2	43.2		mg/L	4.8	20	15-OCT-20
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-OCT-20
Thallium (Tl)-Dissolved		0.000013	<0.000010	RPD-NA	mg/L	N/A	20	15-OCT-20
Thorium (Th)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	15-OCT-20
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-OCT-20
Uranium (U)-Dissolved		0.000909	0.000887		mg/L	2.5	20	15-OCT-20
Vanadium (V)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-OCT-20
Zinc (Zn)-Dissolved		0.0022	0.0022		mg/L	0.8	20	15-OCT-20
Zirconium (Zr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5255569								
WG3424954-2 LCS								
Aluminum (Al)-Dissolved			100.4		%		80-120	15-OCT-20
Antimony (Sb)-Dissolved			98.4		%		80-120	15-OCT-20
Arsenic (As)-Dissolved			102.9		%		80-120	15-OCT-20
Barium (Ba)-Dissolved			105.9		%		80-120	15-OCT-20
Beryllium (Be)-Dissolved			99.0		%		80-120	15-OCT-20
Bismuth (Bi)-Dissolved			99.8		%		80-120	15-OCT-20
Boron (B)-Dissolved			93.8		%		80-120	15-OCT-20
Cadmium (Cd)-Dissolved			105.0		%		80-120	15-OCT-20
Calcium (Ca)-Dissolved			99.1		%		80-120	15-OCT-20
Cesium (Cs)-Dissolved			99.4		%		80-120	15-OCT-20
Chromium (Cr)-Dissolved			101.9		%		80-120	15-OCT-20
Cobalt (Co)-Dissolved			102.2		%		80-120	15-OCT-20
Copper (Cu)-Dissolved			104.5		%		80-120	15-OCT-20
Iron (Fe)-Dissolved			99.96		%		80-120	15-OCT-20
Lead (Pb)-Dissolved			95.7		%		80-120	15-OCT-20
Lithium (Li)-Dissolved			103.2		%		80-120	15-OCT-20
Magnesium (Mg)-Dissolved			107.2		%		80-120	15-OCT-20
Manganese (Mn)-Dissolved			100.1		%		80-120	15-OCT-20
Molybdenum (Mo)-Dissolved			96.3		%		80-120	15-OCT-20
Nickel (Ni)-Dissolved			101.7		%		80-120	15-OCT-20
Phosphorus (P)-Dissolved			98.1		%		80-120	15-OCT-20
Potassium (K)-Dissolved			104.6		%		80-120	15-OCT-20
Rubidium (Rb)-Dissolved			101.4		%		80-120	15-OCT-20
Selenium (Se)-Dissolved			99.9		%		80-120	15-OCT-20
Silicon (Si)-Dissolved			91.5		%		80-120	15-OCT-20
Silver (Ag)-Dissolved			98.7		%		80-120	15-OCT-20
Sodium (Na)-Dissolved			106.3		%		80-120	15-OCT-20
Strontium (Sr)-Dissolved			97.4		%		80-120	15-OCT-20
Sulfur (S)-Dissolved			80.8		%		80-120	15-OCT-20
Tellurium (Te)-Dissolved			96.5		%		80-120	15-OCT-20
Thallium (Tl)-Dissolved			96.6		%		80-120	15-OCT-20
Thorium (Th)-Dissolved			92.0		%		80-120	15-OCT-20
Tin (Sn)-Dissolved			98.2		%		80-120	15-OCT-20
Titanium (Ti)-Dissolved			97.1		%		80-120	15-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5255569								
WG3424954-2 LCS								
Tungsten (W)-Dissolved			96.3		%		80-120	15-OCT-20
Uranium (U)-Dissolved			95.8		%		80-120	15-OCT-20
Vanadium (V)-Dissolved			102.1		%		80-120	15-OCT-20
Zirconium (Zr)-Dissolved			92.5		%		80-120	15-OCT-20
WG3424954-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	15-OCT-20
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-20
Boron (B)-Dissolved			<0.010		mg/L		0.01	15-OCT-20
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	15-OCT-20
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	15-OCT-20
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-20
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-20
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	15-OCT-20
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-20
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	15-OCT-20
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	15-OCT-20
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-20
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-20
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	15-OCT-20
Potassium (K)-Dissolved			<0.050		mg/L		0.05	15-OCT-20
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-20
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-20
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	15-OCT-20
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-20
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	15-OCT-20
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	15-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5255569								
WG3424954-1 MB								
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-20
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-20
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	15-OCT-20
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-20
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-20
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-20
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-20
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-20
WG3424954-5 MS		**L2514453-10**						
Aluminum (Al)-Dissolved			88.4		%		70-130	15-OCT-20
Antimony (Sb)-Dissolved			94.9		%		70-130	15-OCT-20
Arsenic (As)-Dissolved			96.8		%		70-130	15-OCT-20
Barium (Ba)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Beryllium (Be)-Dissolved			87.6		%		70-130	15-OCT-20
Bismuth (Bi)-Dissolved			74.4		%		70-130	15-OCT-20
Boron (B)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Cadmium (Cd)-Dissolved			93.5		%		70-130	15-OCT-20
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Cesium (Cs)-Dissolved			90.6		%		70-130	15-OCT-20
Chromium (Cr)-Dissolved			92.4		%		70-130	15-OCT-20
Cobalt (Co)-Dissolved			90.8		%		70-130	15-OCT-20
Copper (Cu)-Dissolved			90.6		%		70-130	15-OCT-20
Iron (Fe)-Dissolved			90.6		%		70-130	15-OCT-20
Lead (Pb)-Dissolved			81.8		%		70-130	15-OCT-20
Lithium (Li)-Dissolved			91.5		%		70-130	15-OCT-20
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Manganese (Mn)-Dissolved			88.5		%		70-130	15-OCT-20
Molybdenum (Mo)-Dissolved			90.2		%		70-130	15-OCT-20
Nickel (Ni)-Dissolved			88.3		%		70-130	15-OCT-20
Phosphorus (P)-Dissolved			93.7		%		70-130	15-OCT-20
Potassium (K)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Rubidium (Rb)-Dissolved			90.5		%		70-130	15-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	**Water**							
Batch R5255569								
WG3424954-5 MS		**L2514453-10**						
Selenium (Se)-Dissolved			94.1		%		70-130	15-OCT-20
Silicon (Si)-Dissolved			89.8		%		70-130	15-OCT-20
Silver (Ag)-Dissolved			73.1		%		70-130	15-OCT-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Sulfur (S)-Dissolved			N/A	MS-B	%		-	15-OCT-20
Tellurium (Te)-Dissolved			88.2		%		70-130	15-OCT-20
Thallium (Tl)-Dissolved			80.0		%		70-130	15-OCT-20
Thorium (Th)-Dissolved			84.6		%		70-130	15-OCT-20
Tin (Sn)-Dissolved			91.2		%		70-130	15-OCT-20
Titanium (Ti)-Dissolved			91.9		%		70-130	15-OCT-20
Tungsten (W)-Dissolved			88.4		%		70-130	15-OCT-20
Uranium (U)-Dissolved			82.0		%		70-130	15-OCT-20
Vanadium (V)-Dissolved			93.4		%		70-130	15-OCT-20
Zinc (Zn)-Dissolved			90.2		%		70-130	15-OCT-20
Zirconium (Zr)-Dissolved			91.9		%		70-130	15-OCT-20
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422412-2 LCS								
Aluminum (Al)-Total			100.1		%		80-120	13-OCT-20
Antimony (Sb)-Total			101.4		%		80-120	13-OCT-20
Arsenic (As)-Total			99.6		%		80-120	13-OCT-20
Barium (Ba)-Total			99.8		%		80-120	13-OCT-20
Beryllium (Be)-Total			100.9		%		80-120	13-OCT-20
Bismuth (Bi)-Total			105.5		%		80-120	13-OCT-20
Boron (B)-Total			99.4		%		80-120	13-OCT-20
Cadmium (Cd)-Total			99.8		%		80-120	13-OCT-20
Calcium (Ca)-Total			98.5		%		80-120	13-OCT-20
Cesium (Cs)-Total			96.9		%		80-120	13-OCT-20
Chromium (Cr)-Total			98.8		%		80-120	13-OCT-20
Cobalt (Co)-Total			99.3		%		80-120	13-OCT-20
Copper (Cu)-Total			99.3		%		80-120	13-OCT-20
Iron (Fe)-Total			94.8		%		80-120	13-OCT-20
Lead (Pb)-Total			100.3		%		80-120	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422412-2 LCS								
Lithium (Li)-Total			101.9		%		80-120	13-OCT-20
Magnesium (Mg)-Total			107.4		%		80-120	13-OCT-20
Manganese (Mn)-Total			99.99		%		80-120	13-OCT-20
Molybdenum (Mo)-Total			99.4		%		80-120	13-OCT-20
Nickel (Ni)-Total			97.5		%		80-120	13-OCT-20
Potassium (K)-Total			102.3		%		80-120	13-OCT-20
Phosphorus (P)-Total			100.1		%		80-120	13-OCT-20
Rubidium (Rb)-Total			96.4		%		80-120	13-OCT-20
Selenium (Se)-Total			98.8		%		80-120	13-OCT-20
Silicon (Si)-Total			101.8		%		80-120	13-OCT-20
Silver (Ag)-Total			98.7		%		80-120	13-OCT-20
Sodium (Na)-Total			98.6		%		80-120	13-OCT-20
Strontium (Sr)-Total			98.6		%		80-120	13-OCT-20
Sulfur (S)-Total			108.0		%		80-120	13-OCT-20
Tellurium (Te)-Total			93.8		%		80-120	13-OCT-20
Thallium (Tl)-Total			100.7		%		80-120	13-OCT-20
Thorium (Th)-Total			94.7		%		80-120	13-OCT-20
Tin (Sn)-Total			98.3		%		80-120	13-OCT-20
Titanium (Ti)-Total			95.3		%		80-120	13-OCT-20
Tungsten (W)-Total			101.3		%		80-120	13-OCT-20
Uranium (U)-Total			98.2		%		80-120	13-OCT-20
Vanadium (V)-Total			100.2		%		80-120	13-OCT-20
Zinc (Zn)-Total			100.2		%		80-120	13-OCT-20
Zirconium (Zr)-Total			93.4		%		80-120	13-OCT-20
WG3422414-2 LCS								
Aluminum (Al)-Total			103.1		%		80-120	13-OCT-20
Antimony (Sb)-Total			103.8		%		80-120	13-OCT-20
Arsenic (As)-Total			100.7		%		80-120	13-OCT-20
Barium (Ba)-Total			100.1		%		80-120	13-OCT-20
Beryllium (Be)-Total			100.3		%		80-120	13-OCT-20
Bismuth (Bi)-Total			101.0		%		80-120	13-OCT-20
Boron (B)-Total			98.1		%		80-120	13-OCT-20
Cadmium (Cd)-Total			100.1		%		80-120	13-OCT-20
Calcium (Ca)-Total			94.1		%		80-120	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422414-2 LCS								
Cesium (Cs)-Total			97.3		%		80-120	13-OCT-20
Chromium (Cr)-Total			100.5		%		80-120	13-OCT-20
Cobalt (Co)-Total			98.9		%		80-120	13-OCT-20
Copper (Cu)-Total			99.4		%		80-120	13-OCT-20
Iron (Fe)-Total			94.0		%		80-120	13-OCT-20
Lead (Pb)-Total			98.6		%		80-120	13-OCT-20
Lithium (Li)-Total			101.5		%		80-120	13-OCT-20
Magnesium (Mg)-Total			108.6		%		80-120	13-OCT-20
Manganese (Mn)-Total			99.7		%		80-120	13-OCT-20
Molybdenum (Mo)-Total			101.3		%		80-120	13-OCT-20
Nickel (Ni)-Total			96.9		%		80-120	13-OCT-20
Potassium (K)-Total			96.9		%		80-120	13-OCT-20
Phosphorus (P)-Total			104.1		%		80-120	13-OCT-20
Rubidium (Rb)-Total			97.0		%		80-120	13-OCT-20
Selenium (Se)-Total			98.0		%		80-120	13-OCT-20
Silicon (Si)-Total			101.0		%		80-120	13-OCT-20
Silver (Ag)-Total			99.7		%		80-120	13-OCT-20
Sodium (Na)-Total			101.7		%		80-120	13-OCT-20
Strontium (Sr)-Total			100.0		%		80-120	13-OCT-20
Sulfur (S)-Total			109.6		%		80-120	13-OCT-20
Tellurium (Te)-Total			101.0		%		80-120	13-OCT-20
Thallium (Tl)-Total			99.2		%		80-120	13-OCT-20
Thorium (Th)-Total			91.3		%		80-120	13-OCT-20
Tin (Sn)-Total			100.5		%		80-120	13-OCT-20
Titanium (Ti)-Total			95.8		%		80-120	13-OCT-20
Tungsten (W)-Total			101.1		%		80-120	13-OCT-20
Uranium (U)-Total			95.9		%		80-120	13-OCT-20
Vanadium (V)-Total			100.8		%		80-120	13-OCT-20
Zinc (Zn)-Total			98.7		%		80-120	13-OCT-20
Zirconium (Zr)-Total			93.3		%		80-120	13-OCT-20
WG3422412-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	13-OCT-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422412-1 MB								
Barium (Ba)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Boron (B)-Total			<0.010		mg/L		0.01	13-OCT-20
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	13-OCT-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	13-OCT-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	13-OCT-20
Iron (Fe)-Total			<0.010		mg/L		0.01	13-OCT-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	13-OCT-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	13-OCT-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	13-OCT-20
Potassium (K)-Total			<0.050		mg/L		0.05	13-OCT-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	13-OCT-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Silicon (Si)-Total			<0.10		mg/L		0.1	13-OCT-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Sodium (Na)-Total			<0.050		mg/L		0.05	13-OCT-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Sulfur (S)-Total			<0.50		mg/L		0.5	13-OCT-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	13-OCT-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422412-1 MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	13-OCT-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	13-OCT-20
WG3422414-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	13-OCT-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Boron (B)-Total			<0.010		mg/L		0.01	13-OCT-20
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	13-OCT-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	13-OCT-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	13-OCT-20
Iron (Fe)-Total			<0.010		mg/L		0.01	13-OCT-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	13-OCT-20
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	13-OCT-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	13-OCT-20
Potassium (K)-Total			<0.050		mg/L		0.05	13-OCT-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	13-OCT-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	13-OCT-20
Silicon (Si)-Total			<0.10		mg/L		0.1	13-OCT-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Sodium (Na)-Total			<0.050		mg/L		0.05	13-OCT-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Sulfur (S)-Total			<0.50		mg/L		0.5	13-OCT-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	13-OCT-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	13-OCT-20

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5253823								
WG3422414-1 MB								
Thorium (Th)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	13-OCT-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	13-OCT-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	13-OCT-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	13-OCT-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	13-OCT-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	13-OCT-20
N-TOTKJ-WP	**Water**							
Batch R5255083								
WG3423202-11 DUP		**L2514453-10**						
Total Kjeldahl Nitrogen		<0.20	<0.20	RPD-NA	mg/L	N/A	20	15-OCT-20
WG3423202-10 LCS								
Total Kjeldahl Nitrogen			100.4		%		75-125	15-OCT-20
WG3423202-6 LCS								
Total Kjeldahl Nitrogen			98.1		%		75-125	15-OCT-20
WG3423202-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	15-OCT-20
WG3423202-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	15-OCT-20
WG3423202-12 MS		**L2514453-10**						
Total Kjeldahl Nitrogen			98.8		%		70-130	15-OCT-20
NH3-COL-WP	**Water**							
Batch R5252695								
WG3422384-2 LCS								
Ammonia, Total (as N)			98.8		%		85-115	09-OCT-20
WG3422384-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	09-OCT-20
NO2-IC-N-WP	**Water**							
Batch R5253367								
WG3421857-2 LCS								
Nitrite (as N)			101.0		%		90-110	09-OCT-20
WG3421857-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	09-OCT-20
NO3-IC-N-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-WP	**Water**							
Batch R5253367								
WG3421857-2 LCS								
Nitrate (as N)			102.2		%		90-110	09-OCT-20
WG3421857-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	09-OCT-20
P-T-COL-WP	**Water**							
Batch R5254604								
WG3423737-2 LCS								
Phosphorus (P)-Total			95.7		%		80-120	14-OCT-20
WG3423737-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	14-OCT-20
P-T-L-COL-WP	**Water**							
Batch R5254924								
WG3424749-2 LCS								
Phosphorus (P)-Total			87.7		%		80-120	15-OCT-20
WG3424749-1 MB								
Phosphorus (P)-Total			<0.0010		mg/L		0.001	15-OCT-20
P-TD-COL-WP	**Water**							
Batch R5254604								
WG3423727-2 LCS								
Phosphorus (P)-Total	Dissolved		94.4		%		80-120	14-OCT-20
WG3423727-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0030		mg/L		0.003	14-OCT-20
P-TD-L-COL-WP	**Water**							
Batch R5254924								
WG3424714-2 LCS								
Phosphorus (P)-Total	Dissolved		85.1		%		80-120	15-OCT-20
WG3424714-1 MB								
Phosphorus (P)-Total	Dissolved		<0.0010		mg/L		0.001	15-OCT-20
SO4-IC-N-WP	**Water**							
Batch R5253367								
WG3421857-2 LCS								
Sulfate (SO4)			103.2		%		90-110	09-OCT-20
WG3421857-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	09-OCT-20
SOLIDS-TOTSUS-LR-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-LR-WP	**Water**							
Batch R5254168								
WG3423019-2 LCS								
Total Suspended Solids			100.6		%		85-115	13-OCT-20
WG3423019-1 MB								
Total Suspended Solids			<1.0		mg/L		1	13-OCT-20
TC,EC-QT97-WP	**Water**							
Batch R5252343								
WG3421357-1 MB								
Total Coliforms			<1		MPN/100mL		1	08-OCT-20
Escherichia Coli			<1		MPN/100mL		1	08-OCT-20
TDS-WP	**Water**							
Batch R5254799								
WG3423020-2 LCS								
Total Dissolved Solids			95.1		%		85-115	13-OCT-20
WG3423020-5 LCS								
Total Dissolved Solids			94.3		%		85-115	13-OCT-20
WG3423020-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	13-OCT-20
WG3423020-4 MB								
Total Dissolved Solids			<4.0		mg/L		4	13-OCT-20

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.
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

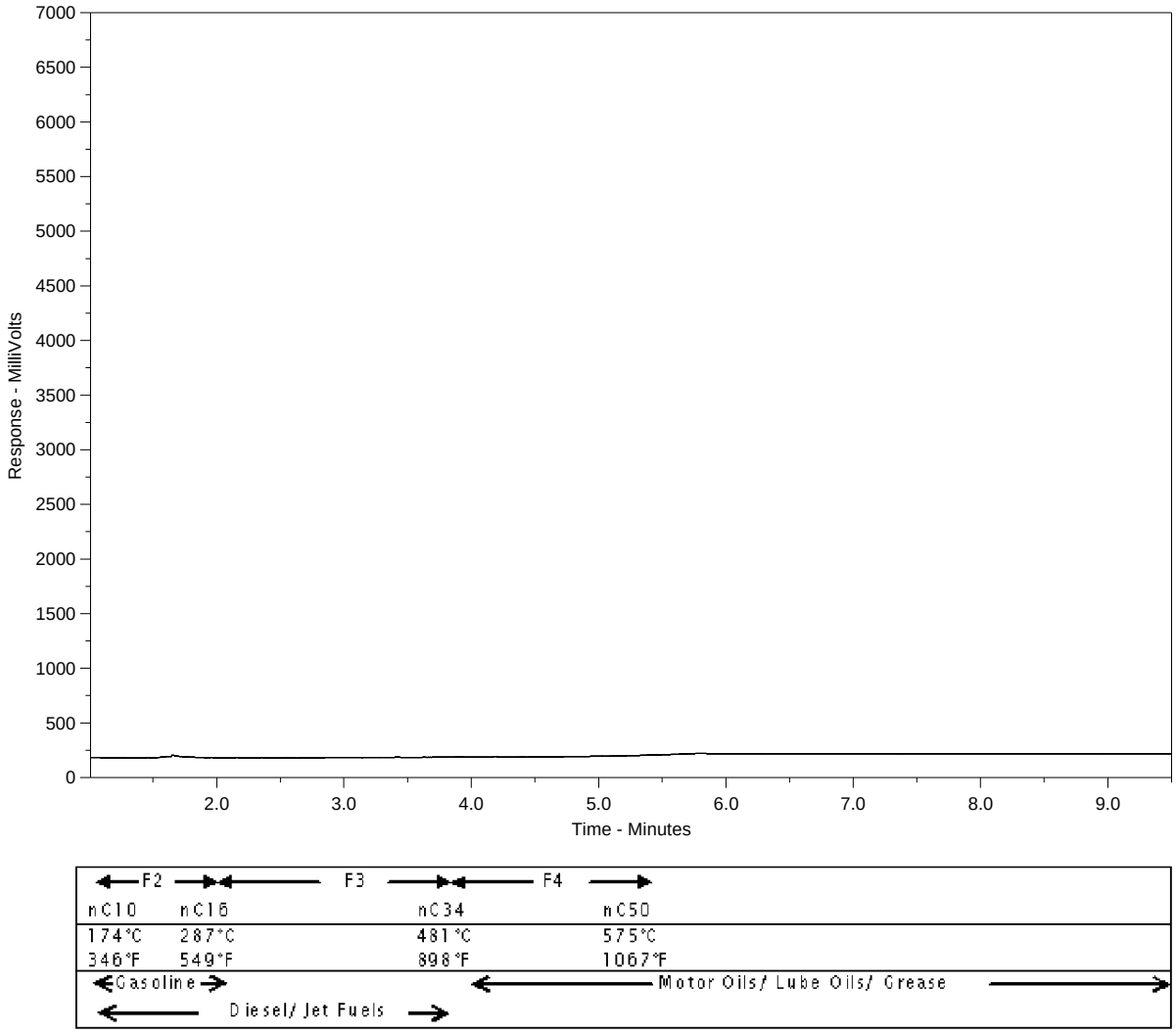
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2514453-1
Client Sample ID: D4



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

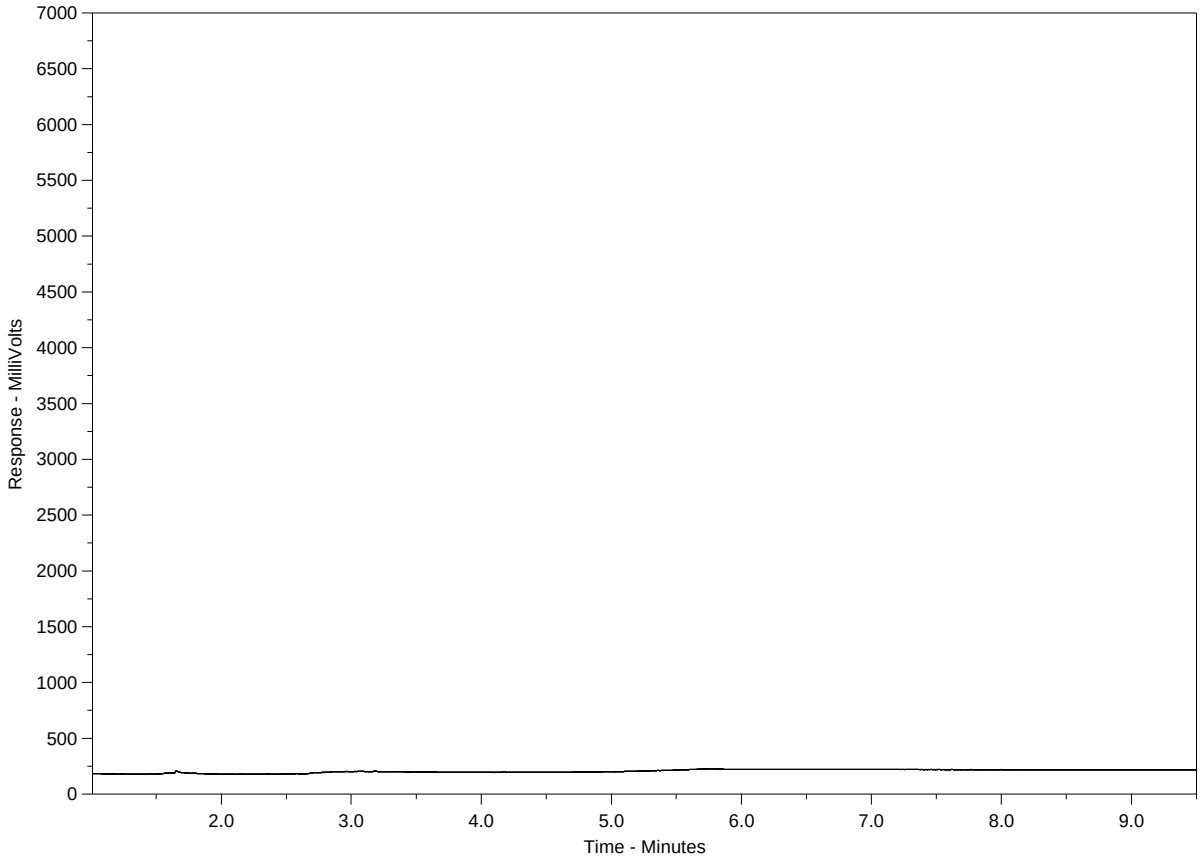
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

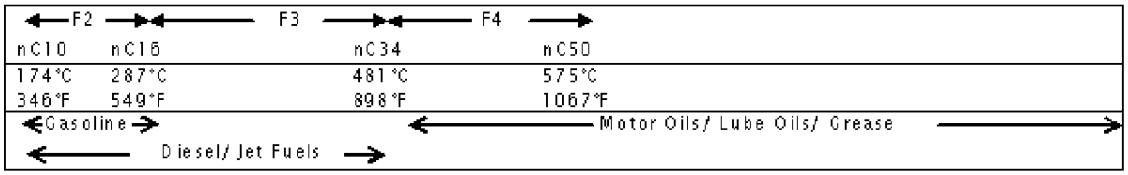
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2514453-2
Client Sample ID: CH19-37





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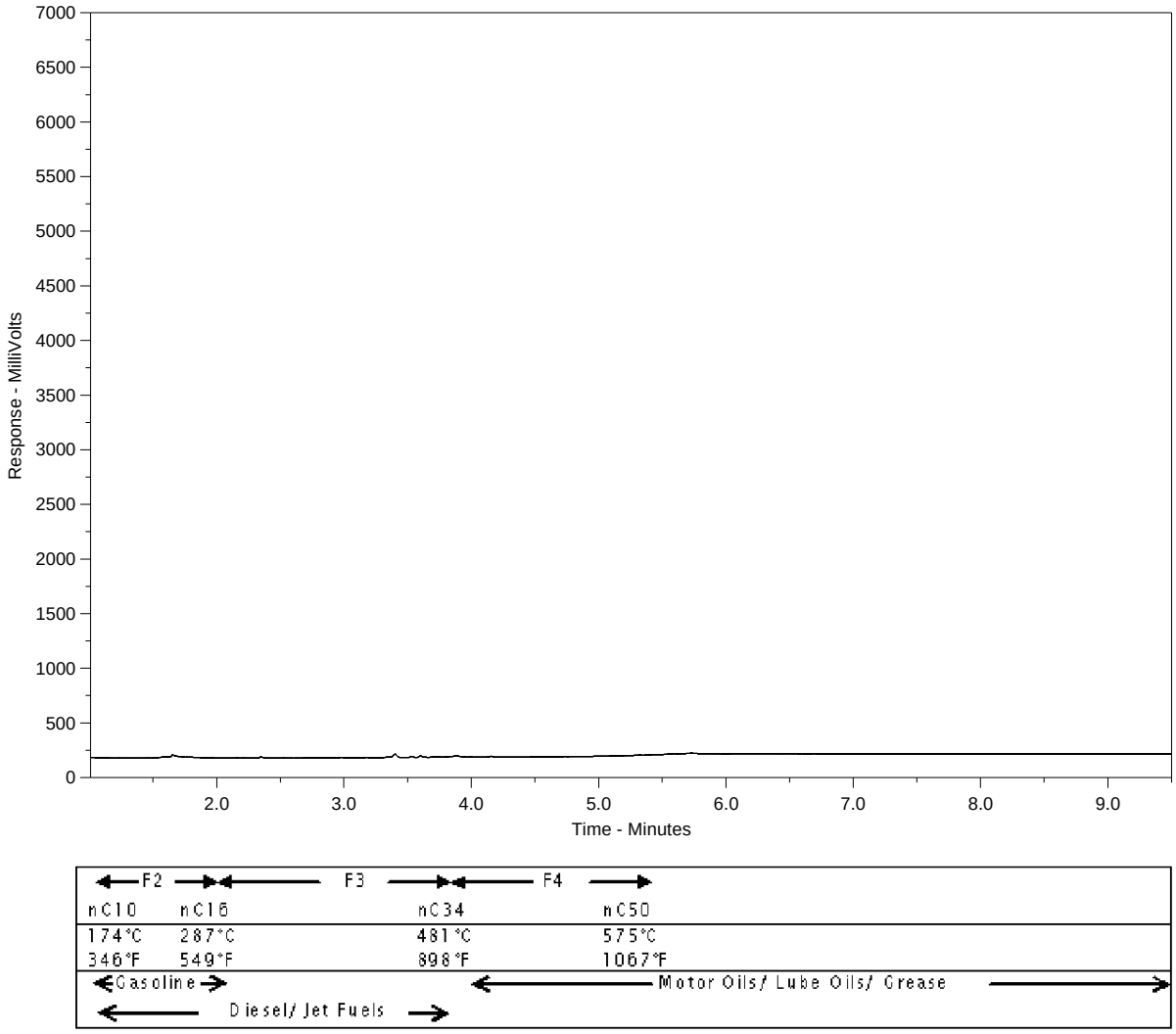
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2514453-3
Client Sample ID: D3



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

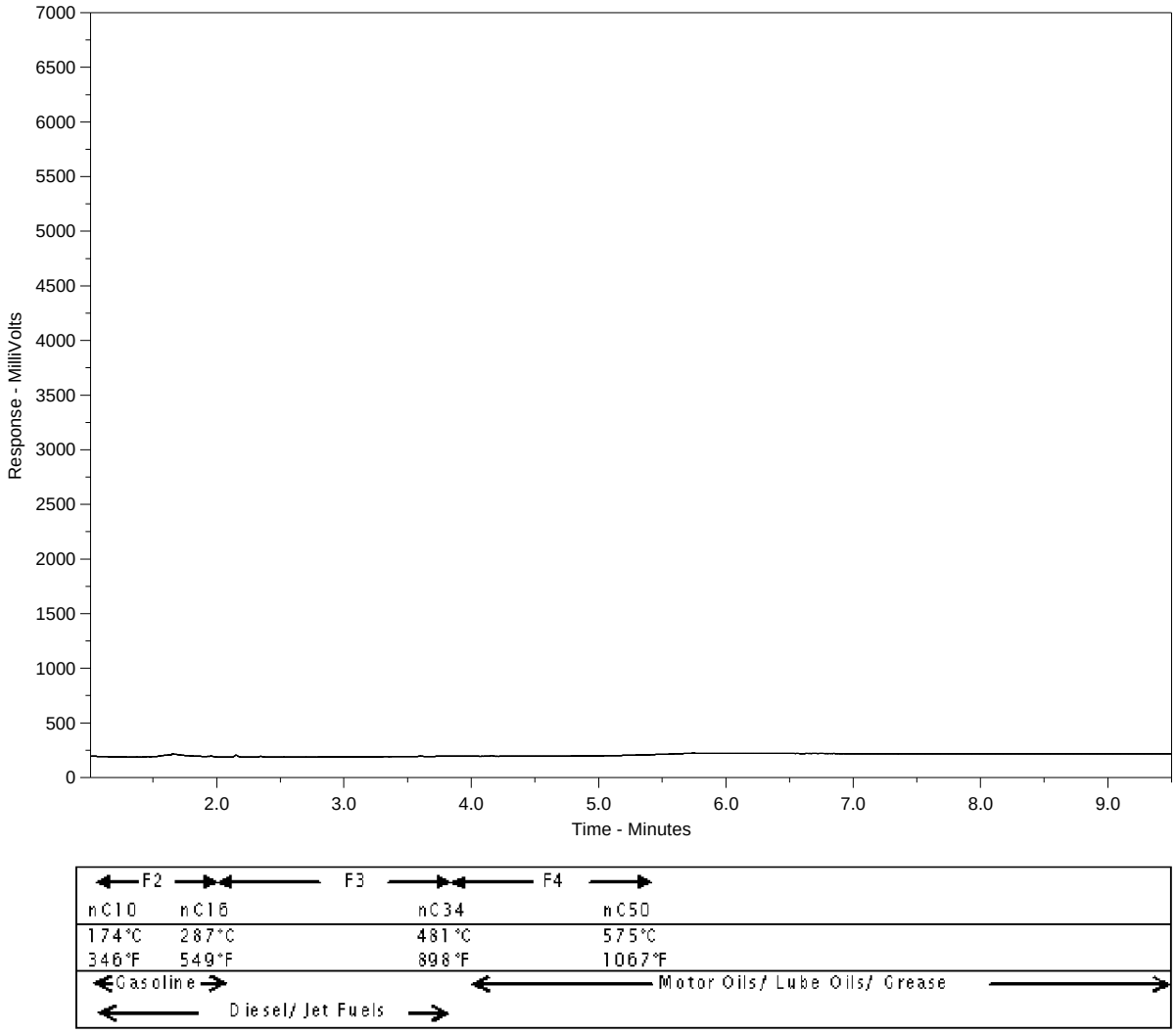
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2514453-4
Client Sample ID: D10



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

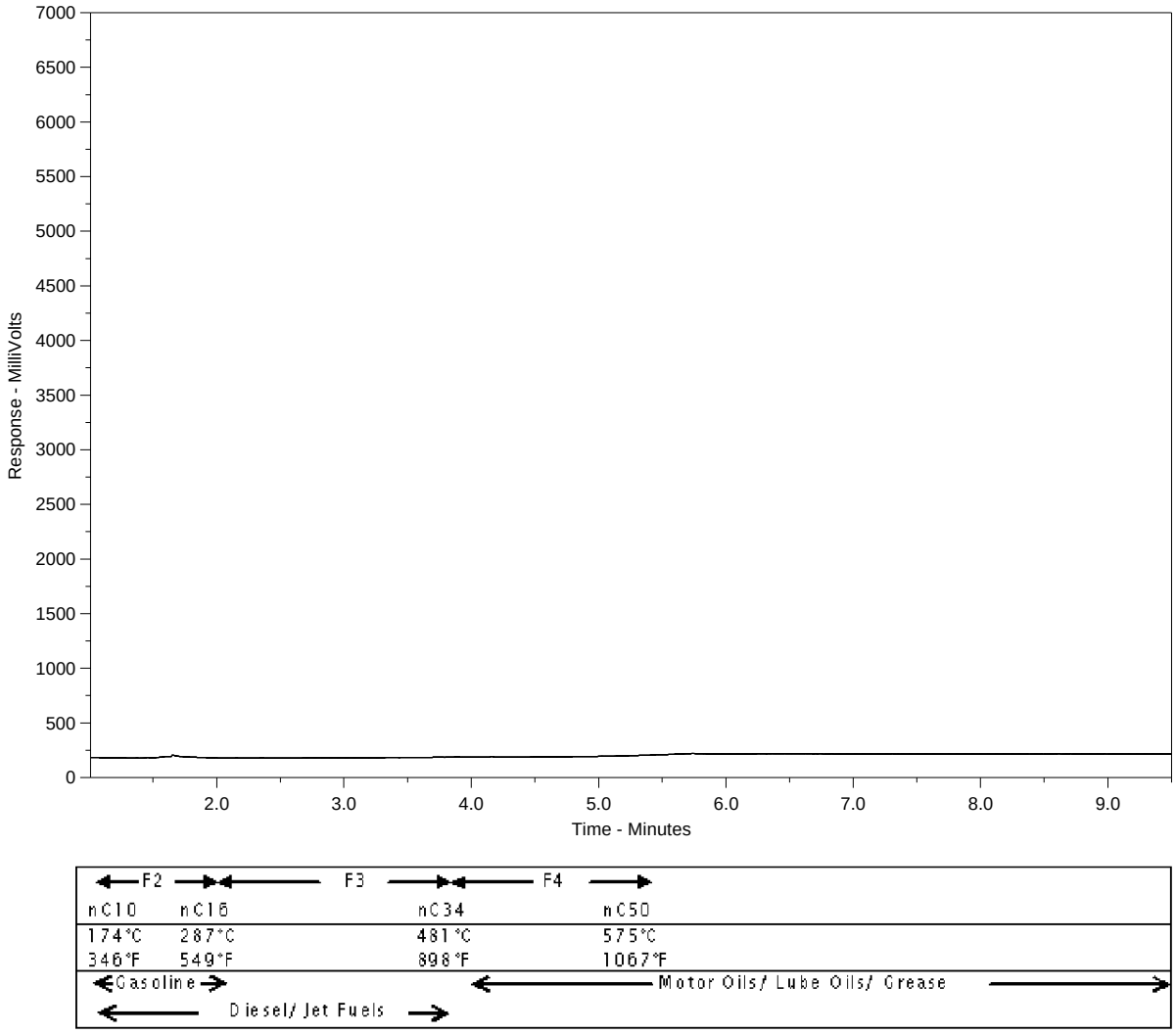
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2514453-5
Client Sample ID: D1



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

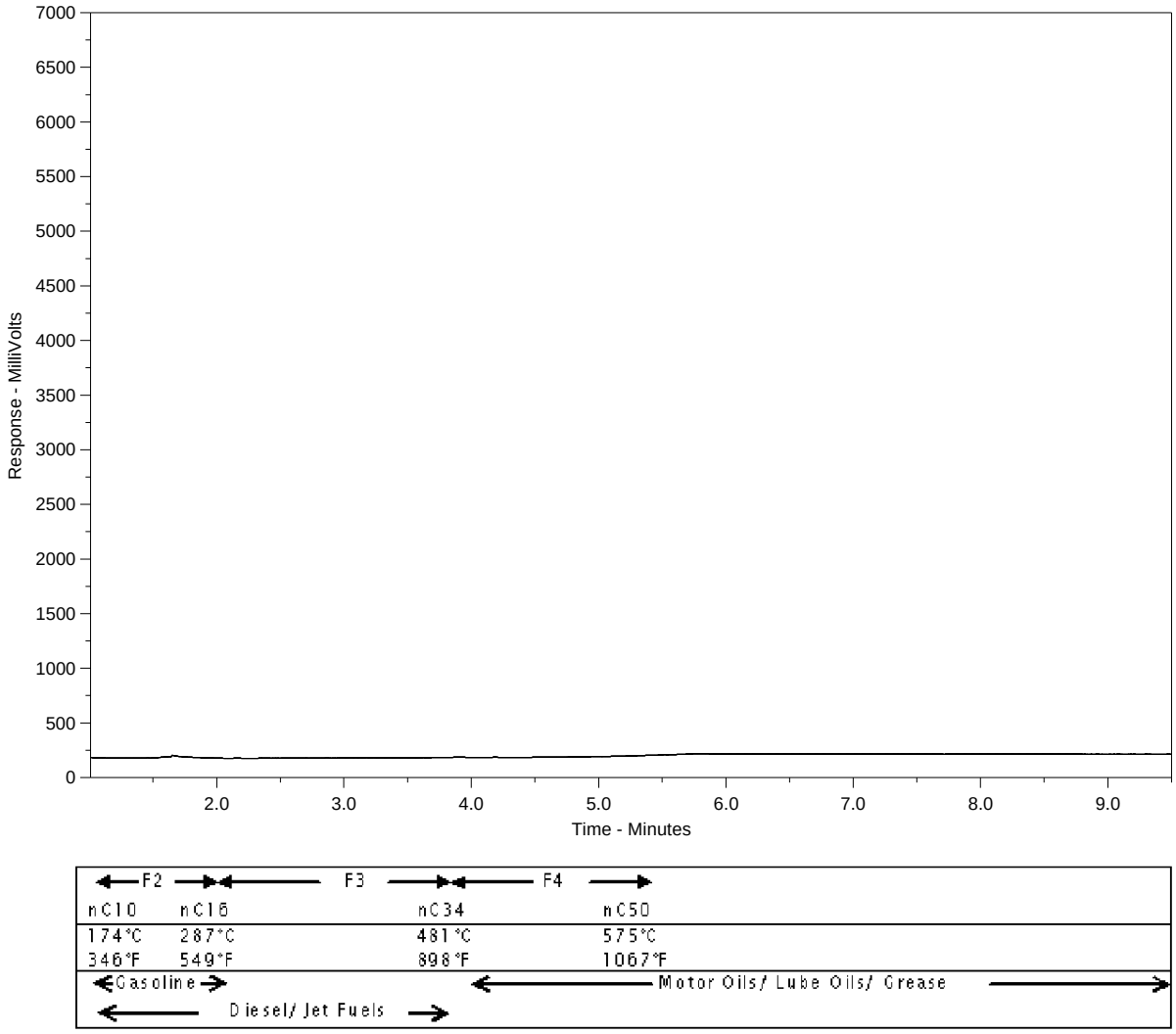
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2514453-6
Client Sample ID: SW0



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

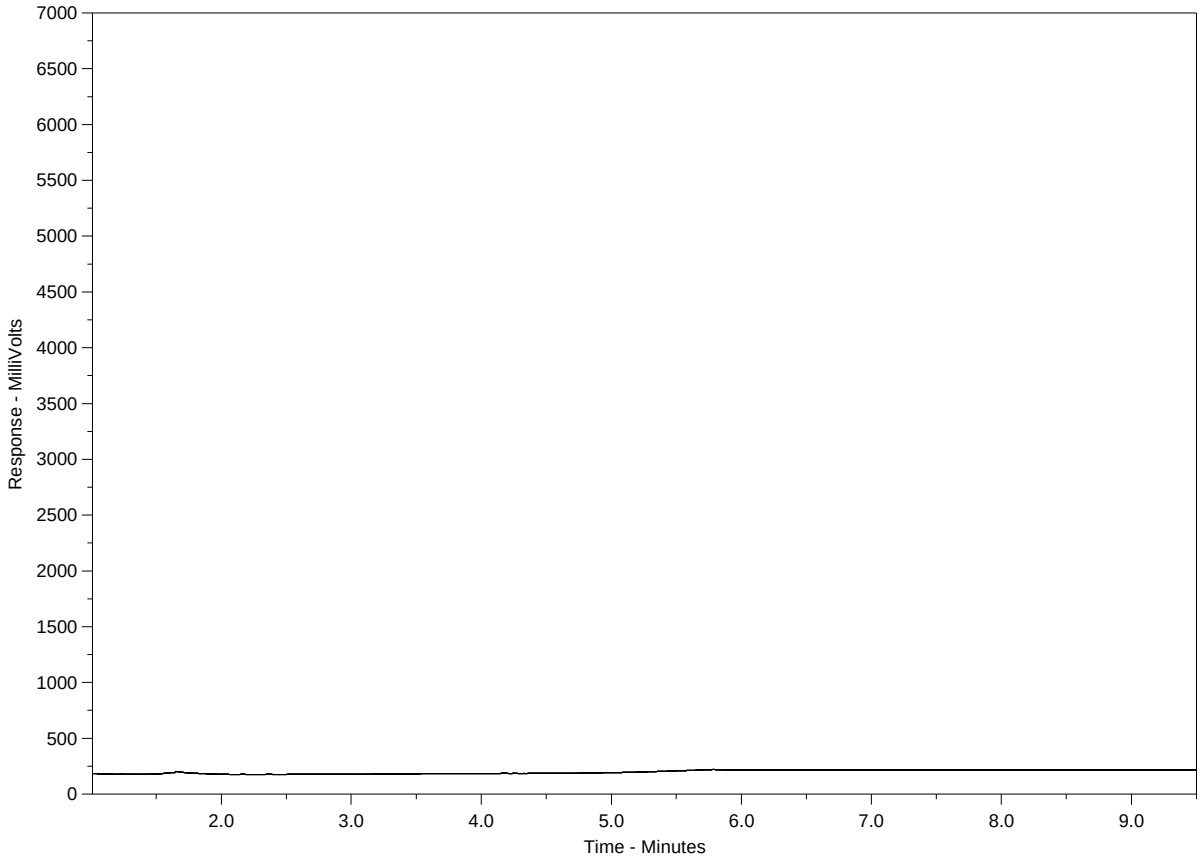
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

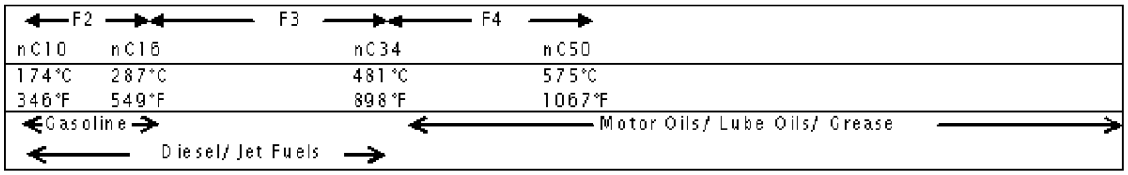
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2514453-7
Client Sample ID: FIELD BLANK





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

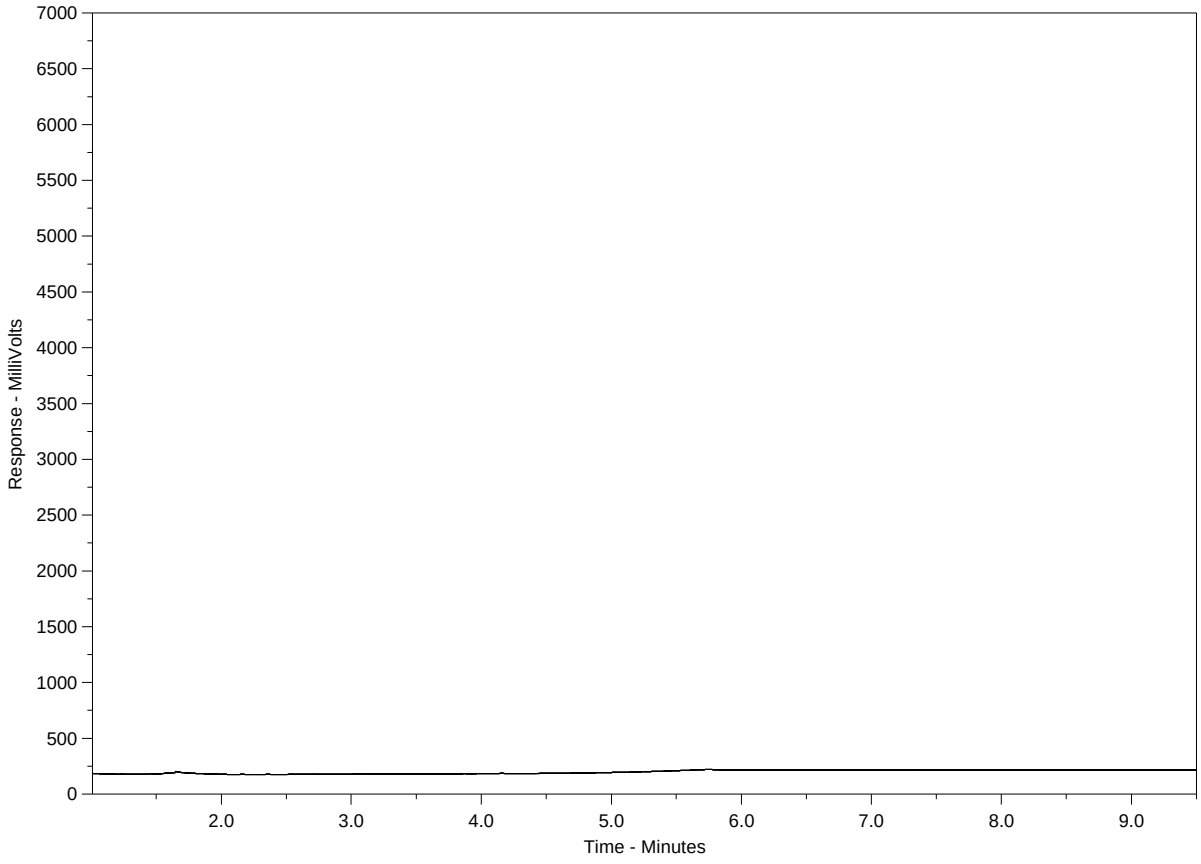
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

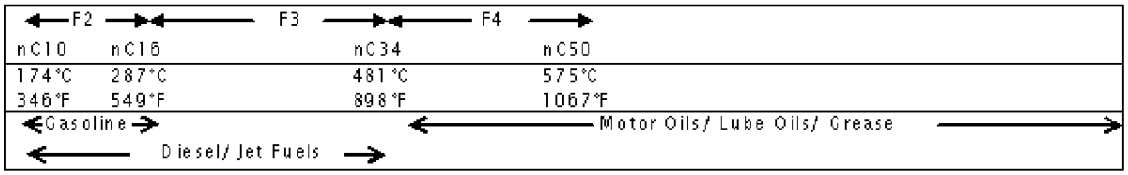
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2514453-8
Client Sample ID: TRIP BLANK





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

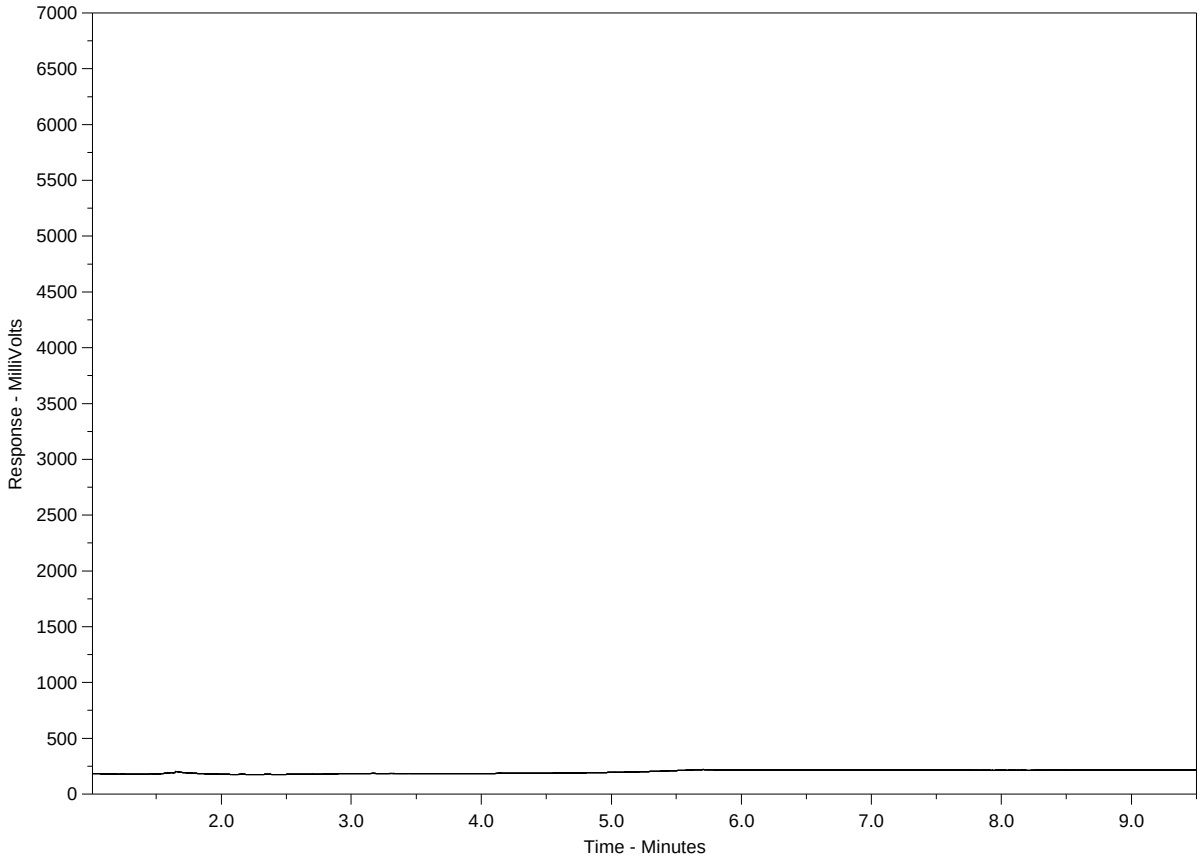
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

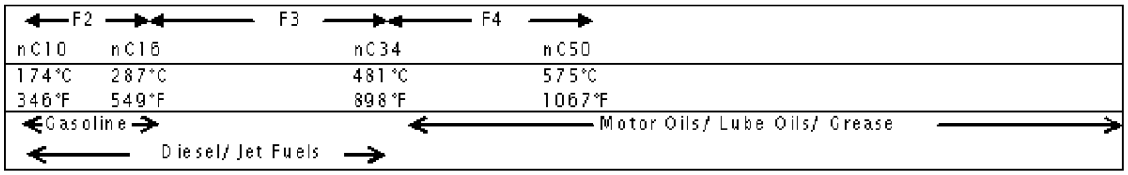
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2514453-9
Client Sample ID: OW19-40





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

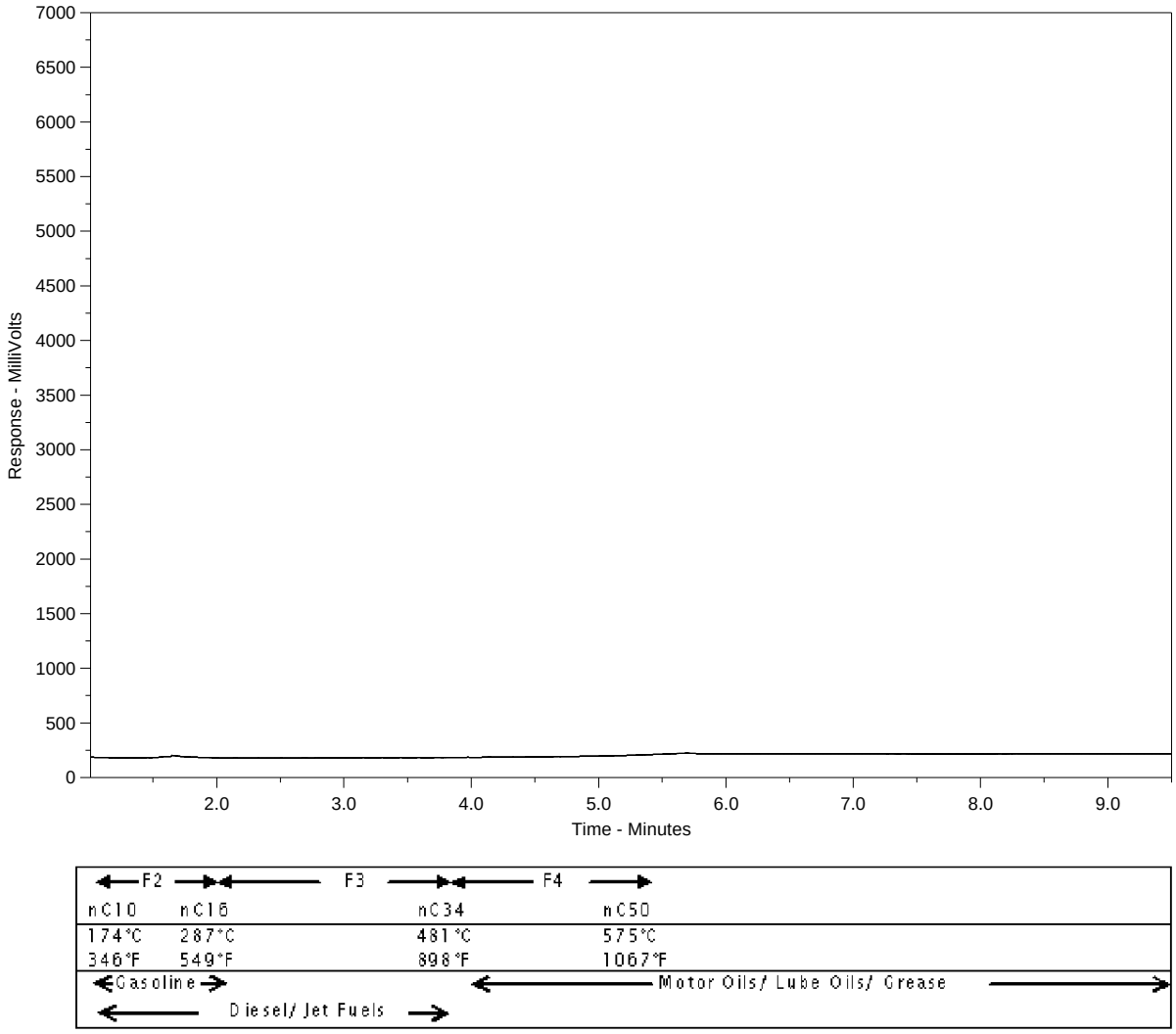
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2514453-10
Client Sample ID: OW19-23



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

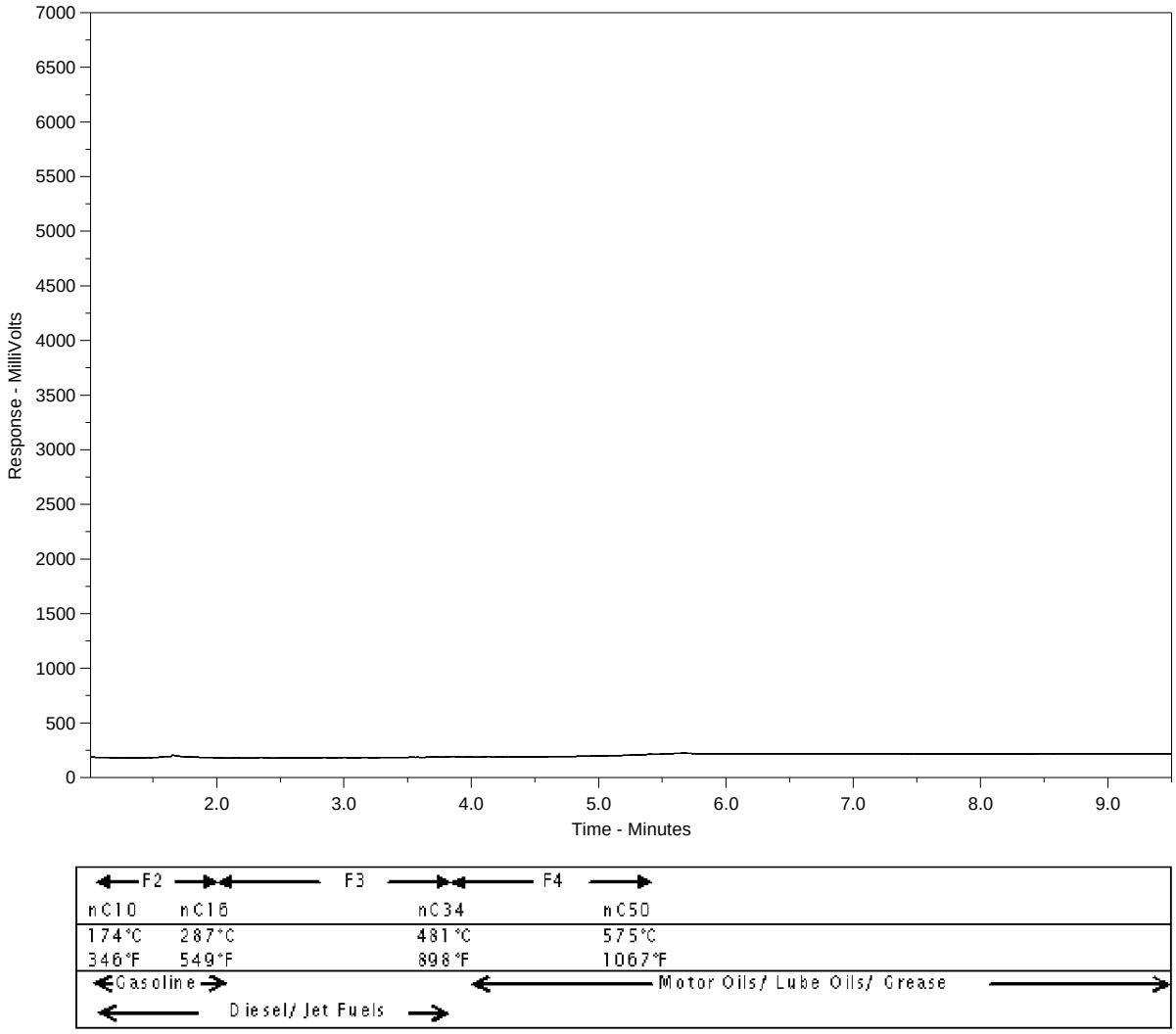
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2514453-11
Client Sample ID: D9



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.

ALS Environmental

L2514453-COFC

COC # [redacted]

L2514453 Page ___ of ___

Report To				R		Service Requested (Rush for routine analysis subject to availability)
Company:	Stantec - W2077			☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	TASSIA STAINTON			☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	500 - 311 Portage Ave			Email 1: tassia.stainton@stantec.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Winnipeg, MB R3B 2B9			Email 2: karen.mathers@stantec.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	204-982-7615	Fax:		Email 3:		Analysis Request
Invoice To	Same as Report ? ☑ Yes	☐ No		Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes	☐ No		Job #: 111475107.1714.2404.200		
Company:				PO / AFE:		
Contact:				LSD:		
Address:						
Phone:		Fax:		Quote #: Q74061		
Lab Work Order # (lab use only)	[redacted]			ALS Contact:	Sampler:	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-SPEC-WP	ANIONS-IC-N-WP	BTX,F1-F4-WP (P)	ETL-N-TOT-ANY-WP (P)	HARDNESS-CALC-WP	MET-D-CCMS-WP (F/P)	MET-T-CCMS-WP (P)	NH3-COL-WP + N-TOTKJ-W (P)	P-T-COL-WP + P-TD-COL-W (P)	P-TPART-CALC-WP (P)	TSS + TDS	TC,EC-QT97-WP (P)	Number of Containers
1	D4	07-10-20	12:00	water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
2	CH19-37		13:55														
3	D3		15:25														
4	D10		17:05														
5	D1	08-10-20	9:20														
6	SW0		—														
7	Field Blank		—														
8	TRip Blank		—														
9	OW19-40		10:30														
10	OW19-23		11:30														
11	D9		12:45														
[redacted]																	

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	08/10/20	16:25	CE	Oct 8/20	4:30 pm	12.6°C				

GENF 18.01 Front

Appendix D PREDESIGN GROUNDWATER MONITORING

Table D-1 Summary of Station Information for Vibrating Wire Piezometer Manual Groundwater Level Readings from 2019-2020

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW #1403291	15-RD-03A (KGS)	177+30	6/19/2015	5697489.00	530991.00	251.86	10.36	241.50	#N/A	#N/A	#N/A	#N/A	Sand
VW #1404249	15-RD-10A (KGS)	183+90	6/18/2015	5698130.00	531200.00	248.87	7.62	241.25	#N/A	#N/A	#N/A	#N/A	Clay
VW #1602923	TH-GD-06 (KGS)	176+50	10/24/2016	5697400.98	531025.08	251.92	10.67	241.25	#N/A	#N/A	#N/A	#N/A	Till
VW #1602924	TH-GD-05 (KGS)	Outside of ROW	10/17/2016	5693350.95	530617.18	248.66	6.71	241.95	#N/A	#N/A	#N/A	#N/A	Till
VW #1602931	TH-ED-03 (KGS)	Outside of ROW	10/18/2016	5693404.42	529670.69	252.22	6.10	246.12	#N/A	#N/A	#N/A	#N/A	Till
VW #1602932	TH-ED-01P (KGS)	123+10	10/20/2016	5692376.38	530502.82	249.43	6.10	243.34	#N/A	#N/A	#N/A	#N/A	Till
VW #1602935	TH-GD-02 (KGS)	Outside of ROW	10/30/2016	5683632.07	531290.40	248.63	6.91	241.72	#N/A	#N/A	#N/A	#N/A	Till
VW #1602937	TH-GD-07 (KGS)	Outside of ROW	10/26/2016	5699453.66	531900.65	252.05	12.19	239.85	#N/A	#N/A	#N/A	#N/A	Till
VW #1602938	TH-GD-08 (KGS)	Outside of ROW	10/28/2016	5701521.62	532917.21	246.81	7.32	239.49	#N/A	#N/A	#N/A	#N/A	Till
VW #1602939	TH-ED-01P (KGS)	123+10	10/20/2016	5692376.38	530502.82	249.43	10.67	238.76	#N/A	#N/A	#N/A	#N/A	Till
VW #1602940	TH-GD-08 (KGS)	Outside of ROW	10/28/2016	5701521.62	532917.21	246.81	11.58	235.22	#N/A	#N/A	#N/A	#N/A	Sand
VW19-01	CH19-01	250+00	5/14/2019	5703759.11	533816.34	246.16	13.41	232.75	12.83	13.74	233.33	232.42	Bedrock
VW19-02	CH19-02	148+80	5/14/2019	5694628.16	531086.36	250.01	15.72	234.29	14.81	16.03	235.20	233.98	Bedrock
VW19-03	CH19-03	160+00	5/15/2019	5695756.50	531159.91	248.45	21.26	227.19	21.03	21.56	227.42	226.88	Bedrock
VW19-04	CH19-04	245+00	5/16/2019	5703393.95	533474.01	246.52	15.85	230.67	#N/A	#N/A	#N/A	#N/A	Sand
VW19-05A	OW19-05A	169+00	5/17/2019	5696655.87	531016.51	250.48	25.91	224.58	#N/A	#N/A	#N/A	#N/A	Till
VW19-05B	OW19-05A	169+00	5/17/2019	5696655.87	531016.51	250.48	28.04	222.44	#N/A	#N/A	#N/A	#N/A	Till
VW19-05C	OW19-05	169+00	5/23/2019	5696654.93	531018.72	250.47	33.68	216.79	27.43	34.14	223.04	216.33	Bedrock
VW19-07A	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	21.95	228.80	#N/A	#N/A	#N/A	#N/A	Till
VW19-07B	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	24.08	226.66	#N/A	#N/A	#N/A	#N/A	Till
VW19-07C	OW19-07	169+40	5/25/2019	5696694.54	531009.78	250.74	34.29	216.45	30.18	34.75	220.57	216.00	Bedrock
VW19-08	CH19-08	240+00	5/17/2019	5703019.54	533153.04	247.01	16.23	230.78	14.02	16.54	232.99	230.48	Bedrock
VW19-09	CH19-09	235+00	5/21/2019	5702645.48	532817.70	247.44	9.14	238.29	8.84	9.45	238.60	237.99	Bedrock
VW19-10	CH19-10	230+00	5/23/2019	5702322.64	532401.12	246.86	11.89	234.97	11.58	12.19	235.27	234.67	Bedrock
VW19-11	CH19-11	210+00	5/25/2019	5700332.25	532342.88	248.02	19.81	228.21	15.24	20.12	232.78	227.90	Bedrock
VW19-12A	BH19-12	198+10	5/26/2019	5699188.67	532052.84	249.47	6.10	243.38	#N/A	#N/A	#N/A	#N/A	Till
VW19-12B	BH19-12	198+10	5/26/2019	5699188.67	532052.84	249.47	29.11	220.36	25.91	29.26	223.57	220.21	Bedrock
VW19-13A	BH19-13	198+50	5/28/2019	5699275.58	532011.44	249.58	9.14	240.43	#N/A	#N/A	#N/A	#N/A	Till
VW19-13B	BH19-13	198+50	5/28/2019	5699275.58	532011.44	249.58	20.27	229.31	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-14A(2)	BH19-14A	199+00	9/14/2019	5699341.81	532017.03	249.88	5.94	243.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-14B	BH19-14	199+00	5/29/2019	5699339.43	532018.05	249.79	18.75	231.05	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-15A	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	12.19	237.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-15B	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	18.29	231.30	#N/A	#N/A	#N/A	#N/A	Sand
VW19-15C	BH19-15	198+55	5/29/2019	5699254.25	532059.35	249.59	29.41	220.17	23.47	29.57	226.12	220.02	Bedrock
VW19-16A	OW19-16A	221+60	5/26/2019	5701488.40	532342.19	248.79	4.62	244.17	#N/A	#N/A	#N/A	#N/A	Till
VW19-16B	OW19-16A	221+60	5/26/2019	5701488.40	532342.19	248.79	6.07	242.72	#N/A	#N/A	#N/A	#N/A	Till
VW19-16C	OW19-16	221+60	5/26/2019	5701488.07	532343.62	248.79	13.74	235.04	9.45	14.17	239.34	234.61	Bedrock
VW19-18A	OW19-18A	221+60	5/29/2019	5701488.31	532304.66	248.96	4.57	244.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-18B	OW19-18A	221+60	5/29/2019	5701488.31	532304.66	248.96	6.35	242.61	#N/A	#N/A	#N/A	#N/A	Till
VW19-18C	OW19-18	221+60	5/29/2019	5701488.29	532303.52	248.92	13.72	235.21	7.92	14.17	241.00	234.75	Bedrock
VW19-19A	BH19-19A	221+60	5/28/2019	5701487.82	532247.07	248.79	5.64	243.15	#N/A	#N/A	#N/A	#N/A	Till

Table D-1 Summary of Station Information for Vibrating Wire Piezometer Manual Groundwater Level Readings from 2019-2020

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW19-19B	BH19-19	221+60	5/27/2019	5701487.44	532245.43	248.81	9.60	239.21	8.23	10.97	240.58	237.84	Bedrock
VW19-20	BH19-20	221+80	5/30/2019	5701514.58	532271.00	248.91	13.36	235.55	12.50	13.82	236.41	235.09	Bedrock
VW19-21	CH19-21	180+00	6/4/2019	5697754.72	531145.81	248.97	33.68	215.28	32.46	33.99	216.50	214.98	Bedrock
VW19-23A	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	14.02	234.68	#N/A	#N/A	#N/A	#N/A	Till
VW19-23B	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	16.15	232.55	#N/A	#N/A	#N/A	#N/A	Sand
VW19-23C	OW19-23	80+10	6/5/2019	5688132.36	530694.83	248.70	22.71	225.99	17.07	23.16	231.63	225.54	Bedrock
VW19-24A	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	16.21	232.97	#N/A	#N/A	#N/A	#N/A	Till
VW19-24B	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	18.34	230.83	#N/A	#N/A	#N/A	#N/A	Till
VW19-24C	OW19-24	80+50	6/5/2019	5688173.84	530694.36	249.17	23.62	225.55	19.25	24.08	229.92	225.09	Bedrock
VW19-25A	BH19-25	34+80	6/6/2019	5683628.85	530730.99	248.65	12.19	236.46	#N/A	#N/A	#N/A	#N/A	Till
VW19-25B	BH19-25	34+80	6/6/2019	5683628.85	530730.99	248.65	22.25	226.40	14.02	22.86	234.63	225.79	Bedrock
VW19-26A	BH19-26	34+80	6/9/2019	5683629.30	530756.10	248.43	6.10	242.34	#N/A	#N/A	#N/A	#N/A	Till
VW19-26B	BH19-26	34+80	6/9/2019	5683629.30	530756.10	248.43	24.08	224.35	11.89	24.38	236.54	224.05	Bedrock
VW19-27A	BH19-27	34+80	6/12/2019	5683629.75	530812.09	248.03	15.54	232.49	#N/A	#N/A	#N/A	#N/A	Till
VW19-27B	BH19-27	34+80	6/12/2019	5683629.75	530812.09	248.03	21.49	226.54	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-28A	BH19-28	133+10	6/13/2019	5693379.97	530371.38	248.59	6.10	242.49	5.49	14.33	243.10	234.26	Till
VW19-28B	BH19-28	133+10	6/13/2019	5693379.97	530371.38	248.59	24.23	224.36	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-29A(2)	BH19-29A	133+40	9/6/2019	5693404.53	530338.39	248.63	9.60	239.02	#N/A	#N/A	#N/A	#N/A	Till
VW19-29B	BH19-29	133+40	6/7/2019	5693404.53	530338.39	248.63	23.93	224.70	17.98	24.38	230.64	224.24	Bedrock
VW19-30A	BH19-30	133+40	6/9/2019	5693404.88	530413.04	248.62	15.24	233.38	#N/A	#N/A	#N/A	#N/A	Sand
VW19-30B	BH19-30	133+40	6/9/2019	5693404.88	530413.04	248.62	27.64	220.98	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-31A	BH19-31	133+10	6/10/2019	5693379.56	530446.46	248.61	12.19	236.42	#N/A	#N/A	#N/A	#N/A	Till
VW19-31B	BH19-31	133+10	6/10/2019	5693379.56	530446.46	248.61	21.34	227.27	#N/A	#N/A	#N/A	#N/A	Bedrock
VW19-32A	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	4.57	244.64	#N/A	#N/A	#N/A	#N/A	Till
VW19-32B	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	12.19	237.02	#N/A	#N/A	#N/A	#N/A	Till
VW19-32C	CH19-32	189+60	9/23/2019	5698620.86	531420.84	249.22	22.56	226.66	22.25	22.86	226.97	226.36	Bedrock
VW19-33A	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	6.10	242.53	#N/A	#N/A	#N/A	#N/A	Till
VW19-33B	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	16.76	231.86	#N/A	#N/A	#N/A	#N/A	Sand
VW19-33C	CH19-33	110+00	9/18/2019	5691066.09	530428.12	248.63	28.27	220.35	27.97	28.58	220.66	220.05	Bedrock
VW19-34	CH19-34	99+10	9/16/2019	5690010.47	530621.89	249.17	19.99	229.18	19.69	20.29	229.48	228.87	Bedrock
VW19-35A	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	6.06	242.69	#N/A	#N/A	#N/A	#N/A	Till
VW19-35B	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	14.29	234.46	#N/A	#N/A	#N/A	#N/A	Till
VW19-35C	CH19-35	90+00	9/14/2019	5689127.47	530715.70	248.75	22.52	226.23	21.49	22.82	227.26	225.93	Bedrock
VW19-36A	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	11.47	237.26	#N/A	#N/A	#N/A	#N/A	Till
VW19-36B	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	18.58	230.15	#N/A	#N/A	#N/A	#N/A	Sand
VW19-36C	CH19-36	69+90	9/12/2019	5687117.92	530737.88	248.73	23.81	224.92	23.01	24.38	225.72	224.34	Bedrock
VW19-37	CH19-37	60+00	9/9/2019	5686125.84	530835.47	248.34	19.35	228.98	18.29	20.12	230.05	228.22	Bedrock
VW19-38	CH19-38	50+00	9/7/2019	5685153.57	530717.15	249.19	24.38	224.81	23.16	24.69	226.03	224.50	Bedrock
VW19-40A	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	6.50	241.41	#N/A	#N/A	#N/A	#N/A	Till
VW19-40B	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	13.51	234.40	#N/A	#N/A	#N/A	#N/A	Till
VW19-40B(2)	OW19-40A	30+10	9/8/2019	5683157.91	530821.98	247.95	13.88	234.07	#N/A	#N/A	#N/A	#N/A	Till

Table D-1 Summary of Station Information for Vibrating Wire Piezometer Manual Groundwater Level Readings from 2019-2020

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit
VW19-40C	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	17.63	230.28	#N/A	#N/A	#N/A	#N/A	Till
VW19-40D	OW19-40	30+10	9/5/2019	5683159.73	530824.69	247.91	22.66	225.25	18.90	24.23	229.01	223.68	Bedrock
VW19-41A	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	7.98	239.87	#N/A	#N/A	#N/A	#N/A	Till
VW19-41B	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	15.90	231.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-41B(2)	OW19-41A	30+50	9/7/2019	5683202.87	530821.74	247.87	16.05	231.81	#N/A	#N/A	#N/A	#N/A	Till
VW19-41C	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	18.03	229.81	#N/A	#N/A	#N/A	#N/A	Till
VW19-41D	OW19-41	30+50	9/6/2019	5683201.00	530824.16	247.84	22.61	225.24	19.20	25.91	228.64	221.94	Bedrock
VW19-42	CH19-42	25+00	9/7/2019	5682655.04	530751.23	248.91	7.92	240.98	#N/A	#N/A	#N/A	#N/A	Till
VW19-43A	CH19-43	20+00	9/4/2019	5682272.41	530433.18	249.26	12.50	236.77	#N/A	#N/A	#N/A	#N/A	Till
VW19-43B	CH19-43	20+00	9/4/2019	5682272.41	530433.18	249.26	21.34	227.93	21.03	21.72	228.23	227.55	Bedrock
VW19-44A	CH19-44	15+00	9/6/2019	5681816.07	530205.80	247.96	4.57	243.39	#N/A	#N/A	#N/A	#N/A	Till
VW19-44B	CH19-44	15+00	9/6/2019	5681816.07	530205.80	247.96	11.13	236.83	#N/A	#N/A	#N/A	#N/A	Till
VW19-45	CH19-45	12+90	9/5/2019	5681675.64	530040.73	248.15	16.81	231.33	16.51	17.15	231.64	231.00	Bedrock
VW19-46A	BH19-46	34+50	9/9/2019	5683589.79	530787.55	248.09	8.15	239.94	#N/A	#N/A	#N/A	#N/A	Till
VW19-46B	BH19-46	34+50	9/9/2019	5683589.79	530787.55	248.09	18.62	229.48	#N/A	#N/A	#N/A	#N/A	Bedrock

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	2.13	248.29	2.55	248.71	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	3.44	253.45	4.00	254.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	5.25	253.70	5.54	253.99	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	1.35	247.86	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	2.39	252.87	Cannot be Measured	Cannot be Measured	2.49	252.97	Cannot be Measured	Cannot be Measured
VW19-05B	OW19-05A	Till	3.84	254.32	Cannot be Measured	Cannot be Measured	3.58	254.06	Cannot be Measured	Cannot be Measured
VW19-05C	OW19-05	Bedrock	3.30	253.78	3.68	254.16	3.08	253.55	3.46	253.93
VW19-07A	OW19-07	Till	2.88	253.63	Cannot be Measured	Cannot be Measured	2.60	253.35	Cannot be Measured	Cannot be Measured
VW19-07B	OW19-07	Till	3.25	253.99	Cannot be Measured	Cannot be Measured	3.04	253.78	Cannot be Measured	Cannot be Measured
VW19-07C	OW19-07	Bedrock	4.06	254.81	3.46	254.20	3.82	254.56	3.21	253.96
VW19-08	CH19-08	Bedrock	3.03	250.05	3.56	250.57	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	3.63	251.06	3.53	250.97	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	5.50	252.36	4.91	251.77	Not Measured	Not Measured	Not Measured	Not Measured
VW19-11	CH19-11	Bedrock	5.18	253.20	5.21	253.23	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	0.95	250.43	Cannot be Measured	Cannot be Measured	0.97	250.44	Cannot be Measured	Cannot be Measured
VW19-12B	BH19-12	Bedrock	3.76	253.23	4.28	253.75	3.53	253.00	4.05	253.52
VW19-13A	BH19-13	Till	3.24	252.82	Cannot be Measured	Cannot be Measured	3.11	252.68	Cannot be Measured	Cannot be Measured
VW19-13B	BH19-13	Bedrock	3.47	253.05	Cannot be Measured	Cannot be Measured	3.29	252.87	Cannot be Measured	Cannot be Measured
VW19-14A(2)	BH19-14A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-14B	BH19-14	Bedrock	3.10	252.90	Cannot be Measured	Cannot be Measured	2.93	252.72	Cannot be Measured	Cannot be Measured
VW19-15A	BH19-15	Till	2.69	252.27	Cannot be Measured	Cannot be Measured	2.67	252.25	Cannot be Measured	Cannot be Measured
VW19-15B	BH19-15	Sand	3.52	253.10	Cannot be Measured	Cannot be Measured	3.32	252.90	Cannot be Measured	Cannot be Measured
VW19-15C	BH19-15	Bedrock	3.66	253.25	Cannot be Measured	Cannot be Measured	3.41	253.00	Cannot be Measured	Cannot be Measured
VW19-16A	OW19-16A	Till	-0.74	248.05	Cannot be Measured	Cannot be Measured	-1.48	247.31	Cannot be Measured	Cannot be Measured
VW19-16B	OW19-16A	Till	-0.77	248.02	Cannot be Measured	Cannot be Measured	-1.50	247.29	Cannot be Measured	Cannot be Measured
VW19-16C	OW19-16	Bedrock	3.07	251.86	3.54	252.33	2.97	251.76	3.44	252.23
VW19-18A	OW19-18A	Till	-0.73	248.23	Cannot be Measured	Cannot be Measured	-1.20	247.76	Cannot be Measured	Cannot be Measured
VW19-18B	OW19-18A	Till	0.03	248.99	Cannot be Measured	Cannot be Measured	-0.36	248.60	Cannot be Measured	Cannot be Measured
VW19-18C	OW19-18	Bedrock	3.10	252.02	3.38	252.31	2.93	251.85	3.21	252.13
VW19-19A	BH19-19A	Till	-0.48	248.31	Cannot be Measured	Cannot be Measured	-1.04	247.75	Cannot be Measured	Cannot be Measured
VW19-19B	BH19-19	Bedrock	3.44	252.25	Cannot be Measured	Cannot be Measured	3.21	252.02	Cannot be Measured	Cannot be Measured
VW19-20	BH19-20	Bedrock	3.14	252.04	Cannot be Measured	Cannot be Measured	2.68	251.58	Cannot be Measured	Cannot be Measured
VW19-21	CH19-21	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	3.82	252.52	Cannot be Measured	Cannot be Measured	3.83	252.53	Cannot be Measured	Cannot be Measured
VW19-23B	OW19-23	Sand	3.82	252.53	Cannot be Measured	Cannot be Measured	3.85	252.55	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	5.27	253.97	4.37	253.07	5.25	253.95	4.35	253.05
VW19-24A	OW19-24	Till	3.42	252.59	Cannot be Measured	Cannot be Measured	3.45	252.62	Cannot be Measured	Cannot be Measured
VW19-24B	OW19-24	Till	3.48	252.65	Cannot be Measured	Cannot be Measured	3.50	252.67	Cannot be Measured	Cannot be Measured
VW19-24C	OW19-24	Bedrock	3.47	252.64	3.85	253.02	3.37	252.55	3.75	252.93
VW19-25A	BH19-25	Till	1.20	249.85	Cannot be Measured	Cannot be Measured	1.54	250.19	Cannot be Measured	Cannot be Measured
VW19-25B	BH19-25	Bedrock	2.24	250.89	Cannot be Measured	Cannot be Measured	2.25	250.89	Cannot be Measured	Cannot be Measured
VW19-26A	BH19-26	Till	Not Measured	Not Measured	Not Measured	Not Measured	1.42	249.85	Cannot be Measured	Cannot be Measured
VW19-26B	BH19-26	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.78	251.22	2.93	251.36
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.99	251.02	Cannot be Measured	Cannot be Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.73	250.76	Cannot be Measured	Cannot be Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	3.51	252.10	Cannot be Measured	Cannot be Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	4.88	253.47	Cannot be Measured	Cannot be Measured
VW19-29A(2)	BH19-29A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-29B	BH19-29	Bedrock	5.08	253.70	5.39	254.02	4.98	253.60	5.29	253.92
VW19-30A	BH19-30	Sand	4.99	253.61	Cannot be Measured	Cannot be Measured	4.94	253.56	Cannot be Measured	Cannot be Measured
VW19-30B	BH19-30	Bedrock	9.98	258.60	Cannot be Measured	Cannot be Measured	9.86	258.48	Cannot be Measured	Cannot be Measured
VW19-31A	BH19-31	Till	4.84	253.45	Cannot be Measured	Cannot be Measured	4.80	253.41	Cannot be Measured	Cannot be Measured
VW19-31B	BH19-31	Bedrock	4.92	253.53	Cannot be Measured	Cannot be Measured	4.86	253.47	Cannot be Measured	Cannot be Measured
VW19-32A	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32B	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32C	CH19-32	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33A	CH19-33	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33B	CH19-33	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33C	CH19-33	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-34	CH19-34	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35A	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35B	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-35C	CH19-35	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36A	CH19-36	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36B	CH19-36	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-36C	CH19-36	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-37	CH19-37	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-38	CH19-38	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40A	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40B	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40B(2)	OW19-40A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40C	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-40D	OW19-40	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41A	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41B	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41B(2)	OW19-41A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41C	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-41D	OW19-41	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-42	CH19-42	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-43A	CH19-43	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-43B	CH19-43	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Jun-03 to 2019-Jun-13				2019-Jun-25 to 2019-Jun-28			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-44B	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-45	CH19-45	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-46A	BH19-46	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-46B	BH19-46	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed

Till: possible hydraulic connection with bedrock
9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	-2.10	249.76	Cannot be Measured	Cannot be Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	-0.41	248.46	Cannot be Measured	Cannot be Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.39	250.53	Cannot be Measured	Cannot be Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.01	250.67	Cannot be Measured	Cannot be Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-2.32	247.11	Cannot be Measured	Cannot be Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-0.39	248.24	Cannot be Measured	Cannot be Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-2.17	247.26	Cannot be Measured	Cannot be Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	1.43	247.59	1.85	248.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	2.41	252.42	2.97	252.98	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	4.17	252.62	4.46	252.91	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	0.94	247.46	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	2.11	252.59	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05B	OW19-05A	Till	2.68	253.16	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05C	OW19-05	Bedrock	2.16	252.63	2.54	253.01	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07A	OW19-07	Till	1.99	252.74	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07B	OW19-07	Till	2.14	252.88	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07C	OW19-07	Bedrock	2.86	253.61	2.26	253.00	Not Measured	Not Measured	Not Measured	Not Measured
VW19-08	CH19-08	Bedrock	2.20	249.21	2.72	249.73	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	2.75	250.19	2.66	250.09	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	4.57	251.42	3.98	250.83	Not Measured	Not Measured	Not Measured	Not Measured
VW19-11	CH19-11	Bedrock	4.21	252.23	4.23	252.25	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	0.85	250.33	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12B	BH19-12	Bedrock	2.63	252.10	3.15	252.62	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13A	BH19-13	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-13B	BH19-13	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-14A(2)	BH19-14A	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Measured	Not Measured	Not Measured	Not Measured
VW19-14B	BH19-14	Bedrock	2.04	251.83	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15A	BH19-15	Till	1.77	251.36	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15B	BH19-15	Sand	2.44	252.02	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15C	BH19-15	Bedrock	2.51	252.09	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16A	OW19-16A	Till	-1.21	247.58	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16B	OW19-16A	Till	-1.23	247.56	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16C	OW19-16	Bedrock	2.12	250.90	2.59	251.37	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18A	OW19-18A	Till	-1.79	247.17	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18B	OW19-18A	Till	-0.75	248.21	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18C	OW19-18	Bedrock	2.24	251.16	2.53	251.45	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19A	BH19-19A	Till	-2.18	246.61	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19B	BH19-19	Bedrock	2.62	251.43	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-20	BH19-20	Bedrock	2.18	251.08	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-21	CH19-21	Bedrock	3.50	252.46	4.08	253.04	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	3.12	251.82	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23B	OW19-23	Sand	3.11	251.81	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	1.80	250.50	0.90	249.60	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24A	OW19-24	Till	2.71	251.88	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24B	OW19-24	Till	2.75	251.92	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24C	OW19-24	Bedrock	2.72	251.90	3.10	252.28	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25A	BH19-25	Till	0.95	249.59	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25B	BH19-25	Bedrock	1.64	250.29	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26A	BH19-26	Till	0.88	249.32	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26B	BH19-26	Bedrock	2.16	250.59	2.30	250.74	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.29	250.32	Cannot be Measured	Cannot be Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	2.04	250.07	Cannot be Measured	Cannot be Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.16	247.43	Cannot be Measured	Cannot be Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	3.88	252.47	Cannot be Measured	Cannot be Measured
VW19-29A(2)	BH19-29A	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.70	249.33	Cannot be Measured	Cannot be Measured
VW19-29B	BH19-29	Bedrock	4.05	252.68	4.37	252.99	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30A	BH19-30	Sand	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-30B	BH19-30	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-31A	BH19-31	Till	Not Measured	Not Measured	Not Measured	Not Measured	3.82	252.43	Cannot be Measured	Cannot be Measured
VW19-31B	BH19-31	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	3.86	252.47	Cannot be Measured	Cannot be Measured
VW19-32A	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32B	CH19-32	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-32C	CH19-32	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33A	CH19-33	Till	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33B	CH19-33	Sand	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-33C	CH19-33	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed
VW19-34	CH19-34	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35A	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.45	251.20	Cannot be Measured	Cannot be Measured
VW19-35B	CH19-35	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.53	251.28	Cannot be Measured	Cannot be Measured
VW19-35C	CH19-35	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	3.22	251.97	Cannot be Measured	Cannot be Measured
VW19-36A	CH19-36	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.53	251.26	Cannot be Measured	Cannot be Measured
VW19-36B	CH19-36	Sand	Not Installed	Not Installed	Not Installed	Not Installed	2.27	251.00	Cannot be Measured	Cannot be Measured
VW19-36C	CH19-36	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.23	250.96	2.57	251.30
VW19-37	CH19-37	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	13.42	261.76	2.92	251.26
VW19-38	CH19-38	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	1.20	250.39	1.54	250.73
VW19-40A	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.48	247.43	Cannot be Measured	Cannot be Measured
VW19-40B	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.24	247.67	Cannot be Measured	Cannot be Measured
VW19-40B(2)	OW19-40A	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.49	247.45	Cannot be Measured	Cannot be Measured
VW19-40C	OW19-40	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.46	248.37	Cannot be Measured	Cannot be Measured
VW19-40D	OW19-40	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.59	250.50	2.60	250.51
VW19-41A	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.04	247.80	Cannot be Measured	Cannot be Measured
VW19-41B	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.93	248.77	Cannot be Measured	Cannot be Measured
VW19-41B(2)	OW19-41A	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.29	248.15	Cannot be Measured	Cannot be Measured
VW19-41C	OW19-41	Till	Not Installed	Not Installed	Not Installed	Not Installed	2.33	250.17	Cannot be Measured	Cannot be Measured
VW19-41D	OW19-41	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.61	250.46	2.82	250.67
VW19-42	CH19-42	Till	Not Installed	Not Installed	Not Installed	Not Installed	-0.03	248.87	Cannot be Measured	Cannot be Measured
VW19-43A	CH19-43	Till	Not Installed	Not Installed	Not Installed	Not Installed	-2.55	246.71	Cannot be Measured	Cannot be Measured
VW19-43B	CH19-43	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	0.95	250.22	1.33	250.59

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Sep-03 to 2019-Sep-04				2019-Sep-15 to 2019-Sep-16			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	-1.50	246.46	Cannot be Measured	Cannot be Measured
VW19-44B	CH19-44	Till	Not Installed	Not Installed	Not Installed	Not Installed	-1.47	246.49	Cannot be Measured	Cannot be Measured
VW19-45	CH19-45	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	1.87	250.02	1.46	249.60
VW19-46A	BH19-46	Till	Not Installed	Not Installed	Not Installed	Not Installed	0.85	248.94	Cannot be Measured	Cannot be Measured
VW19-46B	BH19-46	Bedrock	Not Installed	Not Installed	Not Installed	Not Installed	2.62	250.72	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock
9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602932	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	1.49	253.54	Cannot be Measured	Cannot be Measured
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-02	CH19-02	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-03	CH19-03	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-04	CH19-04	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05A	OW19-05A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05B	OW19-05A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-05C	OW19-05	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07A	OW19-07	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07B	OW19-07	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-07C	OW19-07	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-08	CH19-08	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-09	CH19-09	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-10	CH19-10	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-11	CH19-11	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12A	BH19-12	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-12B	BH19-12	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13A	BH19-13	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-13B	BH19-13	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-14A(2)	BH19-14A	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.13	248.75	Cannot be Measured	Cannot be Measured
VW19-14B	BH19-14	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-15A	BH19-15	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15B	BH19-15	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-15C	BH19-15	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16A	OW19-16A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16B	OW19-16A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-16C	OW19-16	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18A	OW19-18A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18B	OW19-18A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-18C	OW19-18	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19A	BH19-19A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-19B	BH19-19	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-20	BH19-20	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-21	CH19-21	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23A	OW19-23	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-23B	OW19-23	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24A	OW19-24	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24B	OW19-24	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-24C	OW19-24	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25A	BH19-25	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-25B	BH19-25	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26A	BH19-26	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-26B	BH19-26	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27A	BH19-27	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-27B	BH19-27	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-28A	BH19-28	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-28B	BH19-28	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-29A(2)	BH19-29A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-29B	BH19-29	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30A	BH19-30	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-30B	BH19-30	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-31A	BH19-31	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-31B	BH19-31	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32A	CH19-32	Till	-0.88	248.34	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32B	CH19-32	Till	1.34	250.55	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-32C	CH19-32	Bedrock	3.39	252.61	3.36	252.57	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33A	CH19-33	Till	-0.42	248.21	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33B	CH19-33	Sand	3.75	252.37	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-33C	CH19-33	Bedrock	4.48	253.11	4.66	253.28	Not Measured	Not Measured	Not Measured	Not Measured
VW19-34	CH19-34	Bedrock	3.61	252.77	3.76	252.92	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35A	CH19-35	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35B	CH19-35	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-35C	CH19-35	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-36A	CH19-36	Till	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36B	CH19-36	Sand	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36C	CH19-36	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Datalogged	Datalogged	Datalogged	Datalogged
VW19-37	CH19-37	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-38	CH19-38	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40A	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40B	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40B(2)	OW19-40A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40C	OW19-40	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-40D	OW19-40	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41A	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41B	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41B(2)	OW19-41A	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41C	OW19-41	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-41D	OW19-41	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-42	CH19-42	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-43A	CH19-43	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-43B	CH19-43	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2019-Oct-02				2019-Nov-18			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-44B	CH19-44	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-45	CH19-45	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-46A	BH19-46	Till	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-46B	BH19-46	Bedrock	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured

Till: possible hydraulic connection with bedrock
9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2020-Mar-09 to 2020-Mar-12				2020-Jul-07 to 2020-Jul-09			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW #1403291	15-RD-03A (KGS)	Sand	-1.06	250.80	Cannot be Measured	Cannot be Measured	-1.65	250.21	Cannot be Measured	Cannot be Measured
VW #1404249	15-RD-10A (KGS)	Clay	-0.30	248.57	Cannot be Measured	Cannot be Measured	-0.65	248.22	Cannot be Measured	Cannot be Measured
VW #1602923	TH-GD-06 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	-1.51	250.41	Cannot be Measured	Cannot be Measured
VW #1602924	TH-GD-05 (KGS)	Till	2.93	251.59	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602931	TH-ED-03 (KGS)	Till	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning
VW #1602932	TH-ED-01P (KGS)	Till	-2.11	247.32	Cannot be Measured	Cannot be Measured	-2.31	247.12	Cannot be Measured	Cannot be Measured
VW #1602935	TH-GD-02 (KGS)	Till	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning	Not Functioning
VW #1602937	TH-GD-07 (KGS)	Till	0.25	252.30	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602938	TH-GD-08 (KGS)	Till	3.44	250.25	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW #1602939	TH-ED-01P (KGS)	Till	-1.97	247.46	Cannot be Measured	Cannot be Measured	-2.15	247.28	Cannot be Measured	Cannot be Measured
VW #1602940	TH-GD-08 (KGS)	Sand	4.19	251.00	Cannot be Measured	Cannot be Measured	Not Measured	Not Measured	Not Measured	Not Measured
VW19-01	CH19-01	Bedrock	1.80	247.96	2.22	248.38	0.94	247.10	1.36	247.52
VW19-02	CH19-02	Bedrock	2.88	252.89	3.44	253.45	2.28	252.29	2.84	252.85
VW19-03	CH19-03	Bedrock	4.66	253.11	4.95	253.40	4.26	252.70	4.55	253.00
VW19-04	CH19-04	Sand	1.64	248.15	Cannot be Measured	Cannot be Measured	0.07	246.58	Cannot be Measured	Cannot be Measured
VW19-05A	OW19-05A	Till	2.83	253.32	Cannot be Measured	Cannot be Measured	2.76	253.25	Cannot be Measured	Cannot be Measured
VW19-05B	OW19-05A	Till	3.27	253.75	Cannot be Measured	Cannot be Measured	3.14	253.62	Cannot be Measured	Cannot be Measured
VW19-05C	OW19-05	Bedrock	2.70	253.17	3.08	253.55	2.71	253.19	3.09	253.57
VW19-07A	OW19-07	Till	2.76	253.50	Cannot be Measured	Cannot be Measured	2.50	253.24	Cannot be Measured	Cannot be Measured
VW19-07B	OW19-07	Till	2.73	253.48	Cannot be Measured	Cannot be Measured	2.53	253.28	Cannot be Measured	Cannot be Measured
VW19-07C	OW19-07	Bedrock	3.38	254.12	2.77	253.52	3.53	254.27	2.92	253.66
VW19-08	CH19-08	Bedrock	2.63	249.64	3.15	250.17	1.62	248.64	2.15	249.16
VW19-09	CH19-09	Bedrock	3.23	250.67	3.14	250.57	2.14	249.57	2.04	249.48
VW19-10	CH19-10	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	4.87	251.73	4.28	251.14
VW19-11	CH19-11	Bedrock	4.80	252.82	4.82	252.84	**18.17**	**266.19**	**18.19**	**266.21**
VW19-12A	BH19-12	Till	1.28	250.76	Cannot be Measured	Cannot be Measured	0.85	250.32	Cannot be Measured	Cannot be Measured
VW19-12B	BH19-12	Bedrock	3.06	252.53	3.58	253.05	2.91	252.38	3.43	252.90
VW19-13A	BH19-13	**Till**	2.75	252.33	Cannot be Measured	Cannot be Measured	2.43	252.01	Cannot be Measured	Cannot be Measured
VW19-13B	BH19-13	Bedrock	2.91	252.49	Cannot be Measured	Cannot be Measured	2.81	252.39	Cannot be Measured	Cannot be Measured
VW19-14A(2)	BH19-14A	Till	-2.54	247.35	Cannot be Measured	Cannot be Measured	-1.81	248.07	Cannot be Measured	Cannot be Measured
VW19-14B	BH19-14	Bedrock	2.55	252.35	Cannot be Measured	Cannot be Measured	1.54	251.34	Cannot be Measured	Cannot be Measured
VW19-15A	BH19-15	Till	2.10	251.69	Cannot be Measured	Cannot be Measured	1.27	250.85	Cannot be Measured	Cannot be Measured
VW19-15B	BH19-15	Sand	2.95	252.54	Cannot be Measured	Cannot be Measured	2.59	252.17	Cannot be Measured	Cannot be Measured
VW19-15C	BH19-15	Bedrock	3.01	252.59	Cannot be Measured	Cannot be Measured	2.85	252.43	Cannot be Measured	Cannot be Measured
VW19-16A	OW19-16A	Till	-2.00	246.79	Cannot be Measured	Cannot be Measured	-2.33	246.46	Cannot be Measured	Cannot be Measured
VW19-16B	OW19-16A	Till	-2.01	246.78	Cannot be Measured	Cannot be Measured	-2.45	246.34	Cannot be Measured	Cannot be Measured
VW19-16C	OW19-16	Bedrock	2.55	251.33	3.02	251.80	1.06	249.84	1.53	250.31
VW19-18A	OW19-18A	Till	-1.72	247.24	Cannot be Measured	Cannot be Measured	-2.04	246.92	Cannot be Measured	Cannot be Measured
VW19-18B	OW19-18A	Till	-0.48	248.48	Cannot be Measured	Cannot be Measured	-0.82	248.14	Cannot be Measured	Cannot be Measured
VW19-18C	OW19-18	Bedrock	2.69	251.61	2.97	251.90	2.10	251.02	2.38	251.31
VW19-19A	BH19-19A	Till	-1.34	247.45	Cannot be Measured	Cannot be Measured	-3.04	245.75	Cannot be Measured	Cannot be Measured
VW19-19B	BH19-19	Bedrock	3.11	251.92	Cannot be Measured	Cannot be Measured	2.29	251.10	Cannot be Measured	Cannot be Measured
VW19-20	BH19-20	Bedrock	2.63	251.53	Cannot be Measured	Cannot be Measured	1.07	249.98	Cannot be Measured	Cannot be Measured
VW19-21	CH19-21	Bedrock	3.95	252.91	4.53	253.49	4.18	253.14	4.76	253.72
VW19-23A	OW19-23	Till	3.48	252.18	Cannot be Measured	Cannot be Measured	2.76	251.47	Cannot be Measured	Cannot be Measured
VW19-23B	OW19-23	Sand	3.46	252.16	Cannot be Measured	Cannot be Measured	2.82	251.52	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2020-Mar-09 to 2020-Mar-12				2020-Jul-07 to 2020-Jul-09			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-23C	OW19-23	Bedrock	4.74	253.44	3.84	252.54	3.98	252.69	3.08	251.79
VW19-24A	OW19-24	Till	3.13	252.30	Cannot be Measured	Cannot be Measured	2.53	251.70	Cannot be Measured	Cannot be Measured
VW19-24B	OW19-24	Till	3.17	252.34	Cannot be Measured	Cannot be Measured	2.60	251.77	Cannot be Measured	Cannot be Measured
VW19-24C	OW19-24	Bedrock	3.14	252.31	3.52	252.69	0.09	249.26	0.47	249.64
VW19-25A	BH19-25	Till	0.92	249.57	Cannot be Measured	Cannot be Measured	0.18	248.83	Cannot be Measured	Cannot be Measured
VW19-25B	BH19-25	Bedrock	1.94	250.59	Cannot be Measured	Cannot be Measured	1.20	249.84	Cannot be Measured	Cannot be Measured
VW19-26A	BH19-26	Till	1.25	249.68	Cannot be Measured	Cannot be Measured	0.13	248.57	Cannot be Measured	Cannot be Measured
VW19-26B	BH19-26	Bedrock	2.20	250.63	2.35	250.78	1.34	249.78	1.49	249.92
VW19-27A	BH19-27	Till	2.68	250.71	Cannot be Measured	Cannot be Measured	2.00	250.03	Cannot be Measured	Cannot be Measured
VW19-27B	BH19-27	Bedrock	2.41	250.44	Cannot be Measured	Cannot be Measured	1.79	249.82	Cannot be Measured	Cannot be Measured
VW19-28A	BH19-28	Till	-1.88	246.71	Cannot be Measured	Cannot be Measured	-1.97	246.62	Cannot be Measured	Cannot be Measured
VW19-28B	BH19-28	Bedrock	4.44	253.03	Cannot be Measured	Cannot be Measured	4.20	252.79	Cannot be Measured	Cannot be Measured
VW19-29A(2)	BH19-29A	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-29B	BH19-29	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-30A	BH19-30	Sand	4.53	253.15	Cannot be Measured	Cannot be Measured	4.29	252.90	Cannot be Measured	Cannot be Measured
VW19-30B	BH19-30	Bedrock	**9.46**	**258.08**	Cannot be Measured	Cannot be Measured	**9.40**	**258.02**	Cannot be Measured	Cannot be Measured
VW19-31A	BH19-31	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-31B	BH19-31	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-32A	CH19-32	Till	-1.88	247.34	Cannot be Measured	Cannot be Measured	Not Accessible	Not Accessible	Not Accessible	Not Accessible
VW19-32B	CH19-32	Till	2.08	251.30	Cannot be Measured	Cannot be Measured	Not Accessible	Not Accessible	Not Accessible	Not Accessible
VW19-32C	CH19-32	Bedrock	3.86	253.08	3.82	253.04	Not Accessible	Not Accessible	Not Accessible	Not Accessible
VW19-33A	CH19-33	Till	-0.72	247.90	Cannot be Measured	Cannot be Measured	-0.88	247.74	Cannot be Measured	Cannot be Measured
VW19-33B	CH19-33	Sand	4.10	252.72	Cannot be Measured	Cannot be Measured	3.69	252.32	Cannot be Measured	Cannot be Measured
VW19-33C	CH19-33	Bedrock	4.84	253.47	5.01	253.64	4.19	252.81	4.36	252.99
VW19-34	CH19-34	Bedrock	3.96	253.12	4.11	253.27	3.51	252.68	3.66	252.83
VW19-35A	CH19-35	Till	2.46	251.21	Cannot be Measured	Cannot be Measured	0.81	249.56	Cannot be Measured	Cannot be Measured
VW19-35B	CH19-35	Till	2.86	251.61	Cannot be Measured	Cannot be Measured	2.02	250.77	Cannot be Measured	Cannot be Measured
VW19-35C	CH19-35	Bedrock	3.79	252.54	Cannot be Measured	Cannot be Measured	3.35	252.10	Cannot be Measured	Cannot be Measured
VW19-36A	CH19-36	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36B	CH19-36	Sand	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-36C	CH19-36	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-37	CH19-37	Bedrock	**14.01**	**262.35**	**3.51**	**251.84**	**9.30**	**257.64**	**-1.20**	**247.14**
VW19-38	CH19-38	Bedrock	1.62	250.81	1.96	251.15	0.90	250.09	1.24	250.43
VW19-40A	OW19-40	Till	-1.44	246.47	Cannot be Measured	Cannot be Measured	-1.74	246.17	Cannot be Measured	Cannot be Measured
VW19-40B	OW19-40	Till	2.61	250.52	Cannot be Measured	Cannot be Measured	1.81	249.72	Cannot be Measured	Cannot be Measured
VW19-40B(2)	OW19-40A	Till	-0.63	247.32	Cannot be Measured	Cannot be Measured	-0.95	247.00	Cannot be Measured	Cannot be Measured
VW19-40C	OW19-40	Till	2.54	250.45	Cannot be Measured	Cannot be Measured	1.96	249.87	Cannot be Measured	Cannot be Measured
VW19-40D	OW19-40	Bedrock	3.00	250.91	3.01	250.92	2.32	250.23	2.33	250.24
VW19-41A	OW19-41	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-41B	OW19-41	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-41B(2)	OW19-41A	Till	-0.51	247.36	Cannot be Measured	Cannot be Measured	-0.79	247.08	Cannot be Measured	Cannot be Measured
VW19-41C	OW19-41	Till	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-41D	OW19-41	Bedrock	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged	Datalogged
VW19-42	CH19-42	Till	0.83	249.73	Cannot be Measured	Cannot be Measured	-1.11	247.80	Cannot be Measured	Cannot be Measured
VW19-43A	CH19-43	Till	-1.46	247.80	Cannot be Measured	Cannot be Measured	-2.35	246.91	Cannot be Measured	Cannot be Measured
VW19-43B	CH19-43	Bedrock	1.36	250.62	1.73	250.99	0.67	249.93	1.04	250.31

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events							
			2020-Mar-09 to 2020-Mar-12				2020-Jul-07 to 2020-Jul-09			
			Measured		Adjusted		Measured		Adjusted	
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
VW19-44A	CH19-44	Till	-1.81	246.15	Cannot be Measured	Cannot be Measured	-2.36	245.59	Cannot be Measured	Cannot be Measured
VW19-44B	CH19-44	Till	-1.10	246.86	Cannot be Measured	Cannot be Measured	-1.58	246.37	Cannot be Measured	Cannot be Measured
VW19-45	CH19-45	Bedrock	2.25	250.40	1.84	249.98	1.34	249.48	0.93	249.07
VW19-46A	BH19-46	Till	0.61	248.70	Cannot be Measured	Cannot be Measured	-0.04	248.05	Cannot be Measured	Cannot be Measured
VW19-46B	BH19-46	Bedrock	2.95	251.05	Cannot be Measured	Cannot be Measured	2.30	250.40	Cannot be Measured	Cannot be Measured

Till: possible hydraulic connection with bedrock
9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events				Statistics		
			2020-Oct-05 to 2020-Oct-14				Min	Max	Average
			Measured		Adjusted		Measured	Measured	Measured
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)
VW #1403291	15-RD-03A (KGS)	Sand	-1.96	249.90	Cannot be Measured	Cannot be Measured	-2.10	-1.06	-1.69
VW #1404249	15-RD-10A (KGS)	Clay	Not Measured	Not Measured	Not Measured	Not Measured	-0.65	-0.30	-0.45
VW #1602923	TH-GD-06 (KGS)	Till	-1.63	250.29	Cannot be Measured	Cannot be Measured	-1.63	-1.39	-1.51
VW #1602924	TH-GD-05 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	2.01	2.93	2.47
VW #1602931	TH-ED-03 (KGS)	Till	Not Functioning	Not Functioning	Not Functioning	Not Functioning	-	-	-
VW #1602932	TH-ED-01P (KGS)	Till	-1.61	247.82	Cannot be Measured	Cannot be Measured	-2.32	-1.61	-2.09
VW #1602935	TH-GD-02 (KGS)	Till	Not Functioning	Not Functioning	Not Functioning	Not Functioning	-0.39	-0.39	-0.39
VW #1602937	TH-GD-07 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	0.25	1.49	0.87
VW #1602938	TH-GD-08 (KGS)	Till	Not Measured	Not Measured	Not Measured	Not Measured	3.44	3.44	3.44
VW #1602939	TH-ED-01P (KGS)	Till	-1.50	247.93	Cannot be Measured	Cannot be Measured	-2.17	-1.50	-1.95
VW #1602940	TH-GD-08 (KGS)	Sand	Not Measured	Not Measured	Not Measured	Not Measured	4.19	4.19	4.19
VW19-01	CH19-01	Bedrock	1.43	247.59	1.85	248.01	0.94	2.13	1.55
VW19-02	CH19-02	Bedrock	2.61	252.62	3.17	253.18	2.28	3.44	2.72
VW19-03	CH19-03	Bedrock	4.37	252.82	4.66	253.11	4.17	5.25	4.54
VW19-04	CH19-04	Sand	1.47	247.99	Cannot be Measured	Cannot be Measured	0.07	1.64	1.09
VW19-05A	OW19-05A	Till	2.46	252.94	Cannot be Measured	Cannot be Measured	2.11	2.83	2.51
VW19-05B	OW19-05A	Till	2.91	253.39	Cannot be Measured	Cannot be Measured	2.68	3.84	3.24
VW19-05C	OW19-05	Bedrock	2.32	252.79	2.70	253.17	2.16	3.30	2.71
VW19-07A	OW19-07	Till	2.21	252.95	Cannot be Measured	Cannot be Measured	1.99	2.88	2.49
VW19-07B	OW19-07	Till	2.33	253.07	Cannot be Measured	Cannot be Measured	2.14	3.25	2.67
VW19-07C	OW19-07	Bedrock	2.95	253.70	2.35	253.09	2.86	4.06	3.43
VW19-08	CH19-08	Bedrock	2.37	249.38	2.89	249.90	1.62	3.03	2.37
VW19-09	CH19-09	Bedrock	3.00	250.44	2.91	250.34	2.14	3.63	2.95
VW19-10	CH19-10	Bedrock	4.78	251.63	4.19	251.04	4.57	5.50	4.93
VW19-11	CH19-11	Bedrock	4.57	252.59	4.60	252.62	4.21	18.17	7.38
VW19-12A	BH19-12	Till	0.77	250.25	Cannot be Measured	Cannot be Measured	0.77	1.28	0.95
VW19-12B	BH19-12	Bedrock	2.71	252.18	3.23	252.70	2.63	3.76	3.10
VW19-13A	BH19-13	Till	2.30	251.88	Cannot be Measured	Cannot be Measured	2.30	3.24	2.77
VW19-13B	BH19-13	Bedrock	2.54	252.12	Cannot be Measured	Cannot be Measured	2.54	3.47	3.00
VW19-14A(2)	BH19-14A	Till	-1.55	248.33	Cannot be Measured	Cannot be Measured	-2.54	-1.13	-1.76
VW19-14B	BH19-14	Bedrock	2.20	251.99	Cannot be Measured	Cannot be Measured	1.54	3.10	2.39
VW19-15A	BH19-15	Till	1.59	251.17	Cannot be Measured	Cannot be Measured	1.27	2.69	2.01
VW19-15B	BH19-15	Sand	2.60	252.19	Cannot be Measured	Cannot be Measured	2.44	3.52	2.90
VW19-15C	BH19-15	Bedrock	2.66	252.25	Cannot be Measured	Cannot be Measured	2.51	3.66	3.02
VW19-16A	OW19-16A	Till	-2.24	246.55	Cannot be Measured	Cannot be Measured	-2.33	-0.74	-1.67
VW19-16B	OW19-16A	Till	-2.25	246.54	Cannot be Measured	Cannot be Measured	-2.45	-0.77	-1.70
VW19-16C	OW19-16	Bedrock	2.27	251.06	2.74	251.53	1.06	3.07	2.34
VW19-18A	OW19-18A	Till	-2.05	246.91	Cannot be Measured	Cannot be Measured	-2.05	-0.73	-1.59
VW19-18B	OW19-18A	Till	-0.84	248.12	Cannot be Measured	Cannot be Measured	-0.84	0.03	-0.54
VW19-18C	OW19-18	Bedrock	2.44	251.37	2.73	251.65	2.10	3.10	2.58
VW19-19A	BH19-19A	Till	-1.96	246.83	Cannot be Measured	Cannot be Measured	-3.04	-0.48	-1.67
VW19-19B	BH19-19	Bedrock	2.89	251.70	Cannot be Measured	Cannot be Measured	2.29	3.44	2.93
VW19-20	BH19-20	Bedrock	2.37	251.28	Cannot be Measured	Cannot be Measured	1.07	3.14	2.34
VW19-21	CH19-21	Bedrock	3.74	252.71	4.32	253.29	3.50	4.71	4.02
VW19-23A	OW19-23	Till	3.22	251.92	Cannot be Measured	Cannot be Measured	2.76	3.83	3.37
VW19-23B	OW19-23	Sand	3.24	251.94	Cannot be Measured	Cannot be Measured	2.82	3.85	3.38

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events				Statistics		
			2020-Oct-05 to 2020-Oct-14				Min	Max	Average
			Measured		Adjusted		Measured	Measured	Measured
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)
VW19-23C	OW19-23	Bedrock	4.48	253.18	3.58	252.28	1.80	5.27	4.25
VW19-24A	OW19-24	Till	2.91	252.08	Cannot be Measured	Cannot be Measured	2.53	3.45	3.02
VW19-24B	OW19-24	Till	2.95	252.12	Cannot be Measured	Cannot be Measured	2.60	3.50	3.08
VW19-24C	OW19-24	Bedrock	2.90	252.07	3.28	252.45	0.09	3.47	2.62
VW19-25A	BH19-25	Till	0.71	249.36	Cannot be Measured	Cannot be Measured	0.18	1.54	0.92
VW19-25B	BH19-25	Bedrock	1.77	250.42	Cannot be Measured	Cannot be Measured	1.20	2.25	1.84
VW19-26A	BH19-26	Till	1.08	249.52	Cannot be Measured	Cannot be Measured	0.13	1.42	0.96
VW19-26B	BH19-26	Bedrock	1.83	250.26	1.97	250.40	1.34	2.78	2.06
VW19-27A	BH19-27	Till	2.50	250.53	Cannot be Measured	Cannot be Measured	2.00	2.99	2.49
VW19-27B	BH19-27	Bedrock	2.23	250.26	Cannot be Measured	Cannot be Measured	1.79	2.73	2.24
VW19-28A	BH19-28	Till	-1.36	247.23	Cannot be Measured	Cannot be Measured	-1.97	3.51	-0.57
VW19-28B	BH19-28	Bedrock	4.27	252.86	Cannot be Measured	Cannot be Measured	3.88	4.88	4.34
VW19-29A(2)	BH19-29A	Till	1.26	249.89	Cannot be Measured	Cannot be Measured	0.70	1.26	0.98
VW19-29B	BH19-29	Bedrock	4.42	253.04	4.73	253.36	4.05	5.08	4.63
VW19-30A	BH19-30	Sand	4.38	253.00	Cannot be Measured	Cannot be Measured	4.29	4.99	4.62
VW19-30B	BH19-30	Bedrock	**9.20**	**257.82**	Cannot be Measured	Cannot be Measured	9.20	9.98	9.58
VW19-31A	BH19-31	Till	4.28	252.89	Cannot be Measured	Cannot be Measured	3.82	4.84	4.44
VW19-31B	BH19-31	Bedrock	4.28	252.89	Cannot be Measured	Cannot be Measured	3.86	4.92	4.48
VW19-32A	CH19-32	Till	-1.96	247.26	Cannot be Measured	Cannot be Measured	-1.96	-0.88	-1.57
VW19-32B	CH19-32	Till	1.85	251.06	Cannot be Measured	Cannot be Measured	1.34	2.08	1.75
VW19-32C	CH19-32	Bedrock	3.61	252.82	3.57	252.79	3.39	3.86	3.62
VW19-33A	CH19-33	Till	-0.58	248.05	Cannot be Measured	Cannot be Measured	-0.88	-0.42	-0.65
VW19-33B	CH19-33	Sand	3.90	252.52	Cannot be Measured	Cannot be Measured	3.69	4.10	3.86
VW19-33C	CH19-33	Bedrock	4.60	253.22	4.77	253.39	4.19	4.84	4.53
VW19-34	CH19-34	Bedrock	3.72	252.89	3.88	253.04	3.51	3.96	3.70
VW19-35A	CH19-35	Till	1.46	250.20	Cannot be Measured	Cannot be Measured	0.81	2.46	1.80
VW19-35B	CH19-35	Till	2.54	251.29	Cannot be Measured	Cannot be Measured	2.02	2.86	2.49
VW19-35C	CH19-35	Bedrock	3.57	252.32	Cannot be Measured	Cannot be Measured	3.22	3.79	3.49
VW19-36A	CH19-36	Till	2.82	251.55	Cannot be Measured	Cannot be Measured	2.53	2.82	2.67
VW19-36B	CH19-36	Sand	2.57	251.30	Cannot be Measured	Cannot be Measured	2.27	2.57	2.42
VW19-36C	CH19-36	Bedrock	2.53	251.26	2.87	251.60	2.23	3.26	2.68
VW19-37	CH19-37	Bedrock	**11.36**	**259.69**	**0.86**	**249.19**	9.30	14.01	12.02
VW19-38	CH19-38	Bedrock	1.46	250.65	1.80	250.99	0.90	1.62	1.29
VW19-40A	OW19-40	Till	-1.26	246.64	Cannot be Measured	Cannot be Measured	-1.74	-0.48	-1.23
VW19-40B	OW19-40	Till	2.24	250.15	Cannot be Measured	Cannot be Measured	-0.24	2.61	1.60
VW19-40B(2)	OW19-40A	Till	-0.32	247.63	Cannot be Measured	Cannot be Measured	-0.95	-0.32	-0.60
VW19-40C	OW19-40	Till	2.23	250.14	Cannot be Measured	Cannot be Measured	0.46	2.54	1.80
VW19-40D	OW19-40	Bedrock	2.75	250.66	2.77	250.68	2.32	3.00	2.66
VW19-41A	OW19-41	Till	-0.98	246.87	Cannot be Measured	Cannot be Measured	-0.98	-0.04	-0.51
VW19-41B	OW19-41	Till	0.06	247.90	Cannot be Measured	Cannot be Measured	-0.07	0.93	0.31
VW19-41B(2)	OW19-41A	Till	-0.26	247.61	Cannot be Measured	Cannot be Measured	-0.79	0.29	-0.32
VW19-41C	OW19-41	Till	2.67	250.51	Cannot be Measured	Cannot be Measured	2.33	2.67	2.50
VW19-41D	OW19-41	Bedrock	2.77	250.61	2.98	250.82	2.61	3.51	2.97
VW19-42	CH19-42	Till	0.03	248.93	Cannot be Measured	Cannot be Measured	-1.11	0.83	-0.07
VW19-43A	CH19-43	Till	-1.69	247.57	Cannot be Measured	Cannot be Measured	-2.55	-1.46	-2.01
VW19-43B	CH19-43	Bedrock	1.16	250.42	1.53	250.79	0.67	1.36	1.03

Till: possible hydraulic connection with bedrock

9.98: Possible erroneous reading or malfunctioning VW

Table D-2 Summary of 2019 and 2020 Vibrating Wire Piezometer Manual Groundwater Level Readings

Instrument #	Test Hole	Stratigraphic Unit	Monitoring Events				Statistics		
			2020-Oct-05 to 2020-Oct-14				Min	Max	Average
			Measured		Adjusted		Measured	Measured	Measured
			Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)	Groundwater Level Relative to Grade (+ above ground) (m)
VW19-44A	CH19-44	Till	-1.42	246.54	Cannot be Measured	Cannot be Measured	-2.36	-1.42	-1.77
VW19-44B	CH19-44	Till	-0.85	247.11	Cannot be Measured	Cannot be Measured	-1.58	-0.85	-1.25
VW19-45	CH19-45	Bedrock	2.06	250.20	1.64	249.79	1.34	2.25	1.88
VW19-46A	BH19-46	Till	0.40	248.49	Cannot be Measured	Cannot be Measured	-0.04	0.85	0.45
VW19-46B	BH19-46	Bedrock	2.80	250.90	Cannot be Measured	Cannot be Measured	2.30	2.95	2.67

Till: possible hydraulic connection with bedrock
9.98: Possible erroneous reading or malfunctioning VW

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

BH19-14 + 14A							BH19-30					BH19-31				
	VW19-14A		VW19-14B		VW19-14A(2)			VW19-30A		VW19-30B			VW19-31A		VW19-31B	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/16/2019 12:00	3.10205693	252.8960569	3.726077506	253.5200775	-1.197766846	248.6842332	6/29/2019 12:00	4.87465317	253.4936532	9.810812564	258.4298126	11/23/2019 12:00	5.589760561	254.1987606	5.597402961	254.206403
11/17/2019 12:00	3.169476614	252.9634766	3.783447493	253.5774475	-1.112132005	248.769868	6/30/2019 12:00	4.853958269	253.4729583	9.787435992	258.406436	11/24/2019 12:00	5.581625374	254.1906254	5.587275809	254.1962758
11/18/2019 12:00	3.050643565	252.8446436	3.685442233	253.4794422	-1.202620554	248.6793794	7/1/2019 12:00	4.853257782	253.4722578	9.783843348	258.4028433	11/25/2019 12:00	5.617381425	254.2263814	5.620085849	254.2290858
11/19/2019 12:00	3.014347392	252.8083474	3.75194226	253.5459423	-1.050863793	248.8311362	7/2/2019 12:00	4.833706644	253.4527066	9.762124508	258.3811245	11/26/2019 12:00	5.691848631	254.3008486	5.693516876	254.3025169
11/20/2019 12:00	2.922767668	252.7167677	3.815043749	253.6090437	-0.909472199	248.9725278	7/3/2019 12:00	4.823070381	253.4420704	9.750486008	258.369486	11/27/2019 12:00	5.745482669	254.3544827	5.746682894	254.3556829
11/21/2019 12:00	2.862901451	252.6569015	3.820779649	253.6147796	-0.816847531	249.0651525	7/4/2019 12:00	4.827656158	253.4466562	9.753489591	258.3724896	11/28/2019 12:00	5.783333753	254.3923338	5.785198839	254.3941988
11/22/2019 12:00	2.825874881	252.6198749	3.690804118	253.4848041	-1.109306133	248.7726939	7/5/2019 12:00	4.879110201	253.4981102	9.804218223	258.4232182	11/29/2019 12:00	5.71484499	254.323845	5.716863155	254.3258632
11/23/2019 12:00	2.992541253	252.7865413	3.65336317	253.4473632	-1.280552685	248.6014473	7/6/2019 12:00	4.864083169	253.4830832	9.79151111	258.4105111	11/30/2019 12:00	5.691727527	254.3007275	5.691964856	254.3009649
11/24/2019 12:00	2.859150498	252.6531505	3.639909732	253.4339097	-1.281752869	248.6002471	7/7/2019 12:00	4.801986942	253.4209869	9.730210005	258.34921	12/1/2019 12:00	5.693972655	254.3029727	5.694191664	254.3031917
11/25/2019 12:00	2.525491519	252.3194915	3.66474642	253.4587464	-1.217733895	248.6642661	7/8/2019 12:00	4.727823631	253.3468236	9.657018485	258.2760185	12/2/2019 12:00	5.601902765	254.2109028	5.603208954	254.212209
11/26/2019 12:00	2.623441273	252.4174413	3.740562018	253.534562	-1.077532078	248.8044679	7/9/2019 12:00	4.748980065	253.3679801	9.67585689	258.2948569	12/3/2019 12:00	5.576162118	254.1851621	5.576337888	254.1853379
11/27/2019 12:00	2.67580407	252.4698041	3.800092326	253.5940923	-0.915995773	248.9660042	7/10/2019 12:00	4.775740427	253.3947404	9.7007559	258.3197559	12/4/2019 12:00	5.637412407	254.2464124	5.636623771	254.2456238
11/28/2019 12:00	2.740107676	252.5341077	3.844474441	253.6384744	-0.749275153	249.1327248	7/11/2019 12:00	4.684482891	253.3034829	9.611601907	258.2306019	12/5/2019 12:00	5.698402161	254.3074022	5.696350969	254.305351
11/29/2019 12:00	2.634268432	252.4282684	3.766613728	253.5606137	-0.739222858	249.1427771	7/12/2019 12:00	4.714440179	253.3334402	9.637908945	258.2569089	12/6/2019 12:00	5.666544048	254.275544	5.665781057	254.2747811
11/30/2019 12:00	2.620776522	252.4147765	3.736047433	253.5300474	-0.810079718	249.0719203	7/13/2019 12:00	4.700099588	253.3190996	9.62293069	258.2419307	12/7/2019 12:00	5.568451453	254.1774515	5.569248163	254.1782482
12/1/2019 12:00	2.605823021	252.399823	3.736235542	253.5302355	-0.820614752	249.0613852	7/14/2019 12:00	4.652097545	253.2710975	9.575246511	258.1942465	12/8/2019 12:00	5.688632853	254.2976329	5.685554203	254.2945542
12/2/2019 12:00	2.468891296	252.2628913	3.621939599	253.4159396	-0.891622209	248.9903778	7/15/2019 12:00	4.605422039	253.224422	9.528619452	258.1476195	3/12/2020 16:31	4.439422918	253.0484229	4.434929187	253.0439292
12/3/2019 12:00	2.417655564	252.2116556	3.589007496	253.3830075	-0.985364834	248.8966352	7/16/2019 12:00	4.646232513	253.2652325	9.567780855	258.1867809	3/13/2020 16:31	4.548228354	253.1572284	4.542957803	253.1519578
12/4/2019 12:00	2.485845935	252.2798459	3.65383356	253.4478336	-0.96080202	248.921198	7/17/2019 12:00	4.588393504	253.2073935	9.511156879	258.1301569	3/14/2020 16:31	4.599591045	253.208591	4.595015577	253.2040156
12/5/2019 12:00	2.555430099	252.3494301	3.727300249	253.5213002	-0.865816619	249.0161834	7/18/2019 12:00	4.54437923	253.1633792	9.466764569	258.0857646	3/15/2020 16:31	4.503626688	253.1126267	4.50093493	253.1099349
12/6/2019 12:00	2.560787017	252.354787	3.697576901	253.4915769	-0.812955007	249.069045	7/19/2019 12:00	4.555351977	253.174352	9.477192205	258.0961922	3/16/2020 16:31	4.428435541	253.0374355	4.425080735	253.0340807
12/7/2019 12:00	2.660036443	252.4540364	3.58721966	253.3812197	-0.994835191	248.8871648	7/20/2019 12:00	4.611416695	253.2304167	9.531413248	258.1504132	3/17/2020 16:31	4.467255068	253.0762551	4.462841749	253.0718417
12/8/2019 12:00	3.086300333	252.8803003	3.719211248	253.5132112	-1.062792807	248.8192072	7/21/2019 12:00	4.65241699	253.271417	9.573259292	258.1922593	3/18/2020 16:31	4.481169778	253.0901698	4.477305812	253.0863058
12/9/2019 12:00	3.025865455	252.8198655	3.633229849	253.4272298	-1.132874036	248.749126	7/22/2019 12:00	4.623979274	253.2429793	9.543178767	258.1621788	3/19/2020 16:31	4.513389822	253.1223898	4.508878558	253.1178786
12/10/2019 12:00	3.070343528	252.8643435	3.653927638	253.4479276	-1.124844918	248.7571551	7/23/2019 12:00	4.595664325	253.2146643	9.518625773	258.1376258	3/20/2020 16:31	4.523640631	253.1326406	4.520216339	253.1292163
12/11/2019 12:00	3.126047696	252.9200477	3.71055768	253.5045577	-1.165801075	248.7161989	7/24/2019 12:00	4.543868853	253.1628689	9.468162135	258.0871621	3/21/2020 16:31	4.464142443	253.0731424	4.460872381	253.0698724
12/12/2019 12:00	3.106155102	252.9001551	3.671707884	253.4657079	-1.257580558	248.6244194	7/25/2019 12:00	4.47603872	253.0950387	9.400147824	258.0191478	3/22/2020 16:31	4.383320308	252.9923203	4.380722581	252.9897226
12/13/2019 12:00	3.055788634	252.8497886	3.628243369	253.4222434	-1.399005027	248.482995	7/26/2019 12:00	4.468252148	253.0872521	9.391488919	258.0104889	3/23/2020 16:31	4.371353094	252.9803531	4.368493445	252.9774934
12/14/2019 12:00	3.07077511	252.8647751	3.639251158	253.4332512	-1.417380382	248.4646196	7/27/2019 12:00	4.48484605	253.103846	9.4073004	258.0263004	3/24/2020 16:31	4.293366564	252.9023666	4.290072889	252.8990729
12/15/2019 12:00	2.958425642	252.7524256	3.539603183	253.3336032	-1.547140525	248.3348595	7/28/2019 12:00	4.411884556	253.0308846	9.334842328	257.9538423	3/25/2020 16:31	4.36121707	252.9702171	4.357486568	252.9664866
12/16/2019 12:00	2.994381456	252.7883815	3.55964811	253.3536481	-1.568965112	248.3130349	7/29/2019 12:00	4.482484709	253.1014847	9.40272925	258.0217292	3/26/2020 16:31	4.295198994	252.904199	4.291500235	252.9005002
12/17/2019 12:00	3.095409632	252.8894096	3.641603202	253.4356032	-1.518966845	248.3630332	7/30/2019 12:00	4.4669118	253.0859118	9.386971003	258.005971	3/27/2020 16:31	4.294954671	252.9039547	4.289461167	252.8984612
12/18/2019 12:00	2.922532387	252.7165324	3.490003229	253.2840032	-1.625650084	248.2563499	7/31/2019 12:00	4.402434923	253.0214349	9.323865225	257.9428652	3/28/2020 16:31	4.287747011	252.896747	4.283343836	252.8923438
12/19/2019 12:00	3.047884989	252.841885	3.598040629	253.3920406	-1.586876417	248.2951236	8/1/2019 12:00	4.424206595	253.0432066	9.342482709	257.9614827	3/29/2020 16:31	4.336974141	252.9459741	4.331325757	252.9403258
12/20/2019 12:00	2.972239856	252.7662399	3.523792242	253.3177922	-1.623736723	248.2582633	8/2/2019 12:00	4.442656055	253.0616561	9.361581712	257.9805817	3/30/2020 16:31	4.306132171	252.9151322	4.301627289	252.9106273
12/21/2019 12:00	2.927740753	252.7217408	3.489061981	253.283062	-1.712855652	248.1691443	8/3/2019 12:00	4.386918505	253.0059185	9.305783286	257.9247833	3/31/2020 16:31	4.274247263	252.8832473	4.268389553	252.8773896
12/22/2019 12:00	2.850310837	252.6443108	3.417990042	253.21199	-1.763928841	248.1180712	8/4/2019 12:00	4.371081353	252.9900814	9.291735771	257.9107358	4/1/2020 16:31	4.287808094	252.8968081	4.28266412	252.8916641
12/23/2019 12:00	2.967095226	252.7610952	3.511933539	253.3059335	-1.66289105	248.2191089	8/5/2019 12:00	4.361757176	252.9807572	9.283015867	257.9020159	4/2/2020 16:31	4.346744923	252.9557449	4.340839185	252.9498392
12/24/2019 12:00	2.882113392	252.6761134	3.443125839	253.2371258	-1.721770038	248.16023	8/6/2019 12:00	4.315320243	252.9343202	9.238276867	257.8572769	4/3/2020 16:31	4.34863796	252.957638	4.343489271	252.9524893
12/25/2019 12:00	2.877599395	252.6715994	3.438513046	253.232513	-1.723213679	248.1587863	8/7/2019 12:00	4.318003328	252.9370033	9.23633837	257.8553384	4/4/2020 16:31	4.354561226	252.9635612	4.350216253	252.9592163
12/26/2019 12:00	2.833898067	252.6278981	3.397654066	253.1916541	-1.774845086	248.1071549	8/8/2019 12:00	4.307015186	252.9260152	9.229445706	257.8484457	4/5/2020 16:31	4.353767396	252.9627674	4.349672667	252.9586727
12/27/2019 12:00	2.79506485	252.5890648	3.360556515	253.1545565	-1.8092647	248.0727353	8/9/2019 12:00	4.279350025	252.89835	9.203002517	257.8220025	4/6/2020 16:31	4.296176284	252.9051763	4.293335378	252.9023354
12/28/2019 12:00	2.86682014	252.6608201	3.419308071	253.2133081	-1.77111467	248.1108853	8/10/2019 12:00	4.288998203	252.9079982	9.210866018	257.829866	4/7/2020 16:31	4.306865101	252.9158651	4.303258444	252.9122584
12/29/2019 12:00	2.849734719	252.6437347	3.401608381	253.1956084	-1.74838841	248.1336116	8/11/2019 12:00	4.291745597	252.9107456	9.212481747	257.8314817	4/8/2020 16:31	4.346928121	252.9559281	4.342062306	252.9510623
12/30/2019 12:00	2.799419907	252.5934199	3.361121484	253.1551215	-1.817224189	248.0647758	8/12/2019 12:00	4.253278029	252.872278	9.173213888	257.7922139	4/9/2020 16:31	4.414883661	253.0238837	4.409390106	253.0183901
12/31/2019 12:00	2.704634235	252.4986342	3.278154934	253.0721549	-1.881148695	248.0008513	8/13/2019 12:00	4.260371542	252.8793715	9.179301445	257.7983014	4/10/2020 16:31	4.341737453	252.9507375	4.337101822	252.9461018
1/1/2020 12:00	2.552488459	252.3464885	3.147400364	252.9414004	-2.045755746	247.8362443	8/14/2019 12:00	4.239090112	252.8580901	9.160014233	257.7790142	4/11/2020 16:31	4.425993825	253.0349938	4.419035577	253.0280356
1/2/2020 12:00	2.658614038	252.452614	3.229646119	253.0236461	-2.090006095	247.7919939	8/15/2019 12:00	4.165958794	252.7849588	9.087365459	257.7063655	4/12/2020 16:31	4.474578713	253.0835787	4.468070666	253.0770707
1/3/2020 12:00	2.72219009	252.5161901	3.275423559	253.0694236	-2.043905057	247.8380949	8/16/2019 12:00	4.14031702	252.759317	9.0615946	257.6805946	4/13/2020 16:31	4.516867831	253.1258678	4.509285915	253.1182859
1/4/2020 12:00	2.695430378	252.4894304	3.244434997	253.038435	-1.995767225	247.8862328	8/17/2019 12:00	4.117101801	252.7361018	9.039809433	257.6588094	4/14/2020 16:31	4.538405808	253.1474058	4.531417691	253.1404177
1/5/2020 12:00	2.67846901	252.472469	3.234921209	253.0289212	-2.031692592	247.8503074	8/18/2019 12:00	4.130148761	252.7491488	9.051565244	257.6705652	4/15/2020 16:31	4.590380834	253.1993808	4.583274948	253.1922749
1/6/2020 12:00	2.597220522	252.3912205	3.163040879	252.9570409	-1.971691841	247.9103082	8/19/2019 12:00	4.152722751	252.7717228	9.074049349	257.6930493	4/16/2020 16:31	4.627951106	253.2369511	4.621412441	253.2304124
1/7/2020 12:00	2.735009804	252.5290098	3.285407097	253.0794071	-1.913275902	247.9687241	8/20/2019 12:00	4.159820468	252.7788205	9.083322249	257.7023222	4/17/2020 16:31	4.527362528	253.1363625	4.523135541	253.1321355
1/8/2020 12:00	2.715202706	252.5092027	3.259411594	253.0534116	-1.864590555	248.0174094	8/21/2019 12:00	4.165894854	252.7848949	9.089198341	257.7081983	4/18/2020 16:31	4.637281653	253.2462817	4.629893963	253.238894
1/9/2020 12:00	2.590404919	252.3844049	3.162946661	252.9569467	-1.998939424	247.8830606	8/22/2019 12:00	4.154513194	252.7735132	9.078739793	257.6977398	4/19/2020 16:31	4.571044193	253.1800442	4.566714706	253.1757147
1/10/2020 12:00	2.722176684	252.5161767	3.2744817	253.0684817	-1.898785841	247.9832142	8/23/2019 12:00	4.127142932	252.7461429	9.05167309	257.6706731	4/20/2020 16:31	4.700267367	253.3092674	4.692510088	253.3015101

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

BH19-14 + 14A							BH19-30					BH19-31				
	VW19-14A		VW19-14B		VW19-14A(2)			VW19-30A		VW19-30B			VW19-31A		VW19-31B	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
1/11/2020 12:00	2.707164408	252.5011644	3.247920178	253.0419202	-1.899147093	247.9828529	8/24/2019 12:00	4.064521793	252.6835218	8.992829633	257.6118296	4/21/2020 16:31	4.711543811	253.3205438	4.707499691	253.3164997
1/12/2020 12:00	2.637021786	252.4310218	3.19573282	252.9897328	-2.006492118	247.8755079	8/25/2019 12:00	4.037777062	252.6567771	8.965259626	257.5842596	4/22/2020 16:31	4.707156249	253.3161562	4.701259815	253.3102598
1/13/2020 12:00	2.605243949	252.3992439	3.168411246	252.9624112	-2.087476535	247.7945235	8/26/2019 12:00	4.020499521	252.6394995	8.94707429	257.5660743	4/23/2020 16:31	4.729589287	253.3385893	4.723030685	253.3320307
1/14/2020 12:00	2.62598337	252.4199834	3.185652364	252.9796524	-2.114720252	247.7672797	8/27/2019 12:00	4.003028222	252.6220282	8.928886444	257.5478864	4/24/2020 16:31	4.803577116	253.4125771	4.795853819	253.4048538
1/15/2020 12:00	2.687718399	252.4817184	3.237747115	253.0317471	-2.06532289	247.8166771	8/28/2019 12:00	4.010964126	252.6299641	8.935740912	257.5547409	4/25/2020 16:31	4.848053907	253.4570539	4.842286353	253.4512864
1/16/2020 12:00	2.759717066	252.5537171	3.289268574	253.0832686	-1.964230365	247.9177696	8/29/2019 12:00	4.028882547	252.6478825	8.951229618	257.5702296	4/26/2020 16:31	4.777494031	253.386494	4.772735091	253.3817351
1/17/2020 12:00	2.564863993	252.358864	3.128847368	252.9228474	-2.087440406	247.7945596	8/30/2019 12:00	4.080323521	252.6993235	9.002324033	257.621324	4/27/2020 16:31	4.848297596	253.4572976	4.841676362	253.4506764
1/18/2020 12:00	2.566115964	252.360116	3.139683347	252.9336833	-2.191976543	247.6900235	8/31/2019 12:00	4.067272807	252.6862728	8.989646698	257.6086467	4/28/2020 16:31	4.921330882	253.5303309	4.912896749	253.5218967
1/19/2020 12:00	2.703226041	252.497226	3.251037807	253.0450378	-2.085236327	247.7967637	9/1/2019 12:00	4.02331524	252.6423152	8.949286883	257.5682869	4/29/2020 16:31	4.96621041	253.5752104	4.958420734	253.5674207
1/20/2020 12:00	2.601376395	252.3953764	3.156360639	252.9503606	-2.112600243	247.7693998	9/2/2019 12:00	4.055564696	252.6745647	8.982795034	257.601795	4/30/2020 16:31	4.932171042	253.541171	4.925498207	253.5344982
1/21/2020 12:00	2.39306109	252.1870611	2.982951151	252.7769512	-2.312285073	247.5697149	9/3/2019 12:00	4.039952628	252.6589526	8.966824419	257.5858244	5/1/2020 16:31	4.957198731	253.5661987	4.949818061	253.5588181
1/22/2020 12:00	2.478808862	252.2728089	3.053551079	252.8475511	-2.372965772	247.5090342	9/4/2019 12:00	4.021651411	252.6406514	8.950582043	257.569582	5/2/2020 16:31	5.092211952	253.701212	5.083082766	253.6920828
1/23/2020 12:00	2.577036897	252.3710369	3.125266706	252.9192667	-2.262476996	247.619523	9/5/2019 12:00	4.02216336	252.6411634	8.951229618	257.5702296	5/3/2020 16:31	5.176718752	253.7857188	5.168559564	253.7775596
1/24/2020 12:00	2.509632363	252.3036324	3.061656383	252.8556564	-2.287453467	247.5945465	9/6/2019 12:00	4.036817244	252.6558172	8.966284837	257.5852848	5/4/2020 16:31	5.20110932	253.8101093	5.193660781	253.8026608
1/25/2020 12:00	2.445818027	252.239818	3.009628193	252.8036282	-2.346589785	247.5354102	9/7/2019 12:00	4.056268485	252.6752685	8.986139986	257.60514	5/5/2020 16:31	5.263623901	253.8726239	5.255959971	253.86496
1/26/2020 12:00	2.480821405	252.2748214	3.038753676	252.8327537	-2.337687029	247.544313	9/8/2019 12:00	4.021587418	252.6405874	8.952093046	257.571093	5/6/2020 16:31	5.324782708	253.9337827	5.316819275	253.9258193
1/27/2020 12:00	2.484161348	252.2781613	3.037811144	252.8318111	-2.284888389	247.5971116	9/9/2019 12:00	4.005332233	252.6243322	8.935579	257.554579	5/7/2020 16:31	5.375167653	253.9841677	5.366574421	253.9755744
1/28/2020 12:00	2.469896593	252.2638966	3.024238383	252.8182384	-2.242298274	247.6397017	9/10/2019 12:00	4.012308073	252.6313081	8.940112473	257.5591125	5/8/2020 16:31	5.391392812	254.0003928	5.382796154	253.9917962
1/29/2020 12:00	2.472805616	252.2668056	3.04572833	252.8397283	-2.19585834	247.6861417	9/11/2019 12:00	4.057484114	252.6764841	8.984251717	257.6032517	5/9/2020 16:31	5.455066014	254.064066	5.444561448	254.0535614
1/30/2020 12:00	2.422489284	252.2164893	2.99925928	252.7932593	-2.19293448	247.6890655	9/12/2019 12:00	4.033553825	252.6525538	8.961644344	257.5806443	5/10/2020 16:31	5.521574247	254.1305742	5.51062978	254.1196298
1/31/2020 12:00	2.353012652	252.1470127	2.931287734	252.7252877	-2.198663366	247.6833366	9/13/2019 12:00	3.972625167	252.5916252	8.905189905	257.5241899	5/11/2020 16:31	5.517930504	254.1269305	5.506847337	254.1158473
2/1/2020 12:00	2.28378912	252.0777891	2.868583173	252.6625832	-2.24094194	247.6410581	9/14/2019 12:00	3.961550704	252.5805507	8.89250322	257.5115032	5/12/2020 16:31	5.512100384	254.1211004	5.501173533	254.1101735
2/2/2020 12:00	2.322214874	252.1162149	2.897721053	252.6917211	-2.251892652	247.6301073	9/15/2019 12:00	3.956749413	252.5757494	8.885916459	257.5049165	5/13/2020 16:31	5.481975527	254.0909755	5.471045541	254.0800455
2/3/2020 12:00	2.459005671	252.2530057	3.012738803	252.8067388	-2.13297524	247.7490248	9/16/2019 12:00	3.957197539	252.5761975	8.88651036	257.5055104	5/14/2020 16:31	5.511493071	254.1204931	5.499619963	254.10862
2/4/2020 12:00	2.450515687	252.2445157	2.9984109	252.7924109	-2.036064029	247.845936	9/17/2019 12:00	3.920191142	252.5391911	8.849845411	257.4688454	5/15/2020 16:31	5.600870772	254.2098708	5.588963705	254.1979637
2/5/2020 12:00	2.345542437	252.1395424	2.916390582	252.7103906	-2.094638681	247.7873613	9/18/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/16/2020 16:31	5.609612205	254.2186122	5.598348134	254.2073481
2/6/2020 12:00	2.364730947	252.1587309	2.9337391	252.7277391	-2.057609957	247.82439	9/19/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/17/2020 16:31	5.605241534	254.2142415	5.594432385	254.2034324
2/7/2020 12:00	2.37642708	252.1704271	2.936096166	252.7300962	-2.011999116	247.8700009	9/20/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/18/2020 16:31	5.612465234	254.2214652	5.601791228	254.2107912
2/8/2020 12:00	2.360692829	252.1546928	2.921482089	252.7154821	-2.039472741	247.8425273	9/21/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/19/2020 16:31	5.596257091	254.2052571	5.585857965	254.194858
2/9/2020 12:00	2.366193004	252.160193	2.916767733	252.7107677	-2.06749277	247.8145072	9/22/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/20/2020 16:31	5.603723918	254.2127239	5.593082108	254.2020821
2/10/2020 12:00	2.355852109	252.1498521	2.910261812	252.7042618	-2.168013812	247.7139862	9/23/2019 12:00	#N/A	#N/A	#N/A	#N/A	5/21/2020 16:31	5.578894175	254.1878942	5.568505414	254.1775054
2/11/2020 12:00	2.250063577	252.0440636	2.811903133	252.6059031	-2.253652317	247.6283477	9/24/2019 12:00	3.870367063	252.4893671	8.801285122	257.4202851	5/22/2020 16:31	5.581504775	254.1905048	5.570463563	254.1794636
2/12/2020 12:00	2.464782421	252.2587824	3.001615879	252.7956159	-2.185620784	247.6963792	9/25/2019 12:00	3.890157548	252.5091575	8.819166461	257.4381665	5/23/2020 16:31	5.590489848	254.1994898	5.578566033	254.187566
2/13/2020 12:00	2.412517622	252.2065176	2.947315568	252.7413156	-2.190324296	247.6916757	9/26/2019 12:00	3.879974382	252.4989744	8.809010589	257.4280106	5/24/2020 16:31	5.612525936	254.2215259	5.600373491	254.2093735
2/14/2020 12:00	2.177000709	251.9710007	2.753326727	252.5473267	-2.352283263	247.5297167	9/27/2019 12:00	3.928066879	252.5470669	8.854489841	257.4734898	5/25/2020 16:31	5.613982786	254.2229828	5.601386161	254.2103862
2/15/2020 12:00	2.290837808	252.0848378	2.858681368	252.6526814	-2.412285064	247.4697149	9/28/2019 12:00	4.029778418	252.6487784	8.955168963	257.574169	5/26/2020 16:31	5.570576467	254.1795765	5.557971587	254.1669716
2/16/2020 12:00	2.310616471	252.1046165	2.859718714	252.6537187	-2.376547273	247.5054527	9/29/2019 12:00	4.041232359	252.6602324	8.96903668	257.5880367	5/27/2020 16:31	5.587454393	254.1964544	5.573839633	254.1828396
2/17/2020 12:00	2.316187553	252.1101876	2.865093999	252.659094	-2.40600631	247.4759937	9/30/2019 12:00	3.997204058	252.6162041	8.925647988	257.544648	5/28/2020 16:31	5.65956496	254.268565	5.644588468	254.2535885
2/18/2020 12:00	2.388805522	252.1828055	2.926007807	252.7200078	-2.351538264	247.5304617						5/29/2020 16:31	5.684627912	254.2936279	5.670370227	254.2793702
2/19/2020 12:00	2.436845792	252.2308458	2.964662468	252.7586625	-2.305192083	247.5768079						5/30/2020 16:31	5.660111157	254.2691112	5.647220795	254.2562208
2/20/2020 12:00	2.284726324	252.0787263	2.832652358	252.6266524	-2.393126817	247.4888732						5/31/2020 16:31	5.616350146	254.2253501	5.6048292	254.2138292
2/21/2020 12:00	2.212487696	252.0064877	2.773985288	252.5679853	-2.541991587	247.3400084						6/1/2020 16:31	5.536695108	254.1456951	5.525218509	254.1342185
2/22/2020 12:00	2.179250069	251.9732501	2.739270624	252.5332706	-2.637834747	247.2441653						6/2/2020 16:31	5.594557288	254.2035573	5.580254005	254.189254
2/23/2020 12:00	2.186647589	251.9806476	2.741817747	252.5358177	-2.698210882	247.1837891						6/3/2020 16:31	5.520481131	254.1294811	5.510224522	254.1192245
2/24/2020 12:00	2.259452088	252.0534521	2.798887048	252.592887	-2.68321603	247.198784						6/4/2020 16:31	5.522910271	254.1319103	5.510562237	254.1195622
2/25/2020 12:00	2.361888335	252.1558883	2.883576771	252.6775768	-2.572786757	247.3092132						6/5/2020 16:31	5.594071628	254.2030716	5.581064226	254.1900642
2/26/2020 12:00	2.287103498	252.0811035	2.820863185	252.6148632	-2.499203275	247.3827967						6/6/2020 16:31	5.552482799	254.1614828	5.54048146	254.1494815
2/27/2020 12:00	2.207829965	252.00183	2.761062046	252.555062	-2.503293226	247.3787068						6/7/2020 16:31	5.460654728	254.0696547	5.448480242	254.0574802
2/28/2020 12:00	2.184977766	251.9789778	2.740780033	252.53478	-2.515917839	247.3660822						6/8/2020 16:31	5.468673059	254.0776731	5.454763659	254.0637637
2/29/2020 12:00	2.074080981	251.868081	2.640861233	252.4348612	-2.594946652	247.2870533						6/9/2020 16:31	5.477540105	254.0865401	5.465438243	254.0744382
3/1/2020 12:00	2.050652625	251.8446526	2.619816897	252.4138169	-2.740221544	247.1417785						6/10/2020 16:31	5.470554713	254.0795547	5.458479563	254.0674796
3/2/2020 12:00	1.972537215	251.7665372	2.542233879	252.3362339	-2.785828219	247.0961718						6/11/2020 16:31	5.546227581	254.1552276	5.533052741	254.1420527
3/3/2020 12:00	2.048281737	251.8422817	2.608963915	252.4029639	-2.816545599	247.0654544						6/12/2020 16:31	5.55788583	254.1668858	5.546356699	254.1553567
3/4/2020 12:00	2.06438554	251.8583855	2.615098253	252.4090983	-2.720792969	247.161207						6/13/2020 16:31	5.501896052	254.1108961	5.491311525	254.1003115
3/5/2020 12:00	2.203854614	251.9978546	2.731912158	252.5259122	-2.622248279	247.2597517						6/14/2020 16:31	5.447410151	254.0564102	5.437737152	254.0467372
3/6/2020 12:00	2.086626613	251.8806266	2.623780506	252.4177805	-2.512761033	247.369239						6/15/2020 16:31	5.439816238	254.0488162	5.428750334	254.0377503

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

BH19-14 + 14A							BH19-30					BH19-31				
	VW19-14A		VW19-14B		VW19-14A(2)			VW19-30A		VW19-30B			VW19-31A		VW19-31B	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
3/7/2020 12:00	2.101406072	251.8954061	2.645579511	252.4395795	-2.526050784	247.3559492						6/16/2020 16:31	5.409923935	254.0189239	5.399692345	254.0086923
3/8/2020 12:00	2.070660715	251.8646607	2.624535474	252.4185355	-2.508277115	247.3737229						6/17/2020 16:31	5.365867594	253.9748676	5.356299951	253.9653
3/9/2020 12:00	2.115404701	251.9094047	2.658129804	252.4521298	-2.440817589	247.4411824						6/18/2020 16:31	5.396069968	254.00507	5.385634817	253.9946348
3/10/2020 12:00	2.063885433	251.8578854	2.61736321	252.4113632	-2.402720015	247.47928						6/19/2020 16:31	5.381668168	253.9906682	5.371846633	253.9808466
3/11/2020 12:00	1.929897768	251.7238978	2.499659342	252.2936593	-2.445708647	247.4362914						6/20/2020 16:31	5.328731588	253.9377316	5.319253249	253.9282532
7/8/2020 7:35	2.069376921	251.8633769	3.541955937	253.3359559	-0.577863037	249.304137						6/21/2020 16:31	5.319917664	253.9289177	5.309043876	253.9180439
7/9/2020 7:35	2.101723635	251.8957236	3.544591002	253.338591	-0.527714367	249.3542856						6/22/2020 16:31	5.341921392	253.9509214	5.330273357	253.9392734
7/10/2020 7:35	2.173407591	251.9674076	3.632006757	253.4260068	-0.503104094	249.3788959						6/23/2020 16:31	5.302471088	253.9114711	5.29153118	253.9005312
7/11/2020 7:35	2.177240043	251.97124	3.640474223	253.4344742	-0.518103423	249.3638966						6/24/2020 16:31	5.269884075	253.8788841	5.258597605	253.8675976
7/12/2020 7:35	2.135984848	251.9299848	3.620246028	253.414246	-0.582011286	249.2999887						6/25/2020 16:31	5.231514932	253.8405149	5.220246929	253.8292469
7/13/2020 7:35	2.01700535	251.8110054	3.549202314	253.3432023	-0.717645778	249.1643542						6/26/2020 16:31	5.250061902	253.8590619	5.237968997	253.846969
7/14/2020 7:35	2.014355199	251.8083552	3.553154816	253.3471548	-0.765632159	249.1163678						6/27/2020 16:31	5.180912949	253.7899129	5.170318785	253.7793188
7/15/2020 7:35	1.961553689	251.7555537	3.536873968	253.330874	-0.859082407	249.0229176						6/28/2020 16:31	5.190584217	253.7995842	5.179182309	253.7881823
7/16/2020 7:35	1.956251802	251.7502518	3.540167846	253.3341678	-0.915729597	248.9662704						6/29/2020 16:31	5.242947355	253.8519474	5.231272681	253.8402727
7/17/2020 7:35	1.988986751	251.7829868	3.551837321	253.3458373	-0.927424767	248.9545752						6/30/2020 16:31	5.255169633	253.8641696	5.245814891	253.8548149
7/18/2020 7:35	1.899892786	251.6938928	3.493203451	253.2872035	-1.016867828	248.8651322						7/1/2020 16:31	5.294689572	253.9036896	5.284363364	253.8933634
7/19/2020 7:35	1.953828579	251.7478286	3.515980605	253.3099806	-1.021002546	248.8609975						7/2/2020 16:31	5.343744803	253.9527448	5.333788842	253.9427888
7/20/2020 7:35	1.999460166	251.7934602	3.551366785	253.3453668	-0.912410024	248.96959						7/3/2020 16:31	5.41490628	254.0239063	5.404423013	254.013423
7/21/2020 7:35	1.946582936	251.7405829	3.534427066	253.3284271	-0.960626916	248.9213731						7/4/2020 16:31	5.43070318	254.0397032	5.420438844	254.0294388
7/22/2020 7:35	1.945048021	251.739048	3.519368807	253.3133688	-1.010254353	248.8717456						7/5/2020 16:31	5.443339848	254.0523398	5.431993745	254.0409937
7/23/2020 7:35	1.894668826	251.6886688	3.478519825	253.2725198	-1.071083886	248.8109161						7/6/2020 16:31	5.472619984	254.08162	5.461519794	254.0705198
7/24/2020 7:35	1.8124398	251.6064398	3.40622169	253.2002217	-1.167793086	248.7142069						7/7/2020 16:31	5.492603467	254.1016035	5.48003039	254.0890304
7/25/2020 7:35	1.80698482	251.6009848	3.404621161	253.1986212	-1.197023293	248.6849767						7/8/2020 16:31	5.464601762	254.0736018	5.451790885	254.0607909
7/26/2020 7:35	1.89186968	251.6858697	3.417990042	253.21199	-1.07446214	248.8075379						7/9/2020 16:31	5.493696734	254.1026967	5.479692621	254.0886926
7/27/2020 7:35	1.900383998	251.694384	3.409422723	253.2034227	-0.981299717	248.9007003						7/10/2020 16:31	5.555699958	254.1647	5.541224316	254.1502243
7/28/2020 7:35	1.859118395	251.6531184	3.386920685	253.1809207	-1.028036516	248.8539635						7/11/2020 16:31	5.557582238	254.1665822	5.543858056	254.1528581
7/29/2020 7:35	1.854581064	251.6485811	3.387862223	253.1818622	-1.061323755	248.8206762						7/12/2020 16:31	5.520358535	254.1293585	5.507387691	254.1163877
7/30/2020 7:35	1.836919346	251.6309193	3.378164247	253.1721642	-1.093033347	248.7889667						7/13/2020 16:31	5.478451226	254.0874512	5.465505802	254.0745058
7/31/2020 7:35	1.778870229	251.5728702	3.329481759	253.1234818	-1.157455146	248.7245449						7/14/2020 16:31	5.479605307	254.0886053	5.466316506	254.0753165
8/1/2020 7:35	1.84073388	251.6347339	3.365923677	253.1599237	-1.153917035	248.728083						7/15/2020 16:31	5.466970814	254.0759708	5.45402047	254.0630205
8/2/2020 7:35	1.827993978	251.621994	3.366488637	253.1604886	-1.151518353	248.7304816						7/16/2020 16:31	5.484884786	254.0938848	5.474220686	254.0832207
8/3/2020 7:35	1.781908494	251.5759085	3.344925336	253.1389253	-1.182852147	248.6991479						7/17/2020 16:31	5.43962883	254.0486288	5.429628763	254.0386288
8/4/2020 7:35	1.75529952	251.5492995	3.289927846	253.0839278	-1.252558344	248.6294417						7/18/2020 16:31	5.433857238	254.0428572	5.423547248	254.0325472
8/5/2020 7:35	1.681554611	251.4755546	3.234356024	253.028356	-1.342909865	248.5390901						7/19/2020 16:31	5.477352925	254.0863529	5.466316506	254.0753165
8/6/2020 7:35	1.652415375	251.4464154	3.203552028	252.997552	-1.420603266	248.4613967						7/20/2020 16:31	5.462045411	254.0710454	5.451182812	254.0601828
8/7/2020 7:35	1.612174065	251.4061741	3.161156519	252.9551565	-1.481059494	248.4009405						7/21/2020 16:31	5.448498548	254.0574985	5.437466878	254.0464669
8/8/2020 7:35	1.596026591	251.3900266	3.142594998	252.936595	-1.54354637	248.3384536						7/22/2020 16:31	5.440054099	254.0490541	5.428480047	254.03748
8/9/2020 7:35	1.566943709	251.3609437	3.085773315	252.8797733	-1.506171886	248.3758281						7/23/2020 16:31	5.409432541	254.0184325	5.397529715	254.0065297
8/10/2020 7:35	1.553106401	251.3471064	3.052222271	252.8462223	-1.520986527	248.3610135						7/24/2020 16:31	5.375889541	253.9848895	5.363532694	253.9725327
8/11/2020 7:35	1.546323814	251.3403238	3.051185527	252.8451855	-1.571405835	248.3105942						7/25/2020 16:31	5.377530355	253.9865304	5.365019766	253.9740198
8/12/2020 7:35	1.599179659	251.3931797	3.071825541	252.8658255	-1.542714712	248.3392853						7/26/2020 16:31	5.397644486	254.0066445	5.384958949	253.9939589
8/13/2020 7:35	1.562614011	251.356614	3.028659113	252.8226591	-1.581959867	248.3000401						7/27/2020 16:31	5.378928076	253.9879281	5.367250353	253.9762504
8/14/2020 7:35	1.565970143	251.3599701	3.023097963	252.817098	-1.610610098	248.2713899						7/28/2020 16:31	5.363066441	253.9720664	5.351432907	253.9604329
8/15/2020 7:35	1.517359722	251.3113597	2.979359566	252.7733596	-1.648065772	248.2339342						7/29/2020 16:31	5.355591005	253.964591	5.344605318	253.9536053
8/16/2020 7:35	1.546241831	251.3402418	2.995573611	252.7895736	-1.664000247	248.2179998						7/30/2020 16:31	5.335351298	253.9443513	5.324729577	253.9337296
8/17/2020 7:35	1.593716479	251.3877165	3.019327639	252.8133276	-1.63716215	248.2448379						7/31/2020 16:31	5.319851111	253.9288511	5.308638195	253.9176382
8/18/2020 7:35	1.522795873	251.3167959	2.950511687	252.7445117	-1.681238281	248.2007617						8/1/2020 16:31	5.321066853	253.9300669	5.31012569	253.9191257
8/19/2020 7:35	1.448928198	251.2429282	2.887433559	252.6814336	-1.766935966	248.115064						8/2/2020 16:31	5.307024605	253.9160246	5.296196879	253.9051969
8/20/2020 7:35	1.441483273	251.2354833	2.879041094	252.6730411	-1.813088989	248.068911						8/3/2020 16:31	5.269209233	253.8782092	5.258394711	253.8673947
8/21/2020 7:35	1.422101194	251.2161012	2.84735527	252.6413553	-1.858410704	248.0235893						8/4/2020 16:31	5.22299476	253.8319948	5.211317638	253.8203176
8/22/2020 7:35	1.431267693	251.2252677	2.846223577	252.6402236	-1.874947901	248.0070521						8/5/2020 16:31	5.168314846	253.7773148	5.157056571	253.7660566
8/23/2020 7:35	1.463835117	251.2578351	2.83971627	252.6337163	-1.644821663	248.2371783						8/6/2020 16:31	5.150733982	253.759734	5.139259417	253.7482594
8/24/2020 7:35	1.492866652	251.2868667	2.83188847	252.6258885	-1.33625213	248.5457479						8/7/2020 16:31	5.1030332	253.7120332	5.091679526	253.7006795
8/25/2020 7:35	1.470576419	251.2645764	2.80151863	252.5955186	-1.168073371	248.7139266						8/8/2020 16:31	5.114290095	253.7232901	5.102509547	253.7115095
8/26/2020 7:35	1.440211583	251.2342116	2.752373963	252.546374	-1.176289762	248.7057102						8/9/2020 16:31	5.070841261	253.6798413	5.05925353	253.6682535
8/27/2020 7:35	1.46204117	251.2560412	2.774338704	252.5683387	-1.144851401	248.7371486						8/10/2020 16:31	5.041018269	253.6500183	5.029327441	253.6383274

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

BH19-14 + 14A							BH19-30					BH19-31				
	VW19-14A		VW19-14B		VW19-14A(2)			VW19-30A		VW19-30B			VW19-31A		VW19-31B	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
8/28/2020 7:35	1.420214971	251.214215	2.735095792	252.5290958	-1.175855815	248.7061442						8/11/2020 16:31	5.065303023	253.674303	5.053498872	253.6624989
8/29/2020 7:35	1.450863353	251.2448634	2.759528823	252.5535288	-1.16564797	248.716352						8/12/2020 16:31	5.044365957	253.653366	5.033593207	253.6425932
8/30/2020 7:35	1.346022748	251.1400227	2.671882307	252.4658823	-1.224489455	248.6575105						8/13/2020 16:31	5.016791602	253.6257916	5.005220715	253.6142207
8/31/2020 7:35	1.383479527	251.1774795	2.667258758	252.4612588	-1.215611051	248.6663889						8/14/2020 16:31	4.994571241	253.6035712	4.984294189	253.5932942
9/1/2020 7:35	1.380609765	251.1746098	2.63253291	252.4265329	-1.109092705	248.7729073						8/15/2020 16:31	4.965894396	253.5748944	4.955304849	253.5643048
9/2/2020 7:35	1.409865321	251.2038653	2.642252739	252.4362527	-1.128998271	248.7530017						8/16/2020 16:31	4.979837551	253.5888376	4.969122739	253.5781227
9/3/2020 7:35	1.465284734	251.2592847	2.660842299	252.4548423	-1.058070506	248.8239295						8/17/2020 16:31	4.952863719	253.5618637	4.942773069	253.5517731
9/4/2020 7:35	1.435687305	251.2296873	2.690187151	252.4841872	-0.873557371	249.0084426						8/18/2020 16:31	4.8841654	253.4931654	4.874138752	253.4831388
9/5/2020 7:35	1.566980001	251.36098	2.709717496	252.5037175	-0.825961345	249.0560387						8/19/2020 16:31	4.857849505	253.4668495	4.847030658	253.4560307
9/6/2020 7:35	1.439387339	251.2333873	2.591291248	252.3852912	-0.886124639	248.9958754						8/20/2020 16:31	4.827204428	253.4362044	4.816122815	253.4251228
9/7/2020 7:35	1.569637275	251.3636373	2.683488073	252.4774881	-0.731456893	249.1505431						8/21/2020 16:31	4.809534279	253.4185343	4.798497721	253.4074977
9/8/2020 7:35	1.613532733	251.4075327	2.736793898	252.5307939	-0.664697782	249.2173022						8/22/2020 16:31	4.830421766	253.4394218	4.820596623	253.4295966
9/9/2020 7:35	1.570461569	251.3644616	2.684148551	252.4781486	-0.673783324	249.2082167						8/23/2020 16:31	4.821465103	253.4304651	4.811852266	253.4208523
9/10/2020 7:35	1.529898666	251.3238987	2.660747939	252.4547479	-0.751974371	249.1300256						8/24/2020 16:31	4.806231814	253.4152318	4.796870709	253.4058707
9/11/2020 7:35	1.492031057	251.2860311	2.628663773	252.4226638	-0.774175429	249.1078246						8/25/2020 16:31	4.758757867	253.3677579	4.750901979	253.359902
9/12/2020 7:35	1.420800063	251.2148001	2.575623737	252.3696237	-0.899169732	248.9828303						8/26/2020 16:31	4.74992008	253.3589201	4.741476368	253.3504764
9/13/2020 7:35	1.48188681	251.2758868	2.637534411	252.4315344	-0.915638931	248.9663611						8/27/2020 16:31	4.736693187	253.3456932	4.729066413	253.3380664
9/14/2020 7:35	1.506759192	251.3007592	2.661597183	252.4555972	-0.863840771	249.0181592						8/28/2020 16:31	4.719137328	253.3281373	4.711297778	253.3202978
9/15/2020 7:35	1.414887244	251.2088872	2.595066442	252.3890664	-0.942769293	248.9392307						8/29/2020 16:31	4.699690081	253.3086901	4.692645745	253.3016457
9/16/2020 7:35	1.497804845	251.2918048	2.653104639	252.4471046	-0.959841438	248.9221586						8/30/2020 16:31	4.636032087	253.2450321	4.628129837	253.2371298
9/17/2020 7:35	1.484232611	251.2782326	2.645178069	252.4391781	-0.937917497	248.9440825						8/31/2020 16:31	4.63469043	253.2436904	4.626501399	253.2355014
9/18/2020 7:35	1.470547998	251.264548	2.628286294	252.4222863	-0.939894139	248.9421059						9/1/2020 16:31	4.547159481	253.1561595	4.539020665	253.1480207
9/19/2020 7:35	1.39027718	251.1842772	2.5541033	252.3481033	-1.026287727	248.8557123						9/2/2020 16:31	4.583091181	253.1920912	4.574452044	253.183452
9/20/2020 7:35	1.293725623	251.0877256	2.489439215	252.2834392	-1.089281322	248.7927187						9/3/2020 16:31	4.617370093	253.2263701	4.608316243	253.2173162
9/21/2020 7:35	1.202746692	250.9967467	2.417397105	252.2113971	-1.209154253	248.6728457						9/4/2020 16:31	4.649936036	253.258936	4.640749773	253.2497498
9/22/2020 7:35	1.328757006	251.122757	2.509736597	252.3037366	-1.149118132	248.7328819						9/5/2020 16:31	4.62877484	253.2377748	4.619919654	253.2289197
9/23/2020 7:35	1.346821726	251.1408217	2.52134803	252.315348	-1.130830707	248.7511693						9/6/2020 16:31	4.599926356	253.2089264	4.589450742	253.1984507
9/24/2020 7:35	1.281766745	251.0757667	2.461115215	252.2551152	-1.135387762	248.7466122						9/7/2020 16:31	4.656948648	253.2659486	4.646788055	253.2557881
9/25/2020 7:35	1.155094741	250.9490947	2.37027331	252.1642733	-1.280312649	248.6016874						9/8/2020 16:31	4.682618928	253.2916189	4.673381405	253.2823814
9/26/2020 7:35	1.140943653	250.9349437	2.342411413	252.1364114	-1.32586503	248.556135						9/9/2020 16:31	4.629079771	253.2380798	4.620733903	253.2297339
9/27/2020 7:35	1.153349429	250.9473494	2.372539938	252.1665399	-1.373950236	248.5080498						9/10/2020 16:31	4.634629445	253.2436294	4.625755026	253.234755
9/28/2020 7:35	1.27974444	251.0737444	2.462248222	252.2562482	-1.271374748	248.6106253						9/11/2020 16:31	4.555883695	253.1648837	4.548320329	253.1573203
9/29/2020 7:35	1.153069081	250.9470691	2.357051006	252.151051	-1.293698349	248.5883017						9/12/2020 16:31	4.546549383	253.1555494	4.53834184	253.1473418
9/30/2020 7:35	1.189580913	250.9835809	2.383117331	252.1771173	-1.341475088	248.5405249						9/13/2020 16:31	4.615662378	253.2246624	4.606687639	253.2156876
10/1/2020 7:35	1.328487804	251.1224878	2.495198133	252.2891981	-1.23945427	248.6425457						9/14/2020 16:31	4.554663547	253.1636635	4.547573657	253.1565737
10/2/2020 7:35	1.276803169	251.0708032	2.438454278	252.2324543	-1.211618343	248.6703817						9/15/2020 16:31	4.527330392	253.1363304	4.519198003	253.128198
10/3/2020 7:35	1.250535304	251.0445353	2.428161925	252.2221619	-1.24995382	248.6320462						9/16/2020 16:31	4.575344112	253.1843441	4.566918325	253.1759183
10/4/2020 7:35	1.206467251	251.0004673	2.372823266	252.1668233	-1.265314234	248.6166858						9/17/2020 16:31	4.577113153	253.1861132	4.568411517	253.1774115
10/5/2020 7:35	1.056181387	250.8501814	2.258433818	252.0524338	-1.417552129	248.4644479						9/18/2020 16:31	4.517628717	253.1266287	4.509761164	253.1187612
10/6/2020 7:35	1.074693093	250.8686931	2.263346477	252.0573465	-1.441755229	248.4402448						9/19/2020 16:31	4.488948223	253.0979482	4.480089851	253.0890899
10/7/2020 7:35	1.146479181	250.9404792	2.311430021	252.10543	-1.430584175	248.4514158						9/20/2020 16:31	4.414299791	253.0232998	4.405925771	253.0149258
10/8/2020 7:35	1.210452194	251.0044522	2.350534105	252.1445341	-1.347963283	248.5340367						9/21/2020 16:31	4.447690348	253.0566903	4.436966735	253.0459667
10/9/2020 7:35	1.033308035	250.827308	2.201271591	251.9952716	-1.456590946	248.4254091						9/22/2020 16:31	4.436642133	253.0456421	4.427457993	253.036458
10/10/2020 7:35	1.158314357	250.9523144	2.322765011	252.116765	-1.402839628	248.4791604						9/23/2020 16:31	4.470944661	253.0799447	4.462026841	253.0710268
10/11/2020 7:35	0.95726887	250.7512689	2.149958952	251.943959	-1.476293651	248.4057063						9/24/2020 16:31	4.357823035	252.966823	4.350623941	252.9596239
10/12/2020 7:35	0.990732617	250.7847326	2.185491197	251.9794912	-1.556207139	248.3257929						9/25/2020 16:31	4.337609875	252.9466099	4.32935506	252.9383551
10/13/2020 7:35	0.979578683	250.7735787	2.197586416	251.9915864	-1.551820018	248.33018						9/26/2020 16:31	4.292474479	252.9014745	4.284431375	252.8934314
												9/27/2020 16:31	4.369241706	252.9782417	4.357011994	252.966012
												9/28/2020 16:31	4.38810865	252.9971086	4.376647268	252.9856473
												9/29/2020 16:31	4.286182859	252.8951829	4.277838074	252.8868381
												9/30/2020 16:31	4.34884643	252.9578464	4.336491362	252.9454914
												10/1/2020 16:31	4.409599054	253.0185991	4.39770713	253.0067071
												10/2/2020 16:31	4.359532821	252.9685328	4.347703233	252.9567032
												10/3/2020 16:31	4.36881428	252.9778143	4.356740212	252.9657402
												10/4/2020 16:31	4.25398885	252.8629889	4.243577941	252.8525779
												10/5/2020 16:31	4.248673622	252.8576736	4.239157422	252.8481574

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

BH19-14 + 14A							BH19-30					BH19-31				
Date/Time	VW19-14A		VW19-14B		VW19-14A(2)		Date/Time	VW19-30A		VW19-30B		Date/Time	VW19-31A		VW19-31B	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
												10/6/2020 16:31	4.232177243	252.8411772	4.219645749	252.8286457
												10/7/2020 16:31	4.307072764	252.9160728	4.294695988	252.903696
												10/8/2020 16:31	4.242319612	252.8513196	4.232292102	252.8412921

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/15/2019 12:00	4.026652341	252.7546523	3.71466003	252.44266	3.598910119	252.3269101	11/23/2019 12:00	0.015264577	247.8592646	1.150520756	248.9945208	3.477827417	251.3218274	3.667279274	251.5112793
11/16/2019 12:00	3.857171249	252.5851712	3.548048709	252.2760487	3.462187632	252.1901876	11/24/2019 12:00	-0.005276038	247.838724	1.130366172	248.9743662	3.464522305	251.3085223	3.649986925	251.4939869
11/17/2019 12:00	3.941623121	252.6696231	3.628394343	252.3563943	3.518443271	252.2464433	11/25/2019 12:00	0.027625916	247.8716259	1.171356415	249.0153564	3.502098031	251.346098	3.687163006	251.531163
11/18/2019 12:00	3.843071983	252.571072	3.525523122	252.2535231	3.436471397	252.1644714	11/26/2019 12:00	0.119518392	247.9635184	1.264646253	249.1086463	3.565945956	251.409946	3.746798364	251.5907984
11/19/2019 12:00	3.944068622	252.6720686	3.621570579	252.3495706	3.512016883	252.2400169	11/27/2019 12:00	0.201297035	248.045297	1.341308047	249.185308	3.637830076	251.4818301	3.817005094	251.6610051
11/20/2019 12:00	4.031893641	252.7598936	3.719385557	252.4473856	3.586763199	252.3147632	11/28/2019 12:00	0.271202222	248.1152022	1.398699821	249.2426998	3.68974556	251.5337456	3.867436829	251.7114368
11/21/2019 12:00	4.031035688	252.7590357	3.733346519	252.4613465	3.589370731	252.3173707	11/29/2019 12:00	0.200157064	248.0441571	1.312435327	249.1564353	3.630692295	251.4746923	3.809231566	251.6532316
11/22/2019 12:00	3.889571716	252.6175717	3.59620724	252.3242072	3.479053691	252.2070537	11/30/2019 12:00	0.145873834	247.9898738	1.261437149	249.1054371	3.600720707	251.4447207	3.779054933	251.6230549
11/23/2019 12:00	3.853552975	252.581553	3.549177592	252.2771776	3.443155473	252.1711555	12/1/2019 12:00	0.134470485	247.9784705	1.253789716	249.0977897	3.611184215	251.4551842	3.788557774	251.6325578
11/24/2019 12:00	3.849372129	252.5773721	3.541113965	252.269114	3.440672849	252.1686728	12/2/2019 12:00	0.0288937	247.8728937	1.131937619	248.9759376	3.51616769	251.3601677	3.694251351	251.5382514
11/25/2019 12:00	3.903942221	252.6319422	3.595723578	252.3237236	3.482426688	252.2104267	12/3/2019 12:00	-0.031398787	247.8126012	1.080483399	248.9244834	3.48077283	251.3247728	3.658518067	251.5025181
11/26/2019 12:00	4.011472902	252.7394729	3.712673118	252.4406731	3.569844993	252.297845	12/4/2019 12:00	0.011968084	247.8559681	1.144098838	248.9880988	3.540322898	251.3843229	3.715687229	251.5596872
11/27/2019 12:00	4.084676032	252.812676	3.797014345	252.5250143	3.637952022	252.365952	12/5/2019 12:00	0.079851636	247.9238516	1.219304353	249.0633044	3.603663644	251.4476636	3.77652074	251.6205207
11/28/2019 12:00	4.130579615	252.8585796	3.853198942	252.5811989	3.688552272	252.4165523	12/6/2019 12:00	0.072056716	247.9160567	1.197107661	249.0411077	3.579518905	251.4235189	3.751752504	251.5957525
11/29/2019 12:00	4.026059454	252.7540595	3.750823898	252.4788239	3.59819295	252.326193	12/7/2019 12:00	-0.048139518	247.7958605	1.079868328	248.9238683	3.506133653	251.3501337	3.679670895	251.5236709
11/30/2019 12:00	3.983611138	252.7116111	3.697342147	252.4253421	3.575679136	252.3036791	12/8/2019 12:00	0.017293159	247.8612932	1.177709152	249.0217092	3.603391152	251.4473912	3.774389681	251.6183897
12/1/2019 12:00	3.98658638	252.7145864	3.695999501	252.4239995	3.577905221	252.3059052	12/9/2019 12:00	-0.103825717	247.7401743	1.064422604	248.9084226	3.542394716	251.3863947	3.714880558	251.5588806
12/2/2019 12:00	3.855614716	252.5836147	3.56538615	252.2933861	3.470890572	252.1988906	12/10/2019 12:00	-0.150264461	247.6937355	1.052461602	248.8964616	3.552589816	251.3965898	3.724157012	251.568157
12/3/2019 12:00	3.827205793	252.5552058	3.527541346	252.2555413	3.442009651	252.1700097	12/11/2019 12:00	-0.175518689	247.6684813	1.065037722	248.9090377	3.609821821	251.4538218	3.784468747	251.6284687
12/4/2019 12:00	3.918597443	252.6465974	3.618428918	252.3464289	3.512335027	252.240335	12/12/2019 12:00	-0.28088645	247.5631136	0.981022482	248.8250225	3.572977882	251.4169779	3.749275454	251.5932755
12/5/2019 12:00	4.01112967	252.7391297	3.714204812	252.4422048	3.578414036	252.306414	12/13/2019 12:00	-0.376592975	247.467407	0.915987352	248.7599874	3.538578186	251.3825782	3.715226274	251.5592263
12/6/2019 12:00	3.979834776	252.7078348	3.701853355	252.4298534	3.563021659	252.2910217	12/14/2019 12:00	-0.386630012	247.45737	0.90750593	248.7515059	3.555152109	251.3991521	3.730955539	251.5749555
12/7/2019 12:00	3.854755661	252.5827557	3.583337768	252.3113378	3.465735248	252.1937352	12/15/2019 12:00	-0.509149724	247.3348503	0.784827258	248.6288273	3.475645591	251.3196456	3.653791413	251.4977914
12/8/2019 12:00	4.011015259	252.7390153	3.718876634	252.4468766	3.586809247	252.3148092	12/16/2019 12:00	-0.4970722	247.3469278	0.807069608	248.6510696	3.506188188	251.3501882	3.691139436	251.5351394
12/9/2019 12:00	3.912128729	252.6401287	3.642069411	252.3700694	3.509518341	252.2375183	12/17/2019 12:00	-0.416744286	247.4272557	0.908463528	248.7524635	3.550027478	251.3940275	3.743226674	251.5872267
12/10/2019 12:00	3.93811623	252.6661162	3.665652658	252.3936527	3.533632061	252.2616321	12/18/2019 12:00	-0.554224682	247.2897753	0.804742831	248.6487428	3.4221807	251.2661807	3.644395306	251.4883953
12/11/2019 12:00	4.003978815	252.7319788	3.732354334	252.4603543	3.591388265	252.3193883	12/19/2019 12:00	-0.448833276	247.3951667	0.951824247	248.7958242	3.474281934	251.3182819	3.716609133	251.5606091
12/12/2019 12:00	3.958834019	252.686834	3.701208904	252.4292089	3.561685887	252.2896859	12/20/2019 12:00	-0.500631812	247.3433682	0.928708814	248.7727088	3.404500255	251.2485003	3.671947865	251.5159479
12/13/2019 12:00	3.906575697	252.6345757	3.652437878	252.3804379	3.521798346	252.2497983	12/21/2019 12:00	-0.557022349	247.2869777	0.9040859	248.7480859	3.365148148	251.2091481	3.643242369	251.4872424
12/14/2019 12:00	3.925123094	252.6531231	3.661140418	252.3891404	3.538467088	252.2664671	12/22/2019 12:00	-0.591615066	247.2523849	0.854146833	248.6981468	3.312735035	251.156735	3.584834495	251.4288345
12/15/2019 12:00	3.815176054	252.5431761	3.563719879	252.2917199	3.450395579	252.1783956	12/23/2019 12:00	-0.444512069	247.3994879	0.974937017	248.818937	3.395713808	251.2397138	3.654771341	251.4987713
12/16/2019 12:00	3.849715765	252.5777158	3.596020919	252.3240209	3.477955002	252.205955	12/24/2019 12:00	-0.523071604	247.3209284	0.889926357	248.7339264	3.346368937	251.1903689	3.599597173	251.4435972
12/17/2019 12:00	3.951451519	252.6794515	3.694227191	252.4222272	3.562894444	252.2908944	12/25/2019 12:00	-0.525932389	247.3180676	0.876860386	248.7208604	3.35908884	251.2030888	3.607496915	251.4514969
12/18/2019 12:00	3.77541315	252.5034131	3.541680448	252.2696804	3.4250596	252.1530596	12/26/2019 12:00	-0.567513965	247.276486	0.828214668	248.6722147	3.33228295	251.1762829	3.576875886	251.4208759
12/19/2019 12:00	3.911212781	252.6392128	3.666458402	252.3944584	3.528733264	252.2567333	12/27/2019 12:00	-0.606433342	247.2375667	0.776477187	248.6204772	3.307765736	251.1517657	3.54959426	251.3935943
12/20/2019 12:00	3.830069861	252.5580699	3.594999855	252.3229999	3.470890572	252.1988906	12/28/2019 12:00	-0.544051691	247.2999483	0.829377923	248.6733779	3.352374179	251.1963742	3.588121623	251.4321216
12/21/2019 12:00	3.790196666	252.5181967	3.555818289	252.2838183	3.435118086	252.1631181	12/29/2019 12:00	-0.550664074	247.2933359	0.814049776	248.6580498	3.357887867	251.2018879	3.591293345	251.4352933
12/22/2019 12:00	3.712594163	252.4405942	3.485815578	252.2138156	3.3739934	252.1019934	12/30/2019 12:00	-0.595240032	247.24876	0.766141782	248.6101418	3.32862474	251.1726247	3.558996311	251.4029963
12/23/2019 12:00	3.83499592	252.5629959	3.605156457	252.3331565	3.47267262	252.2006726	12/31/2019 12:00	-0.686522738	247.1574773	0.669058889	248.5130589	3.256533916	251.1005339	3.484629027	251.328629
12/24/2019 12:00	3.753521463	252.4815215	3.539046262	252.2670463	3.409461319	252.1374613	1/1/2020 12:00	-0.871638687	246.9723613	0.500113456	248.3441135	3.150025933	250.9940259	3.379101608	251.2231016
12/25/2019 12:00	3.750426546	252.4784265	3.54125038	252.2692504	3.409715997	252.137716	1/2/2020 12:00	-0.772374481	247.0716255	0.592482368	248.4364824	3.209000135	251.0530001	3.430662282	251.2746623
12/26/2019 12:00	3.707931306	252.4359313	3.494742374	252.2227424	3.371382343	252.0993823	1/3/2020 12:00	-0.692567378	247.1514326	0.662142171	248.5061422	3.255987638	251.0999876	3.47245213	251.3164521

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
12/27/2019 12:00	3.671293848	252.3992938	3.450049579	252.1780496	3.336224412	252.0642244	1/4/2020 12:00	-0.69772138	247.1462786	0.645773941	248.4897739	3.24522555	251.0892255	3.459177609	251.3031776
12/28/2019 12:00	3.743126201	252.4711262	3.518723928	252.2467239	3.394498262	252.1224983	1/5/2020 12:00	-0.71642966	247.1275703	0.624678192	248.4686782	3.231075207	251.0750752	3.441168558	251.2851686
12/29/2019 12:00	3.728338561	252.4563386	3.514261268	252.2422613	3.383036243	252.1110362	1/6/2020 12:00	-0.770464833	247.0735352	0.547605135	248.3916051	3.183259906	251.0272599	3.393191611	251.2371916
12/30/2019 12:00	3.679952404	252.4079524	3.471832839	252.1998328	3.344887233	252.0728872	1/7/2020 12:00	-0.644533656	247.1994663	0.668990408	248.5129904	3.282479771	251.1264798	3.486764211	251.3307642
12/31/2019 12:00	3.5857112	252.3137112	3.382690806	252.1106908	3.271811718	251.9998117	1/8/2020 12:00	-0.648732151	247.1952678	0.64707523	248.4910752	3.26707668	251.1110767	3.469335608	251.3133356
1/1/2020 12:00	3.435354306	252.1633543	3.229844049	251.957844	3.142015138	251.8700151	1/9/2020 12:00	-0.770401178	247.0735988	0.539587845	248.3835878	3.183423871	251.0274239	3.384818613	251.2288186
1/2/2020 12:00	3.546515909	252.2745159	3.326500773	252.0545008	3.22318228	251.9511823	1/10/2020 12:00	-0.657749	247.186251	0.64837651	248.4923765	3.272593576	251.1165936	3.469797319	251.3137973
1/3/2020 12:00	3.614053424	252.3420534	3.408787652	252.1367877	3.273468553	252.0014686	1/11/2020 12:00	-0.677534928	247.1664651	0.608991933	248.4529919	3.256260777	251.1002608	3.452828511	251.2968285
1/4/2020 12:00	3.591391586	252.3193916	3.385542835	252.1135428	3.251928345	251.9799283	1/12/2020 12:00	-0.741614624	247.1023854	0.544864217	248.3888642	3.204409851	251.0484099	3.399312267	251.2433123
1/5/2020 12:00	3.584793136	252.3127931	3.36988295	252.0978829	3.238288953	251.966289	1/13/2020 12:00	-0.783497528	247.0605025	0.507926709	248.3519267	3.178614161	251.0226142	3.372633624	251.2166336
1/6/2020 12:00	3.500534784	252.2285348	3.292044948	252.0200449	3.18148807	251.9094881	1/14/2020 12:00	-0.779550725	247.0644493	0.515396993	248.359397	3.201513527	251.0455135	3.394577442	251.2385774
1/7/2020 12:00	3.641128008	252.369128	3.422022763	252.1500228	3.289143912	252.0171439	1/15/2020 12:00	-0.71170386	247.1322961	0.566790519	248.4107905	3.248339535	251.0923395	3.438917275	251.2829173
1/8/2020 12:00	3.609808199	252.3378082	3.410401749	252.1384017	3.269836237	251.9978362	1/16/2020 12:00	-0.633257995	247.210742	0.633924977	248.477925	3.302796269	251.1467963	3.490399724	251.3343997
1/9/2020 12:00	3.489625656	252.2176257	3.299259755	252.0272598	3.170584571	251.8985846	1/17/2020 12:00	-0.819722788	247.0242772	0.44143585	248.2854359	3.171399301	251.0153993	3.362064801	251.2060648
1/10/2020 12:00	3.616577551	252.3445776	3.404644728	252.1326447	3.275316542	252.0033165	1/18/2020 12:00	-0.845574866	246.9984251	0.431563174	248.2755632	3.171781916	251.0157819	3.36108296	251.205083
1/11/2020 12:00	3.582038908	252.3100389	3.384036109	252.1120361	3.253139262	251.9811393	1/19/2020 12:00	-0.712976563	247.1310234	0.551510879	248.3955109	3.256424661	251.1004247	3.441514907	251.2855149
1/12/2020 12:00	3.511959738	252.2399597	3.323916845	252.0519168	3.20023269	251.9282327	1/20/2020 12:00	-0.789863511	247.0541365	0.45946595	248.303466	3.190747444	251.0347474	3.3761564	251.2201564
1/13/2020 12:00	3.478084009	252.206084	3.285368268	252.0133683	3.17032951	251.8983295	1/21/2020 12:00	-1.017904745	246.8260953	0.241282737	248.0852827	3.032772449	250.8767724	3.219977801	251.0639778
1/14/2020 12:00	3.496975058	252.2249751	3.294575552	252.0225756	3.183847208	251.9118472	1/22/2020 12:00	-0.974951171	246.8690488	0.294667149	248.1386671	3.083261972	250.927262	3.268530125	251.1125301
1/15/2020 12:00	3.560175268	252.2881753	3.361487324	252.0894873	3.237332877	251.9653329	1/23/2020 12:00	-0.856209612	246.9877904	0.402902251	248.2469023	3.147019199	250.9910192	3.328100931	251.1721009
1/16/2020 12:00	3.619503185	252.3475032	3.426488019	252.154488	3.290800567	252.0188006	1/24/2020 12:00	-0.900920195	246.9430798	0.351329768	248.1953298	3.108746308	250.9527463	3.28944904	251.133449
1/17/2020 12:00	3.422142184	252.1501422	3.244386698	251.9723867	3.136402683	251.8644027	1/25/2020 12:00	-0.966157704	246.8778423	0.285610633	248.1296106	3.062532184	250.9065322	3.242984306	251.0869843
1/18/2020 12:00	3.431505688	252.1595057	3.236846231	251.9648462	3.135637333	251.8636373	1/26/2020 12:00	-0.938047948	246.9059521	0.316346251	248.1603463	3.086215319	250.9302153	3.264889244	251.1088892
1/19/2020 12:00	3.56442202	252.292422	3.368860429	252.0968604	3.238862596	251.9668626	1/27/2020 12:00	-0.922057448	246.9219426	0.325401389	248.1694014	3.089606125	250.9336061	3.266738591	251.1107386
1/20/2020 12:00	3.453676857	252.1816769	3.26808298	251.996083	3.161720943	251.8897209	1/28/2020 12:00	-0.921038178	246.9229618	0.314082403	248.1580824	3.077519183	250.9215192	3.253156916	251.0971569
1/21/2020 12:00	3.247336352	251.9753364	3.062939405	251.7909394	2.990537098	251.7185371	1/29/2020 12:00	-0.918362621	246.9256374	0.312778964	248.156779	3.099067155	250.9430672	3.275175952	251.119176
1/22/2020 12:00	3.339049252	252.0670493	3.137386364	251.8653864	3.05378743	251.7817874	1/30/2020 12:00	-0.974493419	246.8695066	0.254733095	248.0987331	3.060289473	250.9042895	3.236683879	251.0806839
1/23/2020 12:00	3.437479617	252.1654796	3.243901964	251.971902	3.130534905	251.8585349	1/31/2020 12:00	-1.057158472	246.7868415	0.183902792	248.0279028	3.023033582	250.8670336	3.20055249	251.0445525
1/24/2020 12:00	3.371407407	252.0994074	3.185992611	251.9139926	3.079374029	251.807374	2/1/2020 12:00	-1.13399167	246.7100083	0.109270786	247.9532708	2.96748784	250.8114878	3.144632932	250.9886329
1/25/2020 12:00	3.311225542	252.0392255	3.121594224	251.8495942	3.016835943	251.7448359	2/2/2020 12:00	-1.113393541	246.7306065	0.14600663	247.9900066	2.99233552	250.8363355	3.1671883	251.0111883
1/26/2020 12:00	3.350717451	252.0787175	3.157272531	251.8852725	3.049192893	251.7771929	2/3/2020 12:00	-0.973919923	246.8700801	0.280876383	248.1248764	3.088840466	250.9328405	3.260439158	251.1044392
1/27/2020 12:00	3.355947704	252.0839477	3.162337987	251.890338	3.052447371	251.7804474	2/4/2020 12:00	-0.943335936	246.9006641	0.294392715	248.1383927	3.090918674	250.9349187	3.261306068	251.1053061
1/28/2020 12:00	3.343705154	252.0717052	3.148865674	251.8768657	3.0410245	251.7690245	2/5/2020 12:00	-1.059580959	246.784419	0.18410873	248.0281087	3.030583996	250.874584	3.203096423	251.0470964
1/29/2020 12:00	3.350315116	252.0783151	3.144931544	251.8729315	3.051490178	251.7794902	2/6/2020 12:00	-1.033381462	246.8106185	0.206554715	248.0505547	3.048200122	250.8922001	3.219284083	251.0632841
1/30/2020 12:00	3.299266529	252.0272665	3.092431245	251.8204312	3.010899932	251.7388999	2/7/2020 12:00	-1.017823167	246.8261768	0.21238889	248.0563889	3.050607131	250.8946071	3.220787135	251.0647871
1/31/2020 12:00	3.230654762	251.9586548	3.024920851	251.7529209	2.951846937	251.6798469	2/8/2020 12:00	-1.044084217	246.7999158	0.19262065	248.0366207	3.021994002	250.865994	3.189855937	251.0338559
2/1/2020 12:00	3.162872372	251.8908724	2.945133325	251.6731333	2.891941691	251.6199417	2/9/2020 12:00	-1.038602246	246.8053978	0.194268078	248.0382681	3.038188731	250.8821887	3.206623168	251.0506232
2/2/2020 12:00	3.218055956	251.946056	2.991910161	251.7199102	2.925154198	251.6531542	2/10/2020 12:00	-1.057216087	246.7867839	0.185687581	248.0296876	3.034249637	250.8782496	3.202286994	251.046287
2/3/2020 12:00	3.363246738	252.0912467	3.137062991	251.865063	3.041598854	251.7695989	2/11/2020 12:00	-1.151843011	246.692157	0.082075101	247.9260751	2.955062427	250.7990624	3.123231132	250.9672311
2/4/2020 12:00	3.353993566	252.0819936	3.145093222	251.8730932	3.042300839	251.7703008	2/12/2020 12:00	-0.950720791	246.8932792	0.280327477	248.1243275	3.116620403	250.9606204	3.281070265	251.1250703
2/5/2020 12:00	3.247566429	251.9755664	3.042825753	251.7708258	2.95721049	251.6852105	2/13/2020 12:00	-0.988634262	246.8553657	0.230027668	248.0740277	3.076206515	250.9202065	3.241365872	251.0853659
2/6/2020 12:00	3.274022726	252.0020227	3.059542371	251.7875424	2.974896166	251.7028962	2/14/2020 12:00	-1.215889207	246.6281108	0.000397415	247.8443974	2.927908981	250.771909	3.097082109	250.9410821

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
2/7/2020 12:00	3.272930066	252.0009301	3.064718775	251.7927188	2.978535213	251.7065352	2/15/2020 12:00	-1.127289107	246.7167109	0.111948952	247.955949	3.002021696	250.8460217	3.167824428	251.0118244
2/8/2020 12:00	3.257804464	251.9858045	3.060998252	251.7889983	2.963978525	251.6919785	2/16/2020 12:00	-1.108796025	246.735204	0.113940385	247.9579404	3.01148836	250.8554884	3.177539506	251.0215395
2/9/2020 12:00	3.257689434	251.9856894	3.051292131	251.7792921	2.961424583	251.6894246	2/17/2020 12:00	-1.108987324	246.7350127	0.124240589	247.9682406	3.010175102	250.8541751	3.17354946	251.0175495
2/10/2020 12:00	3.247163795	251.9751638	3.040614714	251.7686147	2.947441027	251.675441	2/18/2020 12:00	-1.023049595	246.8209504	0.203122769	248.0471228	3.076698767	250.9206988	3.238591375	251.0825914
2/11/2020 12:00	3.14007901	251.868079	2.940168889	251.6681689	2.866325022	251.594325	2/19/2020 12:00	-0.974742308	246.8692577	0.244439534	248.0884395	3.113777028	250.957777	3.275753836	251.1197538
2/12/2020 12:00	3.368591456	252.0965915	3.147087244	251.8750872	3.051873056	251.7798731	2/20/2020 12:00	-1.118233141	246.7257669	0.090385281	247.9343853	2.999011936	250.8430119	3.161636523	251.0056365
2/13/2020 12:00	3.30622358	252.0342236	3.108927043	251.836927	3.010133979	251.738134	2/21/2020 12:00	-1.227564435	246.6164356	0.008779652	247.8527797	2.954241328	250.7982413	3.117619887	250.9616199
2/14/2020 12:00	3.068393701	251.7963937	2.876157008	251.604157	2.821022657	251.5490227	2/22/2020 12:00	-1.268404156	246.5755958	-0.029355458	247.8146445	2.903817058	250.7478171	3.065141759	250.9091418
2/15/2020 12:00	3.198608979	251.926609	2.994229763	251.7222298	2.916276916	251.6442769	2/23/2020 12:00	-1.274467039	246.569533	-0.027156482	247.8168435	2.914549401	250.7585494	3.075557833	250.9195578
2/16/2020 12:00	3.207354702	251.9353547	3.003723595	251.7317236	2.931348844	251.6593488	2/24/2020 12:00	-1.197259295	246.6467407	0.037771276	247.8817713	2.95867521	250.8026752	3.117793434	250.9617934
2/17/2020 12:00	3.217077919	251.9450779	3.030529832	251.7585298	2.926176012	251.654176	2/25/2020 12:00	-1.071432286	246.7725677	0.149782834	247.9937828	3.043112451	250.8871125	3.200841575	251.0448416
2/18/2020 12:00	3.290239091	252.0182391	3.098037852	251.8260379	2.997559059	251.7255591	2/26/2020 12:00	-1.117404144	246.7265959	0.092239572	247.9362396	3.000215847	250.8442158	3.157993057	251.0019931
2/19/2020 12:00	3.335025507	252.0630255	3.149135131	251.8771351	3.039237608	251.7672376	2/27/2020 12:00	-1.20089566	246.6431043	0.007680362	247.8516804	2.951887484	250.7958875	3.111314219	250.9553142
2/20/2020 12:00	3.172886455	251.9008865	2.998221556	251.7262216	2.918703848	251.6467038	2/28/2020 12:00	-1.235731688	246.6082683	-0.024201645	247.8197984	2.924678702	250.7686787	3.082964382	250.9269644
2/21/2020 12:00	3.103290926	251.8312909	2.918258772	251.6462588	2.848180059	251.5761801	2/29/2020 12:00	-1.358856614	246.4851434	-0.130740405	247.7132596	2.843405682	250.6874057	3.002340757	250.8463408
2/22/2020 12:00	3.073922558	251.8019226	2.875023346	251.6030233	2.820383604	251.5483836	3/1/2020 12:00	-1.398893916	246.4451061	-0.158037079	247.6859629	2.832065522	250.6760655	2.991514352	250.8355144
2/23/2020 12:00	3.097245004	251.825245	2.89413258	251.6221326	2.824026173	251.5520262	3/2/2020 12:00	-1.455356139	246.3886439	-0.234583603	247.6094164	2.772008413	250.6160084	2.932157981	250.776158
2/24/2020 12:00	3.182209263	251.9102093	2.969036005	251.697036	2.888747817	251.6167478	3/3/2020 12:00	-1.419526857	246.4244731	-0.17536584	247.6686342	2.808670265	250.6526703	2.966384841	250.8103848
2/25/2020 12:00	3.287248982	252.015249	3.086015752	251.8140158	2.976236877	251.7042369	3/4/2020 12:00	-1.378974552	246.4650254	-0.148410629	247.6955894	2.82072449	250.6647245	2.976749823	250.8207498
2/26/2020 12:00	3.210576672	251.9385767	3.022116287	251.7501163	2.919023178	251.6470232	3/5/2020 12:00	-1.240203239	246.6037968	-0.002969319	247.8410307	2.9213936	250.7653936	3.074400527	250.9184005
2/27/2020 12:00	3.131904722	251.8599047	2.939845116	251.6678451	2.858658388	251.5866584	3/6/2020 12:00	-1.302363516	246.5416365	-0.086812161	247.7571878	2.854964078	250.6989641	3.008361524	250.8523615
2/28/2020 12:00	3.110257805	251.8382578	2.913023643	251.6410236	2.836103572	251.5641036	3/7/2020 12:00	-1.311427569	246.5325724	-0.087637017	247.756363	2.862249238	250.7062492	3.01600292	250.8600029
2/29/2020 12:00	2.995461339	251.7234613	2.802560243	251.5305602	2.744062287	251.4720623	3/8/2020 12:00	-1.337856184	246.5061438	-0.118021547	247.7259785	2.841871798	250.6858718	2.995393421	250.8393934
3/1/2020 12:00	2.977135829	251.7051358	2.768747294	251.4967473	2.723217811	251.4512178	3/9/2020 12:00	-1.276960901	246.5670391	-0.068116327	247.7758837	2.872491673	250.7164917	3.024280664	250.8682807
3/2/2020 12:00	2.90473226	251.6327323	2.695803674	251.4238037	2.663546686	251.3915467	3/10/2020 12:00	-1.321449589	246.5225504	-0.119106199	247.7248938	2.825820861	250.6698209	2.974433687	250.8184337
3/3/2020 12:00	2.992061505	251.7200615	2.785168533	251.5131685	2.722834145	251.4508341	3/11/2020 12:00	-1.46500665	246.3789933	-0.257491272	247.5865087	2.731883671	250.5758837	2.884482293	250.7284823
3/4/2020 12:00	3.009693639	251.7376936	2.811417406	251.5394174	2.737476749	251.4654767	3/12/2020 12:00	-1.418441094	246.4255589	-0.194965626	247.6490344	2.775790101	250.6197901	2.926597557	250.7705976
3/5/2020 12:00	3.155908131	251.8839081	2.957166047	251.685166	2.850671919	251.5786719	3/13/2020 12:00	-1.270068306	246.5739317	-0.055332668	247.7886673	2.875120632	250.7191206	3.023817586	250.8678176
3/6/2020 12:00	3.034985514	251.7629855	2.853860172	251.5818602	2.760684771	251.4886848	3/14/2020 12:00	-1.151093228	246.6929068	0.048693584	247.8926936	2.944333034	250.788333	3.090833442	250.9348334
3/7/2020 12:00	3.045584842	251.7735848	2.848892898	251.5768929	2.76694972	251.4949497	3/15/2020 12:00	-1.214500613	246.6294994	-0.031966773	247.8120332	2.884924047	250.728924	3.032673717	250.8766737
3/8/2020 12:00	3.023175529	251.7511755	2.819086017	251.547086	2.750327888	251.4783279	3/16/2020 12:00	-1.349103058	246.4948969	-0.161681497	247.6823185	2.796779451	250.6407795	2.945768574	250.7897686
3/9/2020 12:00	3.071215749	251.7992157	2.874483504	251.6024835	2.785934855	251.5139349	3/17/2020 12:00	-1.352997651	246.4910023	-0.154789941	247.6892101	2.804451952	250.648452	2.950227949	250.7942279
3/10/2020 12:00	3.014130132	251.7421301	2.821732142	251.5497321	2.740417897	251.4684179	3/18/2020 12:00	-1.316672454	246.5273275	-0.122146495	247.7218535	2.837983319	250.6819833	2.983987517	250.8279875
3/11/2020 12:00	2.865401823	251.5934018	2.678940865	251.4069409	2.618506811	251.3465068	3/19/2020 12:00	-1.287566156	246.5564338	-0.099666547	247.7443335	2.84499433	250.6889943	2.992151221	250.8361512
3/12/2020 12:00	2.941457561	251.6694576	2.734116727	251.4621167	2.67250197	251.400502	3/20/2020 12:00	-1.238746372	246.6052536	-0.056707217	247.7872928	2.869150636	250.7131506	3.015308264	250.8593083
3/13/2020 12:00	3.091601907	251.8196019	2.879665912	251.6076659	2.793477145	251.5214771	3/21/2020 12:00	-1.316927791	246.5270722	-0.139678458	247.7043215	2.817546654	250.6615467	2.964995068	250.8089951
3/14/2020 12:00	3.176627163	251.9046272	2.981444562	251.7094446	2.87073317	251.5987332	3/22/2020 12:00	-1.423113746	246.4208863	-0.232917296	247.6110827	2.742464625	250.5864646	2.888074423	250.7320744
3/15/2020 12:00	3.072425181	251.8004252	2.891325717	251.6193257	2.797503815	251.5255038	3/23/2020 12:00	-1.446683065	246.3973169	-0.242203795	247.6017962	2.734954226	250.5789542	2.879731279	250.7237313
3/16/2020 12:00	2.94606916	251.6740692	2.752702549	251.4807025	2.694568213	251.4225682	3/24/2020 12:00	-1.555305126	246.2886949	-0.343985844	247.5000142	2.664710778	250.5087108	2.810766864	250.6547669
3/17/2020 12:00	2.969009596	251.6970096	2.758105	251.486105	2.708701803	251.4367018	3/25/2020 12:00	-1.442978212	246.4010218	-0.233880321	247.6101197	2.729800884	250.5738009	2.872952137	250.7169521
3/18/2020 12:00	3.002030274	251.7300303	2.793648578	251.5216486	2.73562252	251.4636225	3/26/2020 12:00	-1.514420707	246.3295793	-0.302266743	247.5417333	2.680560966	250.524561	2.824852065	250.6688521
3/19/2020 12:00	3.023175529	251.7511755	2.818005953	251.546006	2.750647555	251.4786476	3/27/2020 12:00	-1.567464629	246.2765354	-0.338464446	247.5055356	2.659554988	250.503555	2.804332447	250.6483324

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
3/20/2020 12:00	3.063843747	251.7918437	2.863956219	251.5919562	2.783697666	251.5116977	3/28/2020 12:00	-1.50394146	246.3400585	-0.281074123	247.5629259	2.696190111	250.5401901	2.839979156	250.6839792
3/21/2020 12:00	2.974196608	251.7021966	2.78068527	251.5086853	2.712794555	251.4407946	3/29/2020 12:00	-1.45640859	246.3875914	-0.227483171	247.6165168	2.733802963	250.577803	2.875965126	250.7199651
3/22/2020 12:00	2.870938743	251.5989387	2.680670465	251.4086705	2.625097242	251.3530972	3/30/2020 12:00	-1.452895199	246.3911048	-0.228858885	247.6151411	2.727333795	250.5713338	2.869359647	250.7133596
3/23/2020 12:00	2.867132135	251.5951321	2.660400535	251.3884005	2.615243487	251.3432435	3/31/2020 12:00	-1.505730559	246.3382694	-0.281693356	247.5623066	2.69635462	250.5403546	2.839283691	250.6832837
3/24/2020 12:00	2.770086231	251.4980862	2.562257833	251.2902578	2.531398093	251.2593981	4/1/2020 12:00	-1.484006898	246.3599931	-0.269515443	247.5744846	2.707047281	250.5510473	2.849425577	250.6934256
3/25/2020 12:00	2.898562382	251.6265624	2.683426977	251.411427	2.626440889	251.3544409	4/2/2020 12:00	-1.417573199	246.4264268	-0.208445876	247.6355541	2.746136876	250.5901369	2.889406966	250.733407
3/26/2020 12:00	2.817059795	251.5450598	2.616176164	251.3441762	2.559948851	251.2879489	4/3/2020 12:00	-1.400201998	246.443798	-0.206863963	247.637136	2.734898886	250.5788989	2.877066012	250.721066
3/27/2020 12:00	2.786996226	251.5149962	2.580593181	251.3085932	2.531846239	251.2598462	4/4/2020 12:00	-1.381235963	246.462764	-0.20024595	247.643754	2.737421187	250.5814212	2.877181894	250.7211819
3/28/2020 12:00	2.842098211	251.5700982	2.641479621	251.3694796	2.573070252	251.3010703	4/5/2020 12:00	-1.407673978	246.436326	-0.233261233	247.6107388	2.714723587	250.5587236	2.85446729	250.6984673
3/29/2020 12:00	2.900176956	251.628177	2.695965808	251.4239658	2.617227084	251.3452271	4/6/2020 12:00	-1.442994168	246.4010058	-0.282312592	247.5616874	2.674034624	250.5180346	2.813781091	250.6577811
3/30/2020 12:00	2.885472112	251.6134721	2.688723672	251.4167237	2.607884769	251.3358848	4/7/2020 12:00	-1.484134677	246.3598653	-0.320984142	247.5230159	2.654179611	250.4981796	2.794187542	250.6381875
3/31/2020 12:00	2.824041003	251.552041	2.620447754	251.3484478	2.559244745	251.2872447	4/8/2020 12:00	-1.433945772	246.4100542	-0.270547442	247.5734526	2.690487036	250.534487	2.829430923	250.6734309
4/1/2020 12:00	2.848789745	251.5767897	2.642669001	251.370669	2.573262265	251.3012623	4/9/2020 12:00	-1.336691976	246.507308	-0.176519532	247.6674805	2.746247091	250.5902471	2.882570317	250.7265703
4/2/2020 12:00	2.89867771	251.6266777	2.690615306	251.4186153	2.613003913	251.3410039	4/10/2020 12:00	-1.408270611	246.4357294	-0.265800293	247.5781997	2.67897054	250.5229705	2.817143043	250.661143
4/3/2020 12:00	2.882588628	251.6105886	2.674076263	251.4020763	2.603469376	251.3314694	4/11/2020 12:00	-1.364720057	246.4792799	-0.217234394	247.6267656	2.723276715	250.5672767	2.860493946	250.7044939
4/4/2020 12:00	2.885126097	251.6131261	2.671589854	251.3995899	2.603853328	251.3318533	4/12/2020 12:00	-1.311157403	246.5328426	-0.169023935	247.6749761	2.756004308	250.6000043	2.892245822	250.7362458
4/5/2020 12:00	2.848732061	251.5767321	2.625476189	251.3534762	2.571790163	251.2997902	4/13/2020 12:00	-1.283775328	246.5602247	-0.14964829	247.6943517	2.776447776	250.6204478	2.914954757	250.7589548
4/6/2020 12:00	2.793574988	251.521575	2.560905586	251.2889056	2.522562973	251.250563	4/14/2020 12:00	-1.271713128	246.5722869	-0.143375961	247.700624	2.773653367	250.6176534	2.909046127	250.7530461
4/7/2020 12:00	2.76552653	251.4935265	2.519413101	251.2474131	2.490035297	251.2180353	4/15/2020 12:00	-1.255057045	246.588943	-0.128043734	247.7159563	2.798533862	250.6425339	2.934358926	250.7783589
4/8/2020 12:00	2.820810074	251.5488101	2.571182379	251.2991824	2.531270051	251.2592701	4/16/2020 12:00	-1.220217935	246.6237821	-0.10013243	247.7438676	2.826423528	250.6704235	2.962157577	250.8061576
4/9/2020 12:00	2.915283847	251.6432838	2.665211497	251.3932115	2.607820778	251.3358208	4/17/2020 12:00	-1.330116501	246.5138835	-0.219848127	247.6241519	2.742903177	250.5869032	2.880368619	250.7243686
4/10/2020 12:00	2.806616179	251.5346162	2.558904239	251.2869042	2.524291622	251.2522916	4/18/2020 12:00	-1.332733896	246.5112661	-0.201140044	247.64286	2.772666829	250.6166668	2.909799201	250.7537992
4/11/2020 12:00	2.867478194	251.5954782	2.608605978	251.336606	2.572174191	251.3001742	4/19/2020 12:00	-1.310582914	246.5334171	-0.20141515	247.6425849	2.752989506	250.5969895	2.890044265	250.7340443
4/12/2020 12:00	2.914822592	251.6428226	2.655156963	251.383157	2.617227084	251.3452271	4/20/2020 12:00	-1.295227985	246.548772	-0.166479622	247.6775204	2.789327471	250.6333275	2.92543911	250.7694391
4/13/2020 12:00	2.935174012	251.663174	2.674454626	251.4024546	2.635462227	251.3634622	4/21/2020 12:00	-1.22464851	246.6193515	-0.106044356	247.7379556	2.817766789	250.6617668	2.951965332	250.7959653
4/14/2020 12:00	2.938344646	251.6663446	2.675859967	251.40386	2.640068671	251.3680687	4/22/2020 12:00	-1.241174299	246.6028257	-0.128456245	247.7155438	2.811356092	250.6553561	2.94646355	250.7904636
4/15/2020 12:00	2.959384295	251.6873843	2.686345586	251.4143456	2.65651004	251.38451	4/23/2020 12:00	-1.2524688	246.5915312	-0.134506505	247.7094935	2.810753362	250.6547534	2.945884404	250.7898844
4/16/2020 12:00	2.99373262	251.7217326	2.714664136	251.4426641	2.68830043	251.4163004	4/24/2020 12:00	-1.168828611	246.6751714	-0.048719688	247.7952803	2.878134228	250.7221342	3.012298049	250.856298
4/17/2020 12:00	2.867535871	251.5955359	2.581620764	251.3096208	2.58625458	251.3142546	4/25/2020 12:00	-1.113279939	246.7307201	0.0007562	247.8447562	2.913017753	250.7570178	3.046622519	250.8906225
4/18/2020 12:00	2.92462393	251.6526239	2.619312279	251.3473123	2.622729837	251.3507298	4/26/2020 12:00	-1.173421181	246.6705788	-0.07277483	247.7712252	2.869644837	250.7136448	3.004945926	250.8489459
4/19/2020 12:00	2.913208188	251.6412082	2.613148132	251.3411481	2.610252393	251.3382524	4/27/2020 12:00	-1.172974676	246.6710253	-0.058685044	247.785315	2.892921031	250.736921	3.027753708	250.8717537
4/20/2020 12:00	2.972498326	251.7004983	2.668616923	251.3966169	2.656318127	251.3843181	4/28/2020 12:00	-1.140701507	246.7032985	-0.027347372	247.8166526	2.923475726	250.7674757	3.058602412	250.9026024
4/21/2020 12:00	3.030756825	251.7587568	2.731847379	251.4598474	2.70262643	251.4306264	4/29/2020 12:00	-1.055197372	246.7888026	0.055509175	247.8995092	2.994307584	250.8383076	3.129015702	250.9730157
4/22/2020 12:00	3.014591058	251.7425911	2.70774709	251.4357471	2.685422284	251.4134223	4/30/2020 12:00	-1.122972699	246.7210273	-0.022399761	247.8216002	2.947017138	250.7910171	3.082732933	250.9267329
4/23/2020 12:00	3.021792832	251.7497928	2.709530419	251.4375304	2.690219165	251.4182192	5/1/2020 12:00	-1.167871839	246.6761282	-0.06170911	247.7822909	2.933440224	250.7774402	3.069944816	250.9139448
4/24/2020 12:00	3.112427481	251.8404275	2.804126484	251.5321265	2.76752506	251.4955251	5/2/2020 12:00	-1.096289365	246.7477106	0.030710728	247.8747107	3.022652678	250.8666527	3.159034056	251.0030341
4/25/2020 12:00	3.159691606	251.8876916	2.854130128	251.5821301	2.81066968	251.5386697	5/3/2020 12:00	-0.974799753	246.8692002	0.14162756	247.9856276	3.100163401	250.9441634	3.235065378	251.0790654
4/26/2020 12:00	3.0744779	251.8024779	2.76755885	251.4955589	2.746747575	251.4747476	5/4/2020 12:00	-0.953836851	246.8901631	0.144991889	247.9889919	3.099835284	250.9438353	3.234545142	251.0785451
4/27/2020 12:00	3.114557878	251.8425579	2.797321324	251.5253213	2.780693393	251.5086934	5/5/2020 12:00	-0.938546206	246.9054538	0.158174026	248.002174	3.112412593	250.9564126	3.246914714	251.0909147
4/28/2020 12:00	3.14956082	251.8775608	2.832100212	251.5601002	2.812842583	251.5408426	5/6/2020 12:00	-0.871027067	246.9729729	0.216865301	248.0608653	3.162273769	251.0062738	3.296440625	251.1404406
4/29/2020 12:00	3.233002652	251.9610027	2.918690527	251.6466905	2.889194963	251.617195	5/7/2020 12:00	-0.836002897	247.0079971	0.244729112	248.0887291	3.187853857	251.0318539	3.321457441	251.1654574
4/30/2020 12:00	3.146970444	251.8749704	2.828266265	251.5562663	2.825304248	251.5533042	5/8/2020 12:00	-0.807542503	247.0364575	0.261129905	248.1051299	3.208128924	251.0521289	3.341849135	251.1858491

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
5/1/2020 12:00	3.122618548	251.8506185	2.79537694	251.5233769	2.805365117	251.5333651	5/9/2020 12:00	-0.779722883	247.0642771	0.285831516	248.1298315	3.237853341	251.0818533	3.371825106	251.2158251
5/2/2020 12:00	3.245773458	251.9737735	2.910055196	251.6380552	2.901650677	251.6296507	5/10/2020 12:00	-0.696606352	247.1473936	0.361564295	248.2055643	3.29438961	251.1383896	3.427371703	251.2713717
5/3/2020 12:00	3.357554098	252.0855541	3.028372555	251.7563726	2.997239885	251.7252399	5/11/2020 12:00	-0.686594662	247.1574053	0.356900415	248.2009004	3.298485595	251.1424856	3.43158594	251.2755859
5/4/2020 12:00	3.349047219	252.0770472	3.023302839	251.7513028	2.99462264	251.7226226	5/12/2020 12:00	-0.69066669	247.1533333	0.338929755	248.1829298	3.273580242	251.1175802	3.406125533	251.2501255
5/5/2020 12:00	3.369451357	252.0974514	3.039913647	251.7679136	3.012048855	251.7400489	5/13/2020 12:00	-0.740874261	247.1031257	0.280685596	248.1246856	3.247687301	251.0916873	3.381815769	251.2258158
5/6/2020 12:00	3.431564888	252.1595649	3.098954297	251.8269543	3.064890349	251.7928903	5/14/2020 12:00	-0.732155401	247.1118446	0.290291207	248.1342912	3.250855881	251.0948559	3.384414387	251.2284144
5/7/2020 12:00	3.463673721	252.1916737	3.127954387	251.8559544	3.09647201	251.824472	5/15/2020 12:00	-0.609751355	247.2342486	0.416219676	248.2602197	3.341459227	251.1854592	3.473086969	251.317087
5/8/2020 12:00	3.477456979	252.205457	3.139649956	251.86765	3.114461188	251.8424612	5/16/2020 12:00	-0.55576319	247.2882368	0.453036851	248.2970369	3.349921419	251.1939214	3.480531698	251.3245317
5/9/2020 12:00	3.511794291	252.2397943	3.168373214	251.8963732	3.149987036	251.877987	5/17/2020 12:00	-0.514566913	247.3294331	0.465650502	248.3096505	3.34741011	251.1914101	3.477011368	251.3210114
5/10/2020 12:00	3.591690255	252.3196903	3.247618217	251.9756182	3.221843645	251.9498436	5/18/2020 12:00	-0.433217599	247.4107824	0.515274817	248.3592748	3.364114965	251.208115	3.492304005	251.336304
5/11/2020 12:00	3.57527862	252.3032786	3.233883807	251.9618838	3.218082657	251.9460827	5/19/2020 12:00	-0.388236114	247.4557639	0.522059513	248.3660595	3.341841401	251.1858414	3.468181325	251.3121813
5/12/2020 12:00	3.555823142	252.2838231	3.211690804	251.9396908	3.210177919	251.9381779	5/20/2020 12:00	-0.328531283	247.5154687	0.563311033	248.407311	3.35674541	251.2007454	3.481974432	251.3259744
5/13/2020 12:00	3.49439702	252.222397	3.146925567	251.8749256	3.160891945	251.8888919	5/21/2020 12:00	-0.296019052	247.5479809	0.576602913	248.4206029	3.358874431	251.2028744	3.483705695	251.3277057
5/14/2020 12:00	3.511564638	252.2395646	3.158458078	251.8864581	3.173900334	251.9019003	5/22/2020 12:00	-0.254561285	247.5894387	0.612020806	248.4560208	3.357509678	251.2015097	3.480416279	251.3244163
5/15/2020 12:00	3.648599412	252.3765994	3.296083126	252.0240831	3.282772001	252.010772	5/23/2020 12:00	-0.171165125	247.6728349	0.678112982	248.522113	3.389659883	251.2336599	3.511172395	251.3551724
5/16/2020 12:00	3.667410987	252.395411	3.324508999	252.052509	3.300612707	252.0286127	5/24/2020 12:00	-0.083238809	247.7607612	0.750686636	248.5946866	3.426441105	251.2704411	3.546421656	251.3904217
5/17/2020 12:00	3.6533599	252.3813599	3.313849892	252.0418499	3.293030652	252.0210307	5/25/2020 12:00	-0.005989372	247.8380106	0.805784045	248.649784	3.42638654	251.2703865	3.543595097	251.3875951
5/18/2020 12:00	3.676185021	252.404185	3.33516739	252.0631674	3.312080675	252.0400807	5/26/2020 12:00	-0.023361315	247.8206387	0.786142353	248.6301424	3.409143076	251.2531431	3.526000016	251.37
5/19/2020 12:00	3.65295842	252.3809584	3.312827011	252.040827	3.29271207	252.0207121	5/27/2020 12:00	-0.034076916	247.8099231	0.792165097	248.6361651	3.412253598	251.2562536	3.528942288	251.3729423
5/20/2020 12:00	3.67125328	252.3992533	3.329192319	252.0571923	3.307175034	252.035175	5/28/2020 12:00	0.043771837	247.8877718	0.884194809	248.7281948	3.49528555	251.3392856	3.611994392	251.4559944
5/21/2020 12:00	3.653704026	252.381704	3.317187669	252.0451877	3.297108441	252.0251084	5/29/2020 12:00	0.13463962	247.9786396	0.972695139	248.8166951	3.546107089	251.3901071	3.660766057	251.5047661
5/22/2020 12:00	3.676127676	252.4041277	3.336459268	252.0644593	3.312462926	252.0404629	5/30/2020 12:00	0.145155681	247.9891557	0.984387396	248.8283874	3.537547187	251.3815472	3.651485675	251.4954857
5/23/2020 12:00	3.699407711	252.4274077	3.36019565	252.0881956	3.329918091	252.0579181	5/31/2020 12:00	0.089781453	247.9337815	0.938708514	248.7827085	3.504011534	251.3480115	3.618394416	251.4623944
5/24/2020 12:00	3.733976468	252.4619765	3.411316397	252.1393164	3.368707556	252.0967076	6/1/2020 12:00	-0.051007527	247.7929925	0.806878996	248.650879	3.360239171	251.2042392	3.474010366	251.3180104
5/25/2020 12:00	3.758736814	252.4867368	3.433212565	252.1612126	3.387812185	252.1158122	6/2/2020 12:00	-0.014104535	247.8298955	0.862918822	248.7069188	3.402648966	251.246649	3.515384281	251.3593843
5/26/2020 12:00	3.711447565	252.4394476	3.389793878	252.1177939	3.357625819	252.0856258	6/3/2020 12:00	-0.023234506	247.8207655	0.862439915	248.7064399	3.422130431	251.2661304	3.535865053	251.3798651
5/27/2020 12:00	3.710358288	252.4383583	3.386080948	252.1140809	3.360491859	252.0884919	6/4/2020 12:00	-0.092674651	247.7513253	0.824192112	248.6681921	3.400520582	251.2445206	3.514634228	251.3586342
5/28/2020 12:00	3.794958608	252.5229586	3.476135352	252.2041354	3.438491992	252.166492	6/5/2020 12:00	0.016388934	247.8603889	0.936861993	248.780862	3.477886567	251.3218866	3.589966997	251.433967
5/29/2020 12:00	3.865361057	252.5933611	3.552109243	252.2801092	3.499082771	252.2270828	6/6/2020 12:00	0.044849324	247.8888493	0.969071085	248.8130711	3.49844878	251.3424488	3.610264609	251.4542646
5/30/2020 12:00	3.861341611	252.5893416	3.548991428	252.2769914	3.496091963	252.224092	6/7/2020 12:00	0.001880369	247.8458804	0.878722101	248.7227221	3.39953824	251.2435382	3.510710812	251.3547108
5/31/2020 12:00	3.805952541	252.5339525	3.497807484	252.2258075	3.454023768	252.1820238	6/8/2020 12:00	-0.010862561	247.8331374	0.890419832	248.7344198	3.417710494	251.2617105	3.528711524	251.3727115
6/1/2020 12:00	3.683180909	252.4111809	3.367784085	252.0957841	3.344250277	252.0722503	6/9/2020 12:00	0.007459094	247.8514591	0.925714118	248.7697141	3.455739412	251.2997394	3.567474955	251.411475
6/2/2020 12:00	3.755359313	252.4833593	3.439022344	252.1670223	3.396090144	252.1240901	6/10/2020 12:00	-0.01669543	247.8273046	0.920105751	248.7641058	3.456885037	251.300885	3.568109393	251.4121094
6/3/2020 12:00	3.737475726	252.4654757	3.424820288	252.1528203	3.37864225	252.1066423	6/11/2020 12:00	0.047329544	247.8913295	0.994916682	248.8389167	3.516281568	251.3602816	3.626927356	251.4709274
6/4/2020 12:00	3.706689886	252.4346899	3.399909825	252.1279098	3.354377576	252.0823776	6/12/2020 12:00	0.129072702	247.9730727	1.077559216	248.9215592	3.561753511	251.4057535	3.670449321	251.5144493
6/5/2020 12:00	3.82160006	252.5496001	3.508615554	252.2366156	3.442438735	252.1704387	6/13/2020 12:00	0.040357572	247.8843576	1.000522959	248.844523	3.51851733	251.3625173	3.628426336	251.4724263
6/6/2020 12:00	3.832770748	252.5607707	3.533078863	252.2610789	3.458352024	252.186352	6/14/2020 12:00	-0.074082634	247.7699174	0.908614948	248.7526149	3.463376741	251.3073767	3.574453616	251.4184536
6/7/2020 12:00	3.687767802	252.4157678	3.382045057	252.1100451	3.343422231	252.0714222	6/15/2020 12:00	-0.136689271	247.7073107	0.858608621	248.7026086	3.428951059	251.2729511	3.540710799	251.3847108
6/8/2020 12:00	3.717009928	252.4450099	3.403891457	252.1318915	3.363612601	252.0916126	6/16/2020 12:00	-0.138275319	247.7057247	0.869897047	248.713897	3.442318569	251.2863186	3.554151155	251.3981512
6/9/2020 12:00	3.758396999	252.486397	3.449942	252.177942	3.397745684	252.1257457	6/17/2020 12:00	-0.231685088	247.6123149	0.790111909	248.6341119	3.390696869	251.2346969	3.502979074	251.3469791
6/10/2020 12:00	3.756104412	252.4841044	3.453223129	252.1812231	3.4027122	252.1307122	6/18/2020 12:00	-0.189670415	247.6543296	0.837329924	248.6813299	3.422021298	251.2660213	3.533211364	251.3772114
6/11/2020 12:00	3.83729605	252.5652961	3.534100325	252.2621003	3.469108504	252.1971085	6/19/2020 12:00	-0.177740443	247.6662596	0.854366746	248.6983667	3.42338545	251.2673855	3.534019014	251.378019

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
6/12/2020 12:00	3.907676842	252.6356768	3.613377991	252.341378	3.528796886	252.2567969	6/20/2020 12:00	-0.173996616	247.6700034	0.830555847	248.6745558	3.384856905	251.2288569	3.495016121	251.3390161
6/13/2020 12:00	3.821256332	252.5492563	3.533078863	252.2610789	3.463762179	252.1917622	6/21/2020 12:00	-0.125140123	247.7188599	0.844294373	248.6882944	3.373012525	251.2170125	3.481859014	251.325859
6/14/2020 12:00	3.744812863	252.4728129	3.448758625	252.1767586	3.397427312	252.1254273	6/22/2020 12:00	-0.093487381	247.7505126	0.893483438	248.7374834	3.411380475	251.2553805	3.51924988	251.3632499
6/15/2020 12:00	3.715404639	252.4434046	3.412069632	252.1400696	3.366860654	252.0948607	6/23/2020 12:00	-0.158638126	247.6853619	0.859292786	248.7032928	3.398337592	251.2423376	3.507248889	251.3512489
6/16/2020 12:00	3.731685991	252.459686	3.42982343	252.1578234	3.374057084	252.1020571	6/24/2020 12:00	-0.227048154	247.6169518	0.810848142	248.6548481	3.364442492	251.2084425	3.473029256	251.3170293
6/17/2020 12:00	3.6547913	252.3827913	3.357666091	252.0856661	3.314820122	252.0428201	6/25/2020 12:00	-0.315039948	247.5289601	0.738555288	248.5825553	3.326717469	251.1707175	3.437647306	251.2816473
6/18/2020 12:00	3.709097965	252.437098	3.411746818	252.1397468	3.354759726	252.0827597	6/26/2020 12:00	-0.193538136	247.6504619	0.808985757	248.6529858	3.371702489	251.2157025	3.481628177	251.3256282
6/19/2020 12:00	3.726010667	252.4540107	3.433427746	252.1614277	3.365969038	252.093969	6/27/2020 12:00	-0.337711068	247.5062889	0.713292871	248.5572929	3.327318088	251.1713181	3.439205903	251.2832059
6/20/2020 12:00	3.675610427	252.4036104	3.386780492	252.1147805	3.324949297	252.0529493	6/28/2020 12:00	-0.22527096	247.618729	0.758680796	248.6026808	3.330976352	251.1749764	3.44059131	251.2845913
6/21/2020 12:00	3.671194511	252.3991945	3.37381152	252.1018115	3.317177284	252.0451773	6/29/2020 12:00	0.057155783	247.9011558	0.937257731	248.7812577	3.370501612	251.2145016	3.474876046	251.318876
6/22/2020 12:00	3.732373893	252.4603739	3.433373951	252.161374	3.361383506	252.0893835	6/30/2020 12:00	0.091502977	247.935503	0.963586108	248.8075861	3.378252553	251.2222526	3.482205268	251.3262053
6/23/2020 12:00	3.705428495	252.4334285	3.414705928	252.1427059	3.339473025	252.067473	7/1/2020 12:00	0.082821708	247.9268217	0.950456544	248.7944565	3.364060377	251.2080604	3.467373321	251.3113733
6/24/2020 12:00	3.67107981	252.3990798	3.384305168	252.1123052	3.319470704	252.0474707	7/2/2020 12:00	0.123689922	247.9676899	0.986287285	248.8302873	3.386494302	251.2304943	3.489707252	251.3337073
6/25/2020 12:00	3.601668222	252.3296682	3.323916845	252.0519168	3.271875443	251.9998754	7/3/2020 12:00	0.17639378	248.0203938	1.040294822	248.8842948	3.426713928	251.2707139	3.529288434	251.3732884
6/26/2020 12:00	3.640451231	252.3684512	3.348893053	252.0768931	3.30086756	252.0288676	7/4/2020 12:00	0.161952349	248.0059523	1.026828481	248.8708285	3.425568067	251.2695681	3.528307685	251.3723077
6/27/2020 12:00	3.577681559	252.3056816	3.285422114	252.0134221	3.244981324	251.9729813	7/5/2020 12:00	0.1398447	247.9838447	1.002764543	248.8467645	3.411980747	251.2559807	3.514865014	251.358865
6/28/2020 12:00	3.595069436	252.3230694	3.286122101	252.0141221	3.249570216	251.9775702	7/6/2020 12:00	0.138577708	247.9825777	1.018898639	248.8628986	3.441009153	251.2850092	3.543998894	251.3879989
6/29/2020 12:00	3.655078086	252.3830781	3.350776875	252.0787769	3.294304972	252.022305	7/7/2020 12:00	0.127297615	247.9712976	1.01800993	248.8620099	3.450283933	251.2942839	3.554035793	251.3980358
6/30/2020 12:00	3.665344639	252.3933446	3.370474932	252.0984749	3.297299584	252.0252996	7/8/2020 12:00	0.074390202	247.9183902	0.961055998	248.805056	3.405868771	251.2498688	3.510191528	251.3541915
7/1/2020 12:00	3.635438682	252.3634387	3.342595543	252.0705955	3.271620543	251.9996205	7/9/2020 12:00	0.050434462	247.8944345	0.955243463	248.7992435	3.426331976	251.270332	3.523346153	251.3673462
7/2/2020 12:00	3.668613716	252.3966137	3.370367299	252.0983673	3.29462355	252.0226236	7/10/2020 12:00	0.12862803	247.972628	1.041798622	248.8857986	3.491795011	251.335795	3.587775613	251.4317756
7/3/2020 12:00	3.715691299	252.4436913	3.406689302	252.1346893	3.333421633	252.0614216	7/11/2020 12:00	0.136863731	247.9808637	1.053486859	248.8974869	3.49583094	251.3398309	3.592158349	251.4361583
7/4/2020 12:00	3.692738341	252.4207383	3.386834303	252.1148343	3.323802631	252.0518026	7/12/2020 12:00	0.092576805	247.9365768	1.012677595	248.8566776	3.46283123	251.3068312	3.559630784	251.4036308
7/5/2020 12:00	3.667733609	252.3957336	3.347224506	252.0752245	3.307429876	252.0354299	7/13/2020 12:00	0.008980107	247.8529801	0.937941629	248.7819416	3.419511225	251.2635112	3.516653593	251.3606536
7/6/2020 12:00	3.69887413	252.4268741	3.376502265	252.1045023	3.336033315	252.0640333	7/14/2020 12:00	0.00422559	247.8482256	0.9482682	248.7922682	3.430478836	251.2744788	3.528134611	251.3721346
7/7/2020 12:00	3.698816788	252.4268168	3.37838576	252.1063858	3.312908885	252.0409089	7/15/2020 12:00	-0.003318487	247.8406815	0.950251387	248.7942514	3.435607686	251.2796077	3.532922917	251.3769229
7/8/2020 12:00	3.633316016	252.361316	3.300605764	252.0286058	3.2619978	251.9899978	7/16/2020 12:00	-0.025572086	247.8184279	0.9482682	248.7922682	3.434789265	251.2787893	3.532288331	251.3762883
7/9/2020 12:00	3.644273214	252.3722732	3.308358558	252.0363586	3.267669553	251.9956696	7/17/2020 12:00	-0.039648354	247.8043516	0.925425934	248.7694259	3.408051649	251.2520516	3.506094897	251.3500949
7/10/2020 12:00	3.740097262	252.4680973	3.405613213	252.1336132	3.345906358	252.0739064	7/18/2020 12:00	-0.074843577	247.7691564	0.904496307	248.7484963	3.386767199	251.2307672	3.484051945	251.3280519
7/11/2020 12:00	3.750530091	252.4785301	3.422237959	252.150238	3.35788058	252.0858806	7/19/2020 12:00	0.087063977	247.931064	1.013566327	248.8575663	3.422785225	251.2667852	3.517403636	251.3614036
7/12/2020 12:00	3.710399502	252.4383995	3.385219967	252.11322	3.332466129	252.0604661	7/20/2020 12:00	0.063236582	247.9072366	1.011310306	248.8553103	3.414709226	251.2587092	3.509268353	251.3532684
7/13/2020 12:00	3.640831256	252.3688313	3.315034273	252.0430343	3.277037063	252.0050371	7/21/2020 12:00	0.021277906	247.8652779	0.982184853	248.8261849	3.399483666	251.2434837	3.494439079	251.3384391
7/14/2020 12:00	3.667733609	252.3957336	3.335221218	252.0632212	3.291947471	252.0199475	7/22/2020 12:00	-0.035209779	247.8087902	0.949704303	248.7937043	3.393098282	251.2370983	3.489361015	251.333361
7/15/2020 12:00	3.674788155	252.4027882	3.346309489	252.0743095	3.294750982	252.022751	7/23/2020 12:00	-0.122605327	247.7213947	0.884248579	248.7282486	3.370119513	251.2141195	3.467777324	251.3117773
7/16/2020 12:00	3.698186018	252.426186	3.36988295	252.0978829	3.30927747	252.0372775	7/24/2020 12:00	-0.03597067	247.8080293	0.891294473	248.7352945	3.345335517	251.1893355	3.441688081	251.2856881
7/17/2020 12:00	3.686889016	252.414889	3.362671349	252.0906713	3.297618157	252.0256182	7/25/2020 12:00	-0.097359245	247.7466408	0.879733605	248.7237336	3.366189291	251.2101893	3.463852683	251.3078527
7/18/2020 12:00	3.674788155	252.4027882	3.347385979	252.075386	3.28162503	252.009625	7/26/2020 12:00	-0.136117795	247.7078822	0.881580652	248.7255807	3.395499655	251.2394997	3.494381375	251.3383814
7/19/2020 12:00	3.755001062	252.4830011	3.412284842	252.1402848	3.334504531	252.0625045	7/27/2020 12:00	-0.166254681	247.6777453	0.873371423	248.7173714	3.400848028	251.244848	3.500324803	251.3443248
7/20/2020 12:00	3.773571233	252.5015712	3.448597255	252.1765973	3.348899998	252.0769	7/28/2020 12:00	-0.210231354	247.6337686	0.845799641	248.6897996	3.378088805	251.2220888	3.477588477	251.3215885
7/21/2020 12:00	3.753396115	252.4813961	3.432190453	252.1601905	3.332466129	252.0604661	7/29/2020 12:00	-0.22349615	247.6205038	0.840052192	248.6840522	3.365425069	251.2094251	3.46460299	251.308603
7/22/2020 12:00	3.740326563	252.4683266	3.419547989	252.147548	3.326605579	252.0546056	7/30/2020 12:00	-0.247679801	247.5963202	0.823903719	248.6679037	3.359911635	251.2039116	3.459754787	251.3037548
7/23/2020 12:00	3.693025066	252.4210251	3.373703889	252.1017039	3.291310303	252.0193103	7/31/2020 12:00	-0.287103816	247.5568962	0.790850045	248.63485	3.351941353	251.1959414	3.452424468	251.2964245

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
7/24/2020 12:00	3.643756926	252.3717569	3.312988519	252.0409885	3.254413902	251.9824139	8/1/2020 12:00	-0.283675318	247.5603247	0.809191057	248.6531911	3.362641083	251.2066411	3.462640641	251.3066406
7/25/2020 12:00	3.66108021	252.3890802	3.332475945	252.0604759	3.267924459	251.9959245	8/2/2020 12:00	-0.29383401	247.550166	0.802758206	248.6467582	3.363842025	251.207842	3.464372126	251.3083721
7/26/2020 12:00	3.690845939	252.4188459	3.368214624	252.0962146	3.295260705	252.0232607	8/3/2020 12:00	-0.327679053	247.5163209	0.774286947	248.6182869	3.352050538	251.1960505	3.453174832	251.2971748
7/27/2020 12:00	3.700078319	252.4280783	3.380430671	252.1084307	3.305454839	252.0334548	8/4/2020 12:00	-0.393100161	247.4508998	0.71048574	248.5544857	3.307824012	251.151824	3.409589788	251.2535898
7/28/2020 12:00	3.68442305	252.412423	3.372681393	252.1006814	3.294050109	252.0220501	8/5/2020 12:00	-0.462674343	247.3813257	0.652417274	248.4964173	3.285268807	251.1292688	3.388110123	251.2321101
7/29/2020 12:00	3.696064317	252.4240643	3.383228929	252.1112289	3.297299584	252.0252996	8/6/2020 12:00	-0.492417878	247.3515821	0.627828996	248.471829	3.284722633	251.1287226	3.388687574	251.2326876
7/30/2020 12:00	3.69354117	252.4215412	3.379784913	252.1077849	3.291565171	252.0195652	8/7/2020 12:00	-0.554207685	247.2897923	0.573573485	248.4175735	3.234302027	251.078302	3.337805676	251.1818057
7/31/2020 12:00	3.673583746	252.4015837	3.358796324	252.0867963	3.272448964	252.000449	8/8/2020 12:00	-0.416032855	247.4279671	0.641253609	248.4852536	3.267786787	251.1117868	3.37246037	251.2164604
8/1/2020 12:00	3.705869744	252.4338697	3.392430543	252.1204305	3.29723587	252.0252359	8/9/2020 12:00	-0.468011001	247.375989	0.602210159	248.4462102	3.238669576	251.0826696	3.343524251	251.1875243
8/2/2020 12:00	3.704550926	252.4325509	3.396519978	252.12452	3.300740133	252.0287401	8/10/2020 12:00	-0.531891019	247.312109	0.566036842	248.4100368	3.223535085	251.0675351	3.329314058	251.1733141
8/3/2020 12:00	3.686200844	252.4142008	3.376663708	252.1046637	3.28583055	252.0138306	8/11/2020 12:00	-0.557512576	247.2864874	0.57083292	248.4148329	3.23244113	251.0764411	3.338036734	251.1820367
8/4/2020 12:00	3.612505098	252.3405051	3.320363876	252.0483639	3.241157146	251.9691571	8/12/2020 12:00	-0.549946549	247.2940535	0.578300872	248.4223009	3.226212419	251.0702124	3.331682517	251.1756825
8/5/2020 12:00	3.559760936	252.2877609	3.271260168	251.9992602	3.204631618	251.9326316	8/13/2020 12:00	-0.605522489	247.2384775	0.527595575	248.3715956	3.185664704	251.0296647	3.291009174	251.1350092
8/6/2020 12:00	3.54431841	252.2723184	3.253165505	251.9811655	3.190095568	251.9180956	8/14/2020 12:00	-0.580784753	247.2632152	0.541986213	248.3859862	3.187796197	251.0317962	3.292569291	251.1365693
8/7/2020 12:00	3.49769333	252.2256933	3.210667265	251.9386673	3.156236725	251.8842367	8/15/2020 12:00	-0.615761921	247.2282381	0.507995245	248.3519952	3.154672582	250.9986726	3.259167681	251.1031677
8/8/2020 12:00	3.533122935	252.2611229	3.229359271	251.9573593	3.171349753	251.8993498	8/16/2020 12:00	-0.599162869	247.2448371	0.531364651	248.3753647	3.172984415	251.0169844	3.277487475	251.1214875
8/9/2020 12:00	3.496487301	252.2244873	3.196067659	251.9240677	3.138124708	251.8661247	8/17/2020 12:00	-0.585363219	247.2586368	0.541986213	248.3859862	3.16030303	251.004303	3.263906769	251.1079068
8/10/2020 12:00	3.47770634	252.2057063	3.178664903	251.9066649	3.120265773	251.8482658	8/18/2020 12:00	-0.65672512	247.1872749	0.467760626	248.3117606	3.119955829	250.9639558	3.224602506	251.0686025
8/11/2020 12:00	3.513485604	252.2414856	3.216539054	251.9445391	3.14392843	251.8719284	8/19/2020 12:00	-0.722449901	247.1215501	0.410307855	248.2543079	3.092285901	250.9362859	3.198239786	251.0422398
8/12/2020 12:00	3.51991685	252.2479169	3.233345178	251.9613452	3.147372298	251.8753723	8/20/2020 12:00	-0.741414382	247.1025856	0.393439139	248.2374391	3.08227751	250.9262775	3.188179111	251.0321791
8/13/2020 12:00	3.471043368	252.1990434	3.188363268	251.9163633	3.101894493	251.8298945	8/21/2020 12:00	-0.763950256	247.0800497	0.370739575	248.2147396	3.069150719	250.9131507	3.17557341	251.0195734
8/14/2020 12:00	3.485287952	252.213288	3.198492041	251.926492	3.104446187	251.8324462	8/22/2020 12:00	-0.594970256	247.2490297	0.472901783	248.3169018	3.103223254	250.9472233	3.206738798	251.0507388
8/15/2020 12:00	3.432725054	252.1607251	3.160883032	251.888883	3.071015766	251.7990158	8/23/2020 12:00	-0.453907235	247.3900928	0.541232443	248.3852324	3.105301259	250.9493013	3.206796613	251.0507966
8/16/2020 12:00	3.469262692	252.1972627	3.193643241	251.9216432	3.093792597	251.8217926	8/24/2020 12:00	-0.441706578	247.4022934	0.548290359	248.3922904	3.102238925	250.9462389	3.203558952	251.047559
8/17/2020 12:00	3.478280719	252.2062807	3.203879423	251.9318794	3.101128978	251.829129	8/25/2020 12:00	-0.49019608	247.3538039	0.506761594	248.3507616	3.067947371	250.9119474	3.169212335	251.0132123
8/18/2020 12:00	3.381866535	252.1098665	3.122079331	251.8500793	3.034770291	251.7627703	8/26/2020 12:00	-0.531641146	247.3123589	0.475369491	248.3193695	3.045027187	250.8890272	3.146483756	250.9904838
8/19/2020 12:00	3.327654363	252.0556544	3.066875561	251.7948756	2.994111953	251.722112	8/27/2020 12:00	-0.53418408	247.3098159	0.485514199	248.3295142	3.046449545	250.8904495	3.147582672	250.9915827
8/20/2020 12:00	3.310288187	252.0382882	3.050159711	251.7781597	2.984344749	251.7123447	8/28/2020 12:00	-0.57939037	247.2646096	0.450211157	248.2942112	3.017343159	250.8613432	3.118487619	250.9624876
8/21/2020 12:00	3.303157075	252.0311571	3.031985977	251.759986	2.972087019	251.700087	8/29/2020 12:00	-0.585622173	247.2583778	0.456312513	248.3003125	3.021775142	250.8657751	3.12271051	250.9667105
8/22/2020 12:00	3.347778004	252.075778	3.069247991	251.797248	2.999793254	251.7277933	8/30/2020 12:00	-0.693820751	247.1501792	0.353387433	248.1973874	2.942690712	250.7866907	3.044133823	250.8881338
8/23/2020 12:00	3.357896217	252.0858962	3.075718075	251.8037181	3.001899752	251.7298998	8/31/2020 12:00	-0.623790996	247.220209	0.394673483	248.2386735	2.95867521	250.8026752	3.058833898	250.9028339
8/24/2020 12:00	3.353297121	252.0812971	3.071728221	251.7997282	2.996090856	251.7240909	9/1/2020 12:00	-0.704075702	247.1399243	0.306536059	248.1505361	2.884869281	250.7288693	2.985666613	250.8296666
8/25/2020 12:00	3.315348754	252.0433488	3.036246475	251.7642465	2.957721295	251.6857213	9/2/2020 12:00	-0.653050941	247.1909491	0.370670993	248.214671	2.935190537	250.7791905	3.035220483	250.8792205
8/26/2020 12:00	3.282969438	252.0109694	2.998221556	251.7262216	2.926750779	251.6547508	9/3/2020 12:00	-0.539025988	247.304974	0.451993595	248.2959936	2.972906524	250.8169065	3.07139149	250.9153915
8/27/2020 12:00	3.295795542	252.0237955	3.012677487	251.7406775	2.934030987	251.662031	9/4/2020 12:00	-0.483087647	247.3609124	0.5108052	248.3548052	3.004593625	250.8485936	3.101826295	250.9458263
8/28/2020 12:00	3.26197348	251.9899735	2.97826159	251.7062616	2.901267438	251.6292674	9/5/2020 12:00	-0.488807863	247.3551921	0.512381499	248.3563815	3.004210574	250.8482106	3.10188415	250.9458842
8/29/2020 12:00	3.271062531	251.9990625	2.991047045	251.719047	2.907973975	251.635974	9/6/2020 12:00	-0.587349529	247.2566505	0.409965009	248.253965	2.935628514	250.7796285	3.034178629	250.8781786
8/30/2020 12:00	3.166214665	251.8942147	2.889328496	251.6173285	2.819552831	251.5475528	9/7/2020 12:00	-0.474571197	247.3694288	0.52225022	248.3662502	3.014278994	250.858279	3.111198516	250.9551985
8/31/2020 12:00	3.188836735	251.9168367	2.901203497	251.6292035	2.830033036	251.558033	9/8/2020 12:00	-0.425894888	247.4181051	0.575560372	248.4195604	3.048801878	250.8928019	3.145326994	250.989327
9/1/2020 12:00	3.085366807	251.8133668	2.80396446	251.5319645	2.748409873	251.4764099	9/9/2020 12:00	-0.487361888	247.3566381	0.511422014	248.355422	3.001419749	250.8454197	3.09858638	250.9425864
9/2/2020 12:00	3.161666782	251.8896668	2.874753425	251.6027534	2.805684674	251.5336847	9/10/2020 12:00	-0.516664658	247.3273353	0.493670722	248.3376707	2.996932429	250.8409324	3.094420672	250.9384207
9/3/2020 12:00	3.213929684	251.9419297	2.923385792	251.6513858	2.846199322	251.5741993	9/11/2020 12:00	-0.585839525	247.2581605	0.423198445	248.2671984	2.944442522	250.7884425	3.042860521	250.8868605

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-36							OW19-41							
Date/Time	VW19-36A		VW19-36B		VW19-36C		Date/Time	VW19-41A		VW19-41B		VW19-41C		VW19-41D	
	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)		GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
9/4/2020 12:00	3.257888965	251.985889	2.976373355	251.7043734	2.888492304	251.6164923	9/12/2020 12:00	-0.663245797	247.1807542	0.364841386	248.2088414	2.910661755	250.7546618	3.009808788	250.8538088
9/5/2020 12:00	3.254149516	251.9821495	2.981174821	251.7091748	2.891494553	251.6194946	9/13/2020 12:00	-0.592580324	247.2514197	0.446029223	248.2900292	2.968801478	250.8128015	3.06612553	250.9101255
9/6/2020 12:00	3.140076697	251.8680767	2.860662926	251.5886629	2.799165586	251.5271656	9/14/2020 12:00	-0.610387348	247.2336127	0.422924185	248.2669242	2.942635967	250.786636	3.039966613	250.8839666
9/7/2020 12:00	3.249201782	251.9772018	2.971301987	251.699302	2.886703704	251.6147037	9/15/2020 12:00	-0.676860321	247.1671397	0.362235154	248.2062352	2.90250284	250.7465028	3.000488165	250.8444882
9/8/2020 12:00	3.299476357	252.0274764	3.027347838	251.7553478	2.933775547	251.6617755	9/16/2020 12:00	-0.61308062	247.2309194	0.431060898	248.2750609	2.962506853	250.8065069	3.059644097	250.9036441
9/9/2020 12:00	3.222273811	251.9502738	2.953389057	251.6813891	2.874438476	251.6024385	9/17/2020 12:00	-0.609264624	247.2347354	0.432363574	248.2763636	2.964258428	250.8082584	3.061438093	250.9054381
9/10/2020 12:00	3.212548539	251.9405485	2.939197568	251.6671976	2.864855612	251.5928556	9/18/2020 12:00	-0.654552672	247.1894473	0.382033011	248.226033	2.934259832	250.7782598	3.032094901	250.8760949
9/11/2020 12:00	3.13811903	251.866119	2.866655589	251.5946556	2.805876408	251.5338764	9/19/2020 12:00	-0.726195783	247.1178042	0.321606048	248.165606	2.906062154	250.7500622	3.00535117	250.8493512
9/12/2020 12:00	3.098211167	251.8262112	2.821084116	251.5490841	2.768356104	251.4963561	9/20/2020 12:00	-0.814163784	247.0298362	0.232887645	248.0768876	2.84493955	250.6889395	2.94501568	250.7890157
9/13/2020 12:00	3.18993033	251.9179303	2.912699815	251.6406998	2.836550866	251.5645509	9/21/2020 12:00	-0.844662825	246.9993372	0.218474947	248.0624749	2.847075982	250.691076	2.947042694	250.7910427
9/14/2020 12:00	3.160054838	251.8880548	2.88900462	251.6170046	2.814568102	251.5425681	9/22/2020 12:00	-0.790862979	247.053137	0.266170188	248.1101702	2.869753123	250.7137531	2.969106441	250.8131064
9/15/2020 12:00	3.10350984	251.8315098	2.829616256	251.5576163	2.767652914	251.4956529	9/23/2020 12:00	-0.740642174	247.1033578	0.318519054	248.1625191	2.901462409	250.7454624	2.999793437	250.8437934
9/16/2020 12:00	3.188261156	251.9162612	2.910271085	251.6382711	2.834697784	251.5626978	9/24/2020 12:00	-0.827626607	247.0163734	0.219641728	248.0636417	2.820998438	250.6649984	2.919936363	250.7639364
9/17/2020 12:00	3.185383222	251.9133832	2.91286173	251.6408617	2.837573246	251.5655732	9/25/2020 12:00	-0.911437133	246.9325629	0.144679569	247.9886796	2.770309362	250.6143094	2.869881143	250.7138811
9/18/2020 12:00	3.123493235	251.8514932	2.859097238	251.5870972	2.795394619	251.5233946	9/26/2020 12:00	-0.968265663	246.8757343	0.09139287	247.9353929	2.728429802	250.5724298	2.828097852	250.6720979
9/19/2020 12:00	3.074191825	251.8021918	2.806070763	251.5340708	2.7607487	251.4887487	9/27/2020 12:00	-0.90799738	246.9360026	0.162667528	248.0066675	2.77869481	250.6226948	2.876776306	250.7207763
9/20/2020 12:00	2.98718062	251.7151806	2.720175943	251.4481759	2.689643547	251.4176435	9/28/2020 12:00	-0.807443668	247.0365563	0.255945825	248.0999458	2.831682023	250.675682	2.928508976	250.772509
9/21/2020 12:00	2.991849488	251.7198495	2.715690859	251.4436909	2.682672007	251.410672	9/29/2020 12:00	-0.912328931	246.9316711	0.144198953	247.988199	2.746246511	250.5902465	2.84397802	250.687978
9/22/2020 12:00	3.038299089	251.7662991	2.770043769	251.4980438	2.7227702	251.4507702	9/30/2020 12:00	-0.877679257	246.9663207	0.187793069	248.0317931	2.784010828	250.6280108	2.881179775	250.7251798
9/23/2020 12:00	3.093373072	251.8213731	2.828536264	251.5565363	2.762091209	251.4900912	10/1/2020 12:00	-0.745286908	247.0987131	0.308983377	248.1529834	2.864659286	250.7086593	2.960420311	250.8044203
9/24/2020 12:00	2.983203312	251.7112033	2.724282657	251.4522827	2.674165039	251.402165	10/2/2020 12:00	-0.789843447	247.0541566	0.248191433	248.0921914	2.81442354	250.6584235	2.910494342	250.7544943
9/25/2020 12:00	2.920819666	251.6488197	2.654292027	251.382292	2.616139308	251.3441393	10/3/2020 12:00	-0.78685147	247.0571485	0.250318774	248.0943188	2.820834069	250.6648341	2.916692545	250.7606925
9/26/2020 12:00	2.875138524	251.6031385	2.6087682	251.3367682	2.571854168	251.2998542	10/4/2020 12:00	-0.874656742	246.9693433	0.151064791	247.9950648	2.752002219	250.5960022	2.849483529	250.6934835
9/27/2020 12:00	2.962334997	251.690335	2.691426	251.419426	2.632583132	251.3605831	10/5/2020 12:00	-0.962693304	246.8813067	0.079373957	247.923374	2.713407278	250.5574073	2.811114662	250.6551147
9/28/2020 12:00	3.045213337	251.7732133	2.785492619	251.5134926	2.69904505	251.4270451									
9/29/2020 12:00	2.921396352	251.6493964	2.665373662	251.3933737	2.603853328	251.3318533									
9/30/2020 12:00	2.976689505	251.7046895	2.716069124	251.4440691	2.644547032	251.372547									
10/1/2020 12:00	3.091760336	251.8197603	2.836420043	251.56442	2.743934415	251.4719344									
10/2/2020 12:00	3.011330239	251.7393302	2.761616495	251.4896165	2.682799928	251.4107999									
10/3/2020 12:00	3.013577843	251.7415778	2.760914202	251.4889142	2.689323758	251.4173238									
10/4/2020 12:00	2.903806342	251.6318063	2.653535205	251.3815352	2.60174158	251.3297416									
10/5/2020 12:00	2.841733376	251.5697334	2.580539098	251.3085391	2.549707011	251.277707									
10/6/2020 12:00	2.826326237	251.5543262	2.568586199	251.2965862	2.536199585	251.2641996									
10/7/2020 12:00	2.935178449	251.6631784	2.674832988	251.402833	2.61588336	251.3438834									
10/8/2020 12:00	2.91562938	251.6436294	2.664941223	251.3929412	2.613195878	251.3411959									
10/9/2020 12:00	2.834231985	251.562232	2.574211203	251.3022112	2.559884841	251.2878848									
10/10/2020 12:00	2.917936198	251.6459362	2.66383732	251.3918373	2.628872222	251.3568722									
10/11/2020 12:00	2.72426153	251.4522615	2.475474555	251.2034746	2.467428522	251.1954285									
10/12/2020 12:00	2.797850337	251.5258503	2.53926808	251.2672681	2.514687782	251.2426878									

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
11/14/2019 12:00	6.133479123	252.9904791	11/23/2019 12:00	5.743042898	254.3680429	5.743403055	254.3684031	2.270803883	250.8958039
11/15/2019 12:00	6.191778387	253.0487784	11/24/2019 12:00	5.734302815	254.3593028	5.733782698	254.3587827	2.250645916	250.8756459
11/16/2019 12:00	6.043713297	252.9007133	11/25/2019 12:00	5.768789076	254.3937891	5.766609653	254.3916097	2.279783762	250.9047838
11/17/2019 12:00	6.09205528	252.9490553	11/26/2019 12:00	5.842313642	254.4673136	5.839633118	254.4646331	2.354059901	250.9790599
11/18/2019 12:00	5.992977998	252.849978	11/27/2019 12:00	5.895437305	254.5204373	5.892680743	254.5176807	2.415459013	251.040459
11/19/2019 12:00	6.054521915	252.9115219	11/28/2019 12:00	5.935662156	254.5606622	5.930998026	254.555998	2.465156345	251.0901563
11/20/2019 12:00	6.123168747	252.9801687	11/29/2019 12:00	5.867987227	254.4929872	5.863666058	254.4886661	2.398739433	251.0237394
11/21/2019 12:00	6.124492819	252.9814928	11/30/2019 12:00	5.842565421	254.4675654	5.838972159	254.4639722	2.368588469	250.9935885
11/22/2019 12:00	6.000228417	252.8572284	12/1/2019 12:00	5.844375721	254.4693757	5.840894943	254.4658949	2.363874889	250.9888749
11/23/2019 12:00	5.95443948	252.8114395	12/2/2019 12:00	5.753137298	254.3781373	5.750738167	254.3757382	2.256267123	250.8812671
11/24/2019 12:00	5.937454173	252.7944542	12/3/2019 12:00	5.727153535	254.3521535	5.724943456	254.3499435	2.210516842	250.8355168
11/25/2019 12:00	5.967207994	252.824208	12/4/2019 12:00	5.787699723	254.4126997	5.784282759	254.4092828	2.262469623	250.8874696
11/26/2019 12:00	6.052061362	252.9090614	12/5/2019 12:00	5.848232408	254.4732324	5.844139585	254.4691396	2.325644961	250.950645
11/27/2019 12:00	6.114909305	252.9719093	12/6/2019 12:00	5.816590218	254.4415902	5.813432866	254.4384329	2.292509845	250.9175098
11/28/2019 12:00	6.165873023	253.022873	12/7/2019 12:00	5.718334238	254.3433342	5.717065874	254.3420659	2.195716501	250.8207165
11/29/2019 12:00	6.091974773	252.9489748	12/8/2019 12:00	5.838000262	254.4630003	5.833744466	254.4587445	2.304589071	250.9295891
11/30/2019 12:00	6.055541879	252.9125419	12/9/2019 12:00	5.759357285	254.3843573	5.756329449	254.3813294	2.225703653	250.8507037
12/1/2019 12:00	6.053882203	252.9108822	12/10/2019 12:00	5.778488755	254.4034888	5.774725111	254.3997251	2.229710165	250.8547102
12/2/2019 12:00	5.942151435	252.7991514	12/11/2019 12:00	5.830365256	254.4553653	5.825692264	254.4506923	2.265053932	250.8900539
12/3/2019 12:00	5.901280007	252.75828	12/12/2019 12:00	5.795886987	254.420887	5.792096741	254.4170967	2.221826295	250.8468263
12/4/2019 12:00	5.964255361	252.8212554	12/13/2019 12:00	5.759199818	254.3841998	5.755427643	254.3804276	2.157902045	250.782902
12/5/2019 12:00	6.036572818	252.8935728	12/14/2019 12:00	5.768883823	254.3938838	5.765527559	254.3905276	2.14878656	250.7737866
12/6/2019 12:00	6.019058108	252.8760581	12/15/2019 12:00	5.680612764	254.3056128	5.678273333	254.3032733	2.048419988	250.67342
12/7/2019 12:00	5.919307935	252.7763079	12/16/2019 12:00	5.696993505	254.3219935	5.695114725	254.3201147	2.050942796	250.6759428
12/8/2019 12:00	6.031303637	252.8883036	12/17/2019 12:00	5.766915557	254.3919156	5.763964521	254.3889645	2.106305978	250.731306
12/9/2019 12:00	5.959138674	252.8161387	12/18/2019 12:00	5.629967976	254.254968	5.628459985	254.25346	1.983895392	250.6088954
12/10/2019 12:00	5.978679256	252.8356793	12/19/2019 12:00	5.723216384	254.3482164	5.720673977	254.345674	2.063989883	250.6889899
12/11/2019 12:00	6.031575822	252.8885758	12/20/2019 12:00	5.654858352	254.2798584	5.652767093	254.2777671	1.997096051	250.6220961
12/12/2019 12:00	6.001499123	252.8584991	12/21/2019 12:00	5.623508709	254.2485087	5.621540171	254.2465402	2.036692024	250.661692
12/13/2019 12:00	5.954432961	252.811433	12/22/2019 12:00	5.558671216	254.1836712	5.55726108	254.1822611	1.981954034	250.606954
12/14/2019 12:00	5.966456139	252.8234561	12/23/2019 12:00	5.639892893	254.2648929	5.637545523	254.2625455	2.056616002	250.681616
12/15/2019 12:00	5.874840153	252.7318402	12/24/2019 12:00	5.574980522	254.1999805	5.572490703	254.1974907	2.009131074	250.6341311
12/16/2019 12:00	5.891252225	252.7482522	12/25/2019 12:00	5.565762339	254.1907623	5.563882843	254.1888828	2.009131074	250.6341311
12/17/2019 12:00	5.969261961	252.826262	12/26/2019 12:00	5.525892067	254.1508921	5.524810267	254.1498103	1.986419125	250.6114191
12/18/2019 12:00	5.834160902	252.6911609	12/27/2019 12:00	5.489956537	254.1149565	5.490184411	254.1151844	1.945258301	250.5702583
12/19/2019 12:00	5.930403361	252.7874034	12/28/2019 12:00	5.538499899	254.1634999	5.538297161	254.1632972	1.999878416	250.6248784
12/20/2019 12:00	5.870114475	252.7271145	12/29/2019 12:00	5.519193918	254.1441939	5.51927066	254.1442707	1.986742678	250.6117427
12/21/2019 12:00	5.828684474	252.6856845	12/30/2019 12:00	5.481917676	254.1069177	5.481451427	254.1064514	1.950177402	250.5751774
12/22/2019 12:00	5.760737875	252.6177379	12/31/2019 12:00	5.402146701	254.0271467	5.404217982	254.029218	1.883887319	250.5088873
12/23/2019 12:00	5.855316042	252.712316	1/1/2020 12:00	5.283866071	253.9088661	5.286485095	253.9114851	1.761534077	250.3865341
12/24/2019 12:00	5.789965976	252.646966	1/2/2020 12:00	5.356417616	253.9814176	5.357087526	253.9820875	1.821652693	250.4466527
12/25/2019 12:00	5.787522513	252.6445225	1/3/2020 12:00	5.392607301	254.0176073	5.392888719	254.0178887	1.860187676	250.4851877

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
12/26/2019 12:00	5.747324961	252.604325	1/4/2020 12:00	5.360833173	253.9858332	5.361367236	253.9863672	1.830655745	250.4556557
12/27/2019 12:00	5.714675255	252.5716753	1/5/2020 12:00	5.352790497	253.9777905	5.352265174	253.9772652	1.825344648	250.4503446
12/28/2019 12:00	5.76892104	252.625921	1/6/2020 12:00	5.280947833	253.9059478	5.281117731	253.9061177	1.759136677	250.3841367
12/29/2019 12:00	5.762651106	252.6196511	1/7/2020 12:00	5.390084429	254.0150844	5.388308564	254.0133086	1.864591132	250.4895911
12/30/2019 12:00	5.725036368	252.5820364	1/8/2020 12:00	5.362015899	253.9870159	5.358692472	253.9836925	1.852287079	250.4772871
12/31/2019 12:00	5.64706095	252.504061	1/9/2020 12:00	5.274638022	253.899638	5.274604271	253.8996043	1.778833258	250.4038333
1/1/2020 12:00	5.513586907	252.3705869	1/10/2020 12:00	5.369742918	253.9947429	5.370649575	253.9956496	1.874563254	250.4995633
1/2/2020 12:00	5.58477122	252.4417712	1/11/2020 12:00	5.342224269	253.9672243	5.342959248	253.9679592	1.866015756	250.4910158
1/3/2020 12:00	5.63764502	252.494645	1/12/2020 12:00	5.293882489	253.9188825	5.296375023	253.921375	1.828777449	250.4537774
1/4/2020 12:00	5.621412793	252.4784128	1/13/2020 12:00	5.268012564	253.8930126	5.271287125	253.8962871	1.806560203	250.4315602
1/5/2020 12:00	5.605196101	252.4621961	1/14/2020 12:00	5.280395731	253.9053957	5.284374356	253.9093744	1.820357251	250.4453573
1/6/2020 12:00	5.544730983	252.401731	1/15/2020 12:00	5.3249547	253.9499547	5.326440627	253.9514406	1.866663308	250.4916633
1/7/2020 12:00	5.654482434	252.5114824	1/16/2020 12:00	5.368087147	253.9930871	5.370385846	253.9953858	1.919366008	250.544366
1/8/2020 12:00	5.645603381	252.5026034	1/17/2020 12:00	5.218632048	253.843632	5.224839493	253.8498395	1.794511184	250.4195112
1/9/2020 12:00	5.550624826	252.4076248	1/18/2020 12:00	5.229124184	253.8541242	5.231453958	253.856454	1.79703766	250.4220377
1/10/2020 12:00	5.649584135	252.5065841	1/19/2020 12:00	5.325585571	253.9505856	5.327164108	253.9521641	1.888484418	250.5134844
1/11/2020 12:00	5.636992804	252.4939928	1/20/2020 12:00	5.237959354	253.8629594	5.241407718	253.8664077	1.817507246	250.4425072
1/12/2020 12:00	5.586035679	252.4430357	1/21/2020 12:00	5.080618934	253.7056189	5.087404431	253.7124044	1.673132486	250.2981325
1/13/2020 12:00	5.553261855	252.4102619	1/22/2020 12:00	5.144307763	253.7693078	5.149165925	253.7741659	1.72654173	250.3515417
1/14/2020 12:00	5.564772737	252.4217727	1/23/2020 12:00	5.204904884	253.8299049	5.209756051	253.8347561	1.789652473	250.4146525
1/15/2020 12:00	5.613985833	252.4709858	1/24/2020 12:00	5.145175785	253.7701758	5.150674935	253.7756749	1.748833962	250.373834
1/16/2020 12:00	5.671276691	252.5282767	1/25/2020 12:00	5.096325491	253.7213255	5.101533896	253.7265339	1.708265161	250.3332652
1/17/2020 12:00	5.523246278	252.3802463	1/26/2020 12:00	5.120317682	253.7453177	5.124959361	253.7499594	1.730559726	250.3555597
1/18/2020 12:00	5.51827127	252.3752713	1/27/2020 12:00	5.116292824	253.7412928	5.121035242	253.7460352	1.732892714	250.3578927
1/19/2020 12:00	5.627308701	252.4843087	1/28/2020 12:00	5.101534502	253.7265345	5.106967958	253.731968	1.728680352	250.3536804
1/20/2020 12:00	5.550560596	252.4075606	1/29/2020 12:00	5.108716459	253.7337165	5.114213073	253.7392131	1.730754143	250.3557541
1/21/2020 12:00	5.372141258	252.2291413	1/30/2020 12:00	5.065306144	253.6903061	5.070495661	253.6954957	1.691218269	250.3162183
1/22/2020 12:00	5.430131737	252.2871317	1/31/2020 12:00	5.000730391	253.6257304	5.007131529	253.6321315	1.630600831	250.2556008
1/23/2020 12:00	5.507742415	252.3647424	2/1/2020 12:00	4.938192611	253.5631926	4.944345555	253.5693456	1.565875812	250.1908758
1/24/2020 12:00	5.454245233	252.3112452	2/2/2020 12:00	4.964646576	253.5896466	4.968882891	253.5938829	1.579172986	250.204173
1/25/2020 12:00	5.401287586	252.2582876	2/3/2020 12:00	5.06278024	253.6877802	5.064254433	253.6892544	1.667038646	250.2920386
1/26/2020 12:00	5.425877323	252.2828773	2/4/2020 12:00	5.04730857	253.6723086	5.05006121	253.6750612	1.671446977	250.296447
1/27/2020 12:00	5.430986465	252.2879865	2/5/2020 12:00	4.971911097	253.5969111	4.975892835	253.6008928	1.605634598	250.2306346
1/28/2020 12:00	5.420268694	252.2772687	2/6/2020 12:00	4.983755011	253.608755	4.985540937	253.6105409	1.614648792	250.2396488
1/29/2020 12:00	5.43923021	252.2962302	2/7/2020 12:00	4.977043523	253.6020435	4.978410623	253.6034106	1.615880912	250.2408809
1/30/2020 12:00	5.403317275	252.2603173	2/8/2020 12:00	4.961488029	253.586488	4.962759023	253.587759	1.609006869	250.2340069
1/31/2020 12:00	5.344571997	252.201572	2/9/2020 12:00	4.953986331	253.5789863	4.958427807	253.5834278	1.594739125	250.2197391
2/1/2020 12:00	5.289752744	252.1467527	2/10/2020 12:00	4.947195144	253.5721951	4.950026963	253.575027	1.594220276	250.2192203
2/2/2020 12:00	5.318145658	252.1751457	2/11/2020 12:00	4.857314454	253.4823145	4.861155281	253.4861553	1.50406388	250.1290639
2/3/2020 12:00	5.44384307	252.3008431	2/12/2020 12:00	5.025757282	253.6507573	5.025839093	253.6508391	1.648643727	250.2736437
2/4/2020 12:00	5.450687422	252.3076874	2/13/2020 12:00	4.979254384	253.6042544	4.979921311	253.6049213	1.633276849	250.2582768
2/5/2020 12:00	5.37194193	252.2289419	2/14/2020 12:00	4.799958599	253.4249586	4.801738722	253.4267387	1.469993368	250.0949934

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
2/6/2020 12:00	5.393314448	252.2503144	2/15/2020 12:00	4.893728384	253.5187284	4.894090625	253.5190906	1.54182573	250.1668257
2/7/2020 12:00	5.396557085	252.2535571	2/16/2020 12:00	4.894439237	253.5194392	4.895057999	253.520058	1.541566226	250.1665662
2/8/2020 12:00	5.38194273	252.2389427	2/17/2020 12:00	4.898072455	253.5230725	4.898746058	253.5237461	1.558043954	250.183044
2/9/2020 12:00	5.38390363	252.2409036	2/18/2020 12:00	4.952328034	253.577328	4.953451907	253.5784519	1.60351184	250.2285118
2/10/2020 12:00	5.371921236	252.2289212	2/19/2020 12:00	4.988255563	253.6132556	4.98862258	253.6136226	1.64728216	250.2722822
2/11/2020 12:00	5.2872977	252.1442977	2/20/2020 12:00	4.869953244	253.4949532	4.870750867	253.4957509	1.575039041	250.200039
2/12/2020 12:00	5.463466525	252.3204665	2/21/2020 12:00	4.812600042	253.4376	4.817063055	253.4420631	1.529174471	250.1541745
2/13/2020 12:00	5.431844604	252.2888446	2/22/2020 12:00	4.779494025	253.404494	4.782578817	253.4075788	1.484595828	250.1095958
2/14/2020 12:00	5.240705509	252.0977055	2/23/2020 12:00	4.779177958	253.404178	4.781973761	253.4069738	1.477197401	250.1021974
2/15/2020 12:00	5.327157398	252.1841574	2/24/2020 12:00	4.830455084	253.4554551	4.8316409	253.4566409	1.519766532	250.1447665
2/16/2020 12:00	5.341666484	252.1986665	2/25/2020 12:00	4.90660243	253.5316024	4.906182365	253.5311824	1.602928162	250.2279282
2/17/2020 12:00	5.345361532	252.2023615	2/26/2020 12:00	4.851863795	253.4768638	4.851278193	253.4762782	1.564141618	250.1891416
2/18/2020 12:00	5.410408421	252.2674084	2/27/2020 12:00	4.796719136	253.4217191	4.796112349	253.4211123	1.509774098	250.1347741
2/19/2020 12:00	5.456970156	252.3139702	2/28/2020 12:00	4.777360565	253.4023606	4.775843595	253.4008436	1.493291825	250.1182918
2/20/2020 12:00	5.332814333	252.1898143	2/29/2020 12:00	4.683787991	253.308788	4.686466051	253.3114661	1.399105471	250.0241055
2/21/2020 12:00	5.260792518	252.1177925	3/1/2020 12:00	4.663551875	253.2885519	4.66222853	253.2872285	1.366897834	249.9918978
2/22/2020 12:00	5.223465065	252.0804651	3/2/2020 12:00	4.589629909	253.2146299	4.590881091	253.2158811	1.292070173	249.9170702
2/23/2020 12:00	5.219763644	252.0767636	3/3/2020 12:00	4.650587326	253.2755873	4.651831346	253.2768313	1.350856744	249.9758567
2/24/2020 12:00	5.282880485	252.1398805	3/4/2020 12:00	4.652405562	253.2774056	4.65253982	253.2775398	1.355467896	249.9804679
2/25/2020 12:00	5.376287598	252.2332876	3/5/2020 12:00	4.758790851	253.3837909	4.75922193	253.3842219	1.464865994	250.089866
2/26/2020 12:00	5.325716222	252.1827162	3/6/2020 12:00	4.663947126	253.2889471	4.666727648	253.2917276	1.396832949	250.0218329
2/27/2020 12:00	5.259485375	252.1164854	3/7/2020 12:00	4.677227227	253.3022272	4.676457716	253.3014577	1.412739986	250.03774
2/28/2020 12:00	5.236131617	252.0931316	3/8/2020 12:00	4.655862367	253.2808624	4.657081479	253.2820815	1.386184166	250.0111842
2/29/2020 12:00	5.138712098	251.9957121	3/9/2020 12:00	4.682343792	253.3073438	4.68335991	253.3083599	1.423516995	250.048517
3/1/2020 12:00	5.107845637	251.9648456	3/10/2020 12:00	4.638549243	253.2635492	4.641475749	253.2664757	1.389171085	250.0141711
3/2/2020 12:00	5.044046191	251.9010462	3/11/2020 12:00	4.525077709	253.1500777	4.528548423	253.1535484	1.288886691	249.9138867
3/3/2020 12:00	5.096408032	251.953408	3/12/2020 12:00	4.576402714	253.2014027	4.575735185	253.2007352	1.333450177	249.9584502
3/4/2020 12:00	5.112133123	251.9691331	3/13/2020 12:00	4.685505583	253.3105056	4.684631333	253.3096313	1.428201799	250.0532018
3/5/2020 12:00	5.227697542	252.0846975	3/14/2020 12:00	4.755450842	253.3804508	4.754845973	253.379846	1.515170687	250.1401707
3/6/2020 12:00	5.141190211	251.9981902	3/15/2020 12:00	4.686928376	253.3119284	4.687658489	253.3126585	1.463578683	250.0885787
3/7/2020 12:00	5.149963541	252.0069635	3/16/2020 12:00	4.593640697	253.2186407	4.595121678	253.2201217	1.377168612	250.0021686
3/8/2020 12:00	5.129230475	251.9862305	3/17/2020 12:00	4.610245067	253.2352451	4.613069974	253.23807	1.382623249	250.0076232
3/9/2020 12:00	5.164444326	252.0214443	3/18/2020 12:00	4.630722403	253.2557224	4.630737988	253.255738	1.402232568	250.0272326
3/10/2020 12:00	5.12391117	251.9809112	3/19/2020 12:00	4.643846068	253.2688461	4.643516659	253.2685167	1.422488898	250.0474889
3/11/2020 11:23	5.00946816	251.8664682	3/20/2020 12:00	4.671830578	253.2968306	4.671492788	253.2964928	1.460917552	250.0859176
3/12/2020 11:23	5.053729756	251.9107298	3/21/2020 12:00	4.607082407	253.2320824	4.6067524	253.2317524	1.406712535	250.0317125
3/13/2020 11:23	5.181987831	252.0389878	3/22/2020 12:00	4.52270498	253.147705	4.523803699	253.1488037	1.333200637	249.9582006
3/14/2020 11:23	5.279200587	252.1362006	3/23/2020 12:00	4.512264728	253.1372647	4.514426678	253.1394267	1.316831604	249.9418316
3/15/2020 11:23	5.219169852	252.0761699	3/24/2020 12:00	4.42635483	253.0513548	4.426134762	253.0511348	1.230284201	249.8552842
3/16/2020 11:23	5.113075455	251.9700755	3/25/2020 12:00	4.509021842	253.1340218	4.510668742	253.1356687	1.305333394	249.9303334
3/17/2020 11:23	5.120479866	251.9774799	3/26/2020 12:00	4.440200326	253.0652003	4.442100619	253.0671006	1.249845566	249.8748456
3/18/2020 11:23	5.152078926	252.0090789	3/27/2020 12:00	4.413616356	253.0386164	4.414203879	253.0392039	1.223979908	249.8489799

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
3/19/2020 11:23	5.169068262	252.0260683	3/28/2020 12:00	4.44154528	253.0665453	4.440021956	253.065022	1.268495072	249.8934951
3/20/2020 11:23	5.208143904	252.0651439	3/29/2020 12:00	4.48371019	253.1087102	4.481494159	253.1064942	1.330407616	249.9554076
3/21/2020 11:23	5.141769686	251.9987697	3/30/2020 12:00	4.466307073	253.0913071	4.466657699	253.0916577	1.384051817	250.0090518
3/22/2020 11:23	5.040678718	251.8976787	3/31/2020 12:00	4.422082365	253.0470824	4.422452136	253.0474521	1.34547641	249.9704764
3/23/2020 11:23	5.007025834	251.8640258	4/1/2020 12:00	4.444788965	253.069789	4.441841147	253.0668411	1.36255714	249.9875571
3/24/2020 11:23	4.912172724	251.7691727	4/2/2020 12:00	4.486320562	253.1113206	4.483009745	253.1080097	1.418723476	250.0437235
3/25/2020 11:23	4.994941743	251.8519417	4/3/2020 12:00	4.479253934	253.1042539	4.48028168	253.1052817	1.42950016	250.0545002
3/26/2020 11:23	4.925949911	251.7829499	4/4/2020 12:00	4.494362427	253.1193624	4.495012655	253.1200127	1.460657927	250.0856579
3/27/2020 11:23	4.883498123	251.7404981	4/5/2020 12:00	4.480440495	253.1054405	4.483269405	253.1082694	1.458840542	250.0838405
3/28/2020 11:23	4.922649197	251.7796492	4/6/2020 12:00	4.444683204	253.0696832	4.445540101	253.0705401	1.435022716	250.0600227
3/29/2020 11:23	4.970100492	251.8271005	4/7/2020 12:00	4.434002578	253.0590026	4.433472693	253.0584727	1.428011648	250.0530116
3/30/2020 11:23	4.963618294	251.8206183	4/8/2020 12:00	4.482971808	253.1079718	4.480099808	253.1050998	1.494086316	250.1190863
3/31/2020 11:23	4.914855085	251.7718551	4/9/2020 12:00	4.562379873	253.1873799	4.559800082	253.1848001	1.573304101	250.1983041
4/1/2020 11:23	4.933850699	251.7908507	4/10/2020 12:00	4.499029279	253.1240293	4.496649342	253.1216493	1.548848382	250.1738484
4/2/2020 11:23	4.981927354	251.8389274	4/11/2020 12:00	4.565543064	253.1905431	4.56228437	253.1872844	1.638221667	250.2632217
4/3/2020 11:23	4.99450642	251.8515064	4/12/2020 12:00	4.62279051	253.2477905	4.619472496	253.2444725	1.739084647	250.3640846
4/4/2020 11:23	5.017088165	251.8740882	4/13/2020 12:00	4.658840769	253.2838408	4.656899815	253.2818998	1.807892145	250.4328921
4/5/2020 11:23	5.001235999	251.858236	4/14/2020 12:00	4.685559169	253.3105592	4.682996645	253.3079966	1.848826859	250.4738269
4/6/2020 11:23	4.976489096	251.8334891	4/15/2020 12:00	4.723814112	253.3488141	4.721134847	253.3461348	1.894284222	250.5192842
4/7/2020 11:23	4.949865277	251.8068653	4/16/2020 12:00	4.770835069	253.3958351	4.767916876	253.3929169	1.947561736	250.5725617
4/8/2020 11:23	4.999114878	251.8561149	4/17/2020 12:00	4.686744837	253.3117448	4.685297313	253.3102973	1.873370127	250.4983701
4/9/2020 11:23	5.093866223	251.9508662	4/18/2020 12:00	4.747760248	253.3727602	4.743892182	253.3688922	1.930408543	250.5554085
4/10/2020 11:23	5.035639463	251.8926395	4/19/2020 12:00	4.735826957	253.360827	4.733240232	253.3582402	1.919792136	250.5447921
4/11/2020 11:23	5.094342593	251.9513426	4/20/2020 12:00	4.79777957	253.4227796	4.793450337	253.4184503	1.978821514	250.6038215
4/12/2020 11:23	5.15935628	252.0163563	4/21/2020 12:00	4.847710746	253.4727107	4.843839221	253.4688392	2.027156334	250.6521563
4/13/2020 11:23	5.193476279	252.0504763	4/22/2020 12:00	4.844708813	253.4697088	4.840694181	253.4656942	2.030002946	250.6550029
4/14/2020 11:23	5.216677439	252.0736774	4/23/2020 12:00	4.862561931	253.4875619	4.860127212	253.4851272	2.04578786	250.6707879
4/15/2020 11:23	5.247452866	252.1044529	4/24/2020 12:00	4.945334598	253.5703346	4.939852831	253.5648528	2.125790173	250.7507902
4/16/2020 11:23	5.29408396	252.151084	4/25/2020 12:00	4.996107324	253.6211073	4.992268265	253.6172683	2.180354303	250.8053543
4/17/2020 11:23	5.203125987	252.060126	4/26/2020 12:00	4.946913986	253.571914	4.945070853	253.5700709	2.138141067	250.7631411
4/18/2020 11:23	5.235342627	252.0923426	4/27/2020 12:00	4.998791777	253.6237918	4.996135269	253.6211353	2.179063024	250.804063
4/19/2020 11:23	5.233293522	252.0902935	4/28/2020 12:00	5.04581663	253.6708166	5.045974622	253.6709746	2.212543332	250.8375433
4/20/2020 11:23	5.276794312	252.1337943	4/29/2020 12:00	5.125298552	253.7502986	5.126166762	253.7511668	2.281487262	250.9064873
4/21/2020 11:23	5.333423738	252.1904237	4/30/2020 12:00	5.084573866	253.7095739	5.086800578	253.7118006	2.22895796	250.853958
4/22/2020 11:23	5.321365059	252.1783651	5/1/2020 12:00	5.08962532	253.7146253	5.091510564	253.7165106	2.210087467	250.8350875
4/23/2020 11:23	5.32697722	252.1839772	5/2/2020 12:00	5.203494999	253.828495	5.202554209	253.8275542	2.302610801	250.9276108
4/24/2020 11:23	5.408270188	252.2652702	5/3/2020 12:00	5.30785349	253.9328535	5.30714654	253.9321465	2.395924093	251.0209241
4/25/2020 11:23	5.456743625	252.3137436	5/4/2020 12:00	5.329225089	253.9542251	5.329033084	253.9540331	2.408641809	251.0336418
4/26/2020 11:23	5.40301885	252.2600188	5/5/2020 12:00	5.378113217	254.0031132	5.379810808	254.0048108	2.435881692	251.0608817
4/27/2020 11:23	5.430604871	252.2876049	5/6/2020 12:00	5.452690125	254.0776901	5.454165151	254.0791652	2.489767892	251.1147679
4/28/2020 11:23	5.47159453	252.3285945	5/7/2020 12:00	5.505102466	254.1301025	5.501543202	254.1265432	2.519640079	251.1446401
4/29/2020 11:23	5.551465132	252.4084651	5/8/2020 12:00	5.540406139	254.1654061	5.540163556	254.1651636	2.534929032	251.159929

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
4/30/2020 11:23	5.49468814	252.3516881	5/9/2020 12:00	5.59343184	254.2184318	5.58992171	254.2149217	2.562536038	251.187536
5/1/2020 11:23	5.472565152	252.3295652	5/10/2020 12:00	5.672439064	254.2974391	5.668864977	254.293865	2.620960635	251.2459606
5/2/2020 11:23	5.569635547	252.4266355	5/11/2020 12:00	5.674880596	254.2998806	5.672353899	254.2973539	2.610063946	251.2350639
5/3/2020 11:23	5.683370454	252.5403705	5/12/2020 12:00	5.673305417	254.2983054	5.674182999	254.299183	2.588655433	251.2136554
5/4/2020 11:23	5.690767771	252.5477678	5/13/2020 12:00	5.635025744	254.2600257	5.633369657	254.2583697	2.530090902	251.1550909
5/5/2020 11:23	2.012034778	248.8690348	5/14/2020 12:00	5.649519094	254.2745191	5.648411061	254.2734111	2.523381804	251.1483818
5/6/2020 11:23	2.049973627	248.9069736	5/15/2020 12:00	5.747014035	254.372014	5.745422344	254.3704223	2.604257842	251.2292578
5/7/2020 11:23	2.067219951	248.92422	5/16/2020 12:00	5.754100348	254.3791003	5.754946678	254.3799467	2.611933841	251.2369338
5/8/2020 11:23	2.062001599	248.9190016	5/17/2020 12:00	5.74150233	254.3665023	5.742982177	254.3679822	2.592263792	251.2172638
5/9/2020 11:23	2.068949926	248.9259499	5/18/2020 12:00	5.754021612	254.3790216	5.754585953	254.379586	2.595036684	251.2200367
5/10/2020 11:23	2.134554953	248.991555	5/19/2020 12:00	5.728431269	254.3534313	5.729272945	254.3542729	2.564725919	251.1897259
5/11/2020 11:23	2.099009606	248.9560096	5/20/2020 12:00	5.736147996	254.361148	5.736789125	254.3617891	2.562984501	251.1879845
5/12/2020 11:23	2.043556718	248.9005567	5/21/2020 12:00	5.715646053	254.3406461	5.718148314	254.3431483	2.53873182	251.1637318
5/13/2020 11:23	1.935813044	248.792813	5/22/2020 12:00	5.72186702	254.346867	5.724342128	254.3493421	2.535506473	251.1605065
5/14/2020 11:23	1.906740289	248.7637403	5/23/2020 12:00	5.727457894	254.3524579	5.728190584	254.3531906	2.538602807	251.1636028
5/15/2020 11:23	2.034907969	248.891908	5/24/2020 12:00	5.75793007	254.3829301	5.758373521	254.3833735	2.564145448	251.1891454
5/16/2020 11:23	2.045718538	248.9027185	5/25/2020 12:00	5.764937399	254.3899374	5.766068607	254.3910686	2.570272541	251.1952725
5/17/2020 11:23	2.010223376	248.8672234	5/26/2020 12:00	5.727457894	254.3524579	5.728791897	254.3537919	2.528475009	251.153475
5/18/2020 11:23	2.010728261	248.8677283	5/27/2020 12:00	5.728402819	254.3534028	5.729393207	254.3543932	2.516024101	251.1410241
5/19/2020 11:23	1.96871189	248.8257119	5/28/2020 12:00	5.792413833	254.4174138	5.790628952	254.415629	2.571368946	251.1963689
5/20/2020 11:23	1.961550183	248.8185502	5/29/2020 12:00	5.829569516	254.4545695	5.830920235	254.4559202	2.617411649	251.2424116
5/21/2020 11:23	1.929259376	248.7862594	5/30/2020 12:00	5.809811513	254.4348115	5.811990518	254.4369905	2.604902659	251.2299027
5/22/2020 11:23	1.925256094	248.7822561	5/31/2020 12:00	5.767929237	254.3929292	5.770877837	254.3958778	2.56111407	251.1861141
5/23/2020 11:23	1.937363052	248.7943631	6/1/2020 12:00	5.667369659	254.2923697	5.670513634	254.2955136	2.454595116	251.0795951
5/24/2020 11:23	1.971449466	248.8284495	6/2/2020 12:00	5.711393665	254.3363937	5.71333741	254.3383374	2.482279573	251.1072796
5/25/2020 11:23	1.983552981	248.840553	6/3/2020 12:00	5.677135886	254.3021359	5.678213182	254.3032132	2.453433434	251.0784334
5/26/2020 11:23	1.92032578	248.7773258	6/4/2020 12:00	5.650120384	254.2751204	5.650841919	254.2758419	2.412824549	251.0378245
5/27/2020 11:23	1.893114801	248.7501148	6/5/2020 12:00	5.720370851	254.3453709	5.719832094	254.3448321	2.474397649	251.0993976
5/28/2020 11:23	1.987787976	248.844788	6/6/2020 12:00	5.716748513	254.3417485	5.716885466	254.3418855	2.476398085	251.1013981
5/29/2020 11:23	2.075255872	248.9322559	6/7/2020 12:00	5.6047472	254.2297472	5.604931328	254.2299313	2.365242084	250.9902421
5/30/2020 11:23	2.070608646	248.9276086	6/8/2020 12:00	5.616642638	254.2416426	5.616244795	254.2412448	2.384354114	251.0093541
5/31/2020 11:23	2.009996118	248.8669961	6/9/2020 12:00	5.638777798	254.2637778	5.638267529	254.2632675	2.405465293	251.0304653
6/1/2020 11:23	1.851942853	248.7089429	6/10/2020 12:00	5.62299037	254.2479904	5.624789514	254.2497895	2.386032773	251.0110328
6/2/2020 11:23	1.924726091	248.7817261	6/11/2020 12:00	5.679465859	254.3044659	5.680859812	254.3058598	2.43315771	251.0581577
6/3/2020 11:23	1.903314412	248.7603144	6/12/2020 12:00	5.716873422	254.3418734	5.719471286	254.3444713	2.479301903	251.1043019
6/4/2020 11:23	1.865853801	248.7228538	6/13/2020 12:00	5.652686756	254.2776868	5.657339281	254.2823393	2.416310403	251.0413104
6/5/2020 11:23	1.986895837	248.8438958	6/14/2020 12:00	5.593133173	254.2181332	5.597589159	254.2225892	2.341930303	250.9669303
6/6/2020 11:23	2.024192499	248.8811925	6/15/2020 12:00	5.563509071	254.1885091	5.567614982	254.192615	2.290258679	250.9152587
6/7/2020 11:23	1.855836286	248.7128363	6/16/2020 12:00	5.552950766	254.1779508	5.556719286	254.1817193	2.273203666	250.8982037
6/8/2020 11:23	1.864152791	248.7211528	6/17/2020 12:00	5.486755031	254.111755	5.491569597	254.1165696	2.19721097	250.822211
6/9/2020 11:23	1.911722375	248.7687224	6/18/2020 12:00	5.516781521	254.1417815	5.520113657	254.1451137	2.21401494	250.8390149
6/10/2020 11:23	1.912297261	248.7692973	6/19/2020 12:00	5.512131967	254.137132	5.51529647	254.1402965	2.209878729	250.8348787

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
6/11/2020 11:23	2.010113685	248.8671137	6/20/2020 12:00	5.46610497	254.091105	5.469043706	254.0940437	2.161594107	250.7865941
6/12/2020 11:23	2.116236874	248.9732369	6/21/2020 12:00	5.451128754	254.0761288	5.453261548	254.0782615	2.144591107	250.7695911
6/13/2020 11:23	2.0350275	248.8920275	6/22/2020 12:00	5.486045704	254.1110457	5.487414001	254.112414	2.184736203	250.8097362
6/14/2020 11:23	1.940176958	248.797177	6/23/2020 12:00	5.451916997	254.076917	5.453321788	254.0783218	2.154224189	250.7792242
6/15/2020 11:23	1.894988983	248.751989	6/24/2020 12:00	5.430475989	254.055476	5.432838692	254.0578387	2.12448275	250.7494828
6/16/2020 11:23	1.927634598	248.7846346	6/25/2020 12:00	5.38364674	254.0086467	5.38631977	254.0113198	2.064902867	250.6899029
6/17/2020 11:23	1.839240046	248.69624	6/26/2020 12:00	5.404381897	254.0293819	5.406869389	254.0318694	2.088445972	250.713446
6/18/2020 11:23	1.904955051	248.7619551	6/27/2020 12:00	5.337203722	253.9622037	5.340871759	253.9658718	2.030746766	250.6557468
6/19/2020 11:23	1.935759106	248.7927591	6/28/2020 12:00	5.33838658	253.9633866	5.341354037	253.966354	2.048860685	250.6738607
6/20/2020 11:23	1.889925276	248.7469253	6/29/2020 12:00	5.371504509	253.9965045	5.372216667	253.9972167	2.203528455	250.8285285
6/21/2020 11:23	1.878825443	248.7358254	6/30/2020 12:00	5.387431221	254.0124312	5.388850958	254.013851	2.305810268	250.9308103
6/22/2020 11:23	1.950951542	248.8079515	7/1/2020 12:00	5.402332104	254.0273321	5.403976942	254.0289769	2.333389546	250.9583895
6/23/2020 11:23	1.935347762	248.7923478	7/2/2020 12:00	5.46381918	254.0888192	5.465489851	254.0904899	2.391698497	251.0166985
6/24/2020 11:23	1.9107843	248.7677843	7/3/2020 12:00	5.54239205	254.167392	5.543234028	254.168234	2.456764396	251.0817644
6/25/2020 11:23	1.854553026	248.711553	7/4/2020 12:00	5.5618958	254.1868958	5.565026572	254.1900266	2.466251131	251.0912511
6/26/2020 11:23	1.887300839	248.7443008	7/5/2020 12:00	5.581120525	254.2061205	5.582963944	254.2079639	2.476769829	251.1017698
6/27/2020 11:23	1.815651921	248.6726519	7/6/2020 12:00	5.62374099	254.248741	5.625692097	254.2506921	2.506322013	251.131322
6/28/2020 11:23	1.82268049	248.6796805	7/7/2020 12:00	5.647094316	254.2720943	5.647653297	254.2726533	2.499547395	251.1245474
6/29/2020 11:23	1.854141571	248.7111416	7/8/2020 12:00	5.612276819	254.2372768	5.612935092	254.2379351	2.455150954	251.080151
6/30/2020 11:23	1.885596467	248.7425965	7/9/2020 12:00	5.628583306	254.2535833	5.628700669	254.2537007	2.457216157	251.0822162
7/1/2020 11:23	1.870052683	248.7270527	7/10/2020 12:00	5.697579638	254.3225796	5.698542922	254.3235429	2.522192938	251.1471929
7/10/2020 10:46	5.914881313	252.7718813	7/11/2020 12:00	5.704473084	254.3294731	5.707804681	254.3328047	2.533095292	251.1580953
7/11/2020 10:46	5.932407404	252.7894074	7/12/2020 12:00	5.672419407	254.2974194	5.676468788	254.3014688	2.501805631	251.1268056
7/12/2020 10:46	5.906418279	252.7634183	7/13/2020 12:00	5.617360163	254.2423602	5.621600344	254.2466003	2.442307419	251.0673074
7/13/2020 10:46	5.834708021	252.691708	7/14/2020 12:00	5.611373077	254.2363731	5.614319158	254.2393192	2.434303931	251.0593039
7/14/2020 10:46	5.832752746	252.6897527	7/15/2020 12:00	5.601368049	254.226368	5.604209163	254.2292092	2.427849235	251.0528492
7/15/2020 10:46	5.826330415	252.6833304	7/16/2020 12:00	5.610506515	254.2355065	5.61275456	254.2377546	2.431786628	251.0567866
7/16/2020 10:46	5.829405339	252.6864053	7/17/2020 12:00	5.582223542	254.2072235	5.585612236	254.2106122	2.406547034	251.031547
7/17/2020 10:46	5.827381012	252.684381	7/18/2020 12:00	5.561501836	254.1865018	5.563220679	254.1882207	2.379366788	251.0043668
7/18/2020 10:46	5.783290438	252.6402904	7/19/2020 12:00	5.606252439	254.2312524	5.606616366	254.2316164	2.448697035	251.073697
7/19/2020 10:46	5.805797109	252.6627971	7/20/2020 12:00	5.610979186	254.2359792	5.610467811	254.2354678	2.470832974	251.095833
7/20/2020 10:46	5.828994812	252.6859948	7/21/2020 12:00	5.598059218	254.2230592	5.598491904	254.2234919	2.461583098	251.0865831
7/21/2020 10:46	5.826973898	252.6839739	7/22/2020 12:00	5.594041298	254.2190413	5.59415868	254.2191587	2.45409678	251.0790968
7/22/2020 10:46	5.816215106	252.6732151	7/23/2020 12:00	5.560162356	254.1851624	5.560571997	254.185572	2.416983096	251.0419831
7/23/2020 10:46	5.779040406	252.6360404	7/24/2020 12:00	5.519896077	254.1448961	5.520655581	254.1456556	2.367141438	250.9921414
7/24/2020 10:46	5.721024806	252.5780248	7/25/2020 12:00	5.521787386	254.1467874	5.523003896	254.1480039	2.365591727	250.9905917
7/25/2020 10:46	5.71961103	252.576611	7/26/2020 12:00	5.53368657	254.1586866	5.53522659	254.1602266	2.377278791	251.0022788
7/26/2020 10:46	5.729000847	252.5860008	7/27/2020 12:00	5.523127055	254.1481271	5.525051115	254.1500511	2.365850013	250.99085
7/27/2020 10:46	5.728935286	252.5859353	7/28/2020 12:00	5.499248432	254.1242484	5.500663329	254.1256633	2.335498753	250.9604988
7/28/2020 10:46	5.704951724	252.5619517	7/29/2020 12:00	5.491997742	254.1169977	5.493255893	254.1182559	2.318964768	250.9439648
7/29/2020 10:46	5.694817224	252.5518172	7/30/2020 12:00	5.472372623	254.0973726	5.473500965	254.098501	2.293708648	250.9187086
7/30/2020 10:46	5.678295032	252.535295	7/31/2020 12:00	5.447622463	254.0726225	5.448562727	254.0735627	2.252554614	250.8775546

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
7/31/2020 10:46	5.656216264	252.5132163	8/1/2020 12:00	5.452982561	254.0779826	5.453502509	254.0785025	2.25358843	250.8785884
8/1/2020 10:46	5.681328085	252.5383281	8/2/2020 12:00	5.448174243	254.0731742	5.448683211	254.0736832	2.236335824	250.8613358
8/2/2020 10:46	5.680000262	252.5370003	8/3/2020 12:00	5.423894878	254.0488949	5.423861406	254.0488614	2.197688934	250.8226889
8/3/2020 10:46	5.662310792	252.5193108	8/4/2020 12:00	5.374777722	253.9997777	5.374748089	253.9997481	2.13588775	250.7608877
8/4/2020 10:46	5.601801649	252.4588016	8/5/2020 12:00	5.321708622	253.9467086	5.321880839	253.9468808	2.070571827	250.6955718
8/5/2020 10:46	5.566464889	252.4234649	8/6/2020 12:00	5.307276454	253.9322765	5.307892363	253.9328924	2.038292827	250.6632928
8/6/2020 10:46	5.544889589	252.4018896	8/7/2020 12:00	5.253878673	253.8788787	5.255303498	253.8803035	1.977794009	250.602794
8/7/2020 10:46	5.498917817	252.3559178	8/8/2020 12:00	5.268155914	253.8931559	5.268693669	253.8936937	2.011184192	250.6361842
8/8/2020 10:46	5.4925508	252.3495508	8/9/2020 12:00	5.218695096	253.8436951	5.219047628	253.8440476	1.998437145	250.6234371
8/9/2020 10:46	5.440170078	252.2971701	8/10/2020 12:00	5.184690508	253.8096905	5.185378056	253.8103781	1.969186587	250.5941866
8/10/2020 10:46	5.414884246	252.2718842	8/11/2020 12:00	5.196367736	253.8213677	5.197627882	253.8226279	1.969769057	250.5947691
8/11/2020 10:46	5.421119747	252.2781197	8/12/2020 12:00	5.186978653	253.8119787	5.188938451	253.8139385	1.957342596	250.5823426
8/12/2020 10:46	5.431771316	252.2887713	8/13/2020 12:00	5.138055512	253.7630555	5.139326812	253.7643268	1.901736272	250.5267363
8/13/2020 10:46	5.374955669	252.2319557	8/14/2020 12:00	5.132373546	253.7573735	5.133954268	253.7589543	1.899211233	250.5242112
8/14/2020 10:46	5.378108802	252.2351088	8/15/2020 12:00	5.093701468	253.7187015	5.095012767	253.7200128	1.865734825	250.4907348
8/15/2020 10:46	5.34272095	252.1997209	8/16/2020 12:00	5.102225581	253.7272256	5.102379207	253.7273792	1.874541621	250.4995416
8/16/2020 10:46	5.364730462	252.2217305	8/17/2020 12:00	5.100173504	253.7251735	5.099299837	253.7242998	1.87635473	250.5013547
8/17/2020 10:46	1.992409577	248.8494096	8/18/2020 12:00	5.035525182	253.6605252	5.034679125	253.6596791	1.813467701	250.4384677
8/18/2020 10:46	1.919588988	248.776589	8/19/2020 12:00	5.000392383	253.6253924	4.999639658	253.6246397	1.770580126	250.3955801
8/19/2020 10:46	1.86617455	248.7231745	8/20/2020 12:00	4.983021689	253.6080217	4.982298194	253.6072982	1.74595712	250.3709571
8/20/2020 10:46	1.869949055	248.7269491	8/21/2020 12:00	4.960438134	253.5854381	4.960120008	253.58512	1.721071396	250.3460714
8/21/2020 10:46	1.862950573	248.7199506	8/22/2020 12:00	4.975994139	253.6009941	4.975590689	253.6005907	1.736949416	250.3619494
8/22/2020 10:46	1.889385279	248.7463853	8/23/2020 12:00	4.967702978	253.592703	4.967855544	253.5928555	1.74595712	250.3709571
8/23/2020 10:46	1.911948069	248.7689481	8/24/2020 12:00	4.951593715	253.5765937	4.952867588	253.5778676	1.745892318	250.3708923
8/24/2020 10:46	1.929327097	248.7863271	8/25/2020 12:00	4.911000478	253.5360005	4.912973135	253.5379731	1.715562358	250.3405624
8/25/2020 10:46	1.90614651	248.7631465	8/26/2020 12:00	4.878853305	253.5038533	4.879901219	253.5049012	1.688014562	250.3130146
8/26/2020 10:46	1.87527109	248.7322711	8/27/2020 12:00	4.877668448	253.5026684	4.87899421	253.5039942	1.690891333	250.3158913
8/27/2020 10:46	1.909439367	248.7664394	8/28/2020 12:00	4.844964352	253.4699644	4.845673036	253.470673	1.658023417	250.2830234
8/28/2020 10:46	1.881718488	248.7387185	8/29/2020 12:00	4.842515337	253.4675153	4.843374757	253.4683748	1.655883871	250.2808839
8/29/2020 10:46	1.920463755	248.7774638	8/30/2020 12:00	4.758287476	253.3832875	4.756358866	253.3813589	1.568179755	250.1931798
8/30/2020 10:46	1.809559234	248.6665592	8/31/2020 12:00	4.764609417	253.3896094	4.762107723	253.3871077	1.577026575	250.2020266
8/31/2020 10:46	1.828354292	248.6853543	9/1/2020 12:00	4.673875569	253.2988756	4.672643213	253.2976432	1.49021652	250.1152165
9/1/2020 10:46	1.757395295	248.6143953	9/2/2020 12:00	4.729046599	253.3540466	4.728598449	253.3535984	1.541931431	250.1669314
9/2/2020 10:46	1.819303929	248.6763039	9/3/2020 12:00	4.76081627	253.3858163	4.757508654	253.3825087	1.577610354	250.2026104
9/3/2020 10:46	1.872253111	248.7292531	9/4/2020 12:00	4.792977327	253.4179773	4.791775371	253.4167754	1.620545154	250.2455452
9/4/2020 10:46	1.949049135	248.8060491	9/5/2020 12:00	4.792819297	253.4178193	4.792864401	253.4178644	1.628780686	250.2537807
9/5/2020 10:46	1.986980546	248.8439805	9/6/2020 12:00	4.711184418	253.3361844	4.7084837	253.3334837	1.551922263	250.1769223
9/6/2020 10:46	1.852975263	248.7099753	9/7/2020 12:00	4.790369815	253.4153698	4.78824718	253.4132472	1.632087759	250.2570878
9/7/2020 10:46	1.996801765	248.8538018	9/8/2020 12:00	4.827978798	253.4529788	4.826117288	253.4511173	1.677278153	250.3022782
9/8/2020 10:46	2.090907209	248.9479072	9/9/2020 12:00	4.773696951	253.398697	4.772999705	253.3979997	1.630531497	250.2555315
9/9/2020 10:46	2.036236802	248.8932368	9/10/2020 12:00	4.767612288	253.3926123	4.766585631	253.3915856	1.624436005	250.249436
9/10/2020 10:46	2.02970491	248.8867049	9/11/2020 12:00	4.703754671	253.3287547	4.70454892	253.3295489	1.564831648	250.1898316

Table D-3 Data from Continuously Logged Vibrating Wire Piezometers (2019-2020)

CH19-10			BH19-29 + 29A					
	VW19-10			VW19-29A		VW19-29B		VW19-29A(2)	
Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	Date/Time	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)	GWL (m) [positive is above grade]	GW Elev. (m)
9/11/2020 10:46	1.984678747	248.8416787	9/12/2020 12:00	4.669685911	253.2946859	4.669434113	253.2944341	1.524283894	250.1492839
9/12/2020 10:46	1.929972274	248.7869723	9/13/2020 12:00	4.734499865	253.3594999	4.733058659	253.3580587	1.583707478	250.2087075
9/13/2020 10:46	2.033065025	248.890065	9/14/2020 12:00	4.699328344	253.3243283	4.699100597	253.3241006	1.558474382	250.1834744
9/14/2020 10:46	2.043527554	248.9005276	9/15/2020 12:00	4.658934795	253.2839348	4.657989795	253.2829898	1.515459458	250.1404595
9/15/2020 10:46	1.983595855	248.8405959	9/16/2020 12:00	4.719483364	253.3444834	4.717139861	253.3421399	1.570864351	250.1958644
9/16/2020 10:46	2.075867899	248.9328679	9/17/2020 12:00	4.718534926	253.3435349	4.716292426	253.3412924	1.570150817	250.1951508
9/17/2020 10:46	2.090034252	248.9470343	9/18/2020 12:00	4.676721339	253.3017213	4.675731151	253.3007312	1.528890592	250.1538906
9/18/2020 10:46	2.060478499	248.9174785	9/19/2020 12:00	4.640040267	253.2650403	4.639459092	253.2644591	1.489502657	250.1145027
9/19/2020 10:46	2.003864924	248.8608649	9/20/2020 12:00	4.568086822	253.1930868	4.568706978	253.193707	1.412388273	250.0373883
9/20/2020 10:46	1.925871959	248.782872	9/21/2020 12:00	4.562788404	253.1877884	4.562405554	253.1874056	1.397779453	250.0227795
9/21/2020 10:46	1.889288687	248.7462887	9/22/2020 12:00	4.581651468	253.2066515	4.581066714	253.2060667	1.418056282	250.0430563
9/22/2020 10:46	1.983366446	248.8403664	9/23/2020 12:00	4.615968221	253.2409682	4.61462687	253.2396269	1.456032143	250.0810321
9/23/2020 10:46	2.045940888	248.9029409	9/24/2020 12:00	4.522417279	253.1474173	4.522530946	253.1475309	1.369292301	249.9942923
9/24/2020 10:46	1.962329024	248.819329	9/25/2020 12:00	4.47029009	253.0952901	4.469368939	253.0943689	1.313304141	249.9383041
9/25/2020 10:46	1.877938305	248.7349383	9/26/2020 12:00	4.420843154	253.0458432	4.420373332	253.0453733	1.258402812	249.8834028
9/26/2020 10:46	1.834180348	248.6911803	9/27/2020 12:00	4.477884349	253.1028843	4.475977303	253.1009773	1.307067695	249.9320677
9/27/2020 10:46	1.900084814	248.7570848	9/28/2020 12:00	4.531829175	253.1568292	4.530349122	253.1553491	1.365785446	249.9907854
9/28/2020 10:46	2.028390397	248.8853904	9/29/2020 12:00	4.425748689	253.0507487	4.424072801	253.0490728	1.277831399	249.9028314
9/29/2020 10:46	1.915047257	248.7720473	9/30/2020 12:00	4.464436038	253.089436	4.462214612	253.0872146	1.3109655	249.9359655
9/30/2020 10:46	1.966676572	248.8236766	10/1/2020 12:00	4.55539704	253.180397	4.553255911	253.1782559	1.403447991	250.028448
10/1/2020 10:46	2.119394865	248.9763949	10/2/2020 12:00	4.500270368	253.1252704	4.498710332	253.1237103	1.356563384	249.9815634
10/2/2020 10:46	2.062157819	248.9191578	10/3/2020 12:00	4.508892057	253.1338921	4.507257083	253.1322571	1.366369927	249.9913699
10/3/2020 10:46	2.074529476	248.9315295	10/4/2020 12:00	4.423375054	253.0483751	4.42358763	253.0485876	1.28445872	249.9094587
10/4/2020 10:46	1.987000123	248.8440001	10/5/2020 12:00	4.380487846	253.0054878	4.379551979	253.004552	1.233512886	249.8585129
10/5/2020 10:46	1.894258834	248.7512588	10/6/2020 12:00	4.357854623	252.9828546	4.358136161	252.9831362	1.207839424	249.8328394
10/6/2020 10:46	1.886658475	248.7436585	10/7/2020 12:00	4.435163904	253.0601639	4.43438233	253.0593823	1.275622237	249.9006222
10/7/2020 10:46	1.987272069	248.8442721	10/8/2020 12:00	4.415225418	253.0402254	4.415096886	253.0400969	1.267305141	249.8923051
10/8/2020 10:46	2.025421353	248.8824214							
10/9/2020 10:46	1.89209159	248.7490916							
10/9/2020 11:08	4.7945772	251.6515772							

Table D-4 Summary of Standpipe Sites and Water Level Measurements in 2019 and 2020

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit	Monitoring Events							
														2019/Sep/16		2019/Nov/14		2020/Jul/09		2020-Oct-06 to 2020-Oct-19	
														Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
SP11-101	BH-D101	43+50	7/11/2011	5684505	530629	249.25	7.62	241.63	4.11	7.62	245.14	241.63	Till	NM	NM	-0.87	248.38	-0.66	248.59	-2.30	246.95
SP11-106	BH-D106	84+20	7/12/2011	5682844	530475	249.92	10.36	239.55	7.01	10.36	242.91	239.55	Till	NM	NM	NM	NM	NM	NM	-2.19	247.73
SP11-107	BH-D107	115+00	7/12/2011	5691570	530533	249.81	7.62	242.19	3.66	7.62	246.15	242.19	Till	NM	NM	NM	NM	NM	NM	-1.57	248.24
SP16-01P	TH-ED-01P	123+10	10/20/2016	5692376	530503	249.43	27.43	222.00	25.60	27.43	223.83	222.00	Bedrock	NM	NM	NM	NM	NM	NM	NM	NM
PW16-01	TH-ED-01W	123+10	10/20/2016	5692378	530495	249.49	0.00	249.49	#N/A	#N/A	#N/A	#N/A	Bedrock	NM	NM	NM	NM	NM	NM	NM	NM
SP16-01PP1	TH-ED-01PP1	123+10	10/25/2016	5692379	530536	248.72	1.22	247.50	0.15	1.22	248.56	247.50	Till	No Water	No Water	NM	NM	-0.56	248.16	No Water	No Water
SP16-01PP2	TH-ED-01PP2	123+10	10/25/2016	5692380	530550	248.46	1.22	247.24	0.15	1.22	248.30	247.24	Till	NM	NM	NM	NM	-0.24	248.22	-0.69	247.77
SP15-02	15-RD-02	133+50	6/11/2015	5693417	530519	248.65	14.94	233.71	14.02	14.94	234.63	233.71	Till	Damaged	Damaged	NM	NM	Damaged	Damaged	Decommissioned	Decommissioned
SP15-02A	15-RD-02A	133+50	6/12/2015	5693419	530519	248.63	7.62	241.01	6.71	7.62	241.92	241.01	Clay	-1.31	247.32	NM	NM	-0.54	248.09	-1.27	247.36
SP16-06	TH-GD-06	176+50	10/24/2016	5697401	531025	251.92	15.32	236.60	13.49	15.32	238.43	236.60	Till	-0.64	251.28	NM	NM	-0.53	251.39	-0.67	251.25
SP15-03A	15-RD-03	177+30	6/12/2015	5697485	530996	251.84	7.62	244.22	6.71	7.62	245.13	244.22	Till	-2.73	249.11	NM	NM	-2.20	249.64	-2.75	249.09
SP15-03B	15-RD-03	177+30	6/12/2015	5697485	530996	251.84	14.94	236.90	14.02	14.94	237.82	236.90	Till	-1.47	250.37	NM	NM	-0.22	251.62	-1.25	250.59
SP15-10A	15-RD-10A	183+90	6/18/2015	5698130	531200	248.87	18.29	230.58	17.37	18.29	231.50	230.58	Till	-0.75	248.12	NM	NM	NM	NM	-0.54	248.33
SP16-02	TH-GD-02	Outside of ROW	10/30/2016	5683632	531290	248.63	22.78	225.84	20.27	22.78	228.36	225.84	Bedrock	2.22	250.85	NM	NM	NM	NM	Outside RoW	Outside RoW
SP16-05	TH-GD-05	Outside of ROW	10/17/2016	5693351	530617	248.66	16.92	231.74	15.70	16.92	232.96	231.74	Till	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Outside RoW	Outside RoW
SP16-07	TH-GD-07	Outside of ROW	10/26/2016	5699454	531901	252.05	19.35	232.69	17.53	19.35	234.52	232.69	Bedrock	NM	NM	Frozen	Frozen	NM	NM	Outside RoW	Outside RoW
SP16-08	TH-GD-08	Outside of ROW	10/28/2016	5701522	532917	246.81	17.07	229.74	15.24	17.07	231.57	229.74	Till	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Outside RoW	Outside RoW
SP16-03	TH-ED-03	Outside of ROW	10/18/2016	5693404	529671	252.22	13.41	238.81	11.58	13.41	240.64	238.81	Till	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP11-109	BH-D109	Outside of ROW	7/13/2011	5682844	530475	249.72	12.19	237.52	8.84	12.19	240.88	237.52	Till	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-01A	15-RD-01	Outside of ROW	6/8/2015	5683639	531292	248.30	10.36	237.94	9.45	10.36	238.85	237.94	Clay	-1.23	247.07	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-01B	15-RD-01	Outside of ROW	6/8/2015	5683639	531292	248.30	20.42	227.88	19.51	20.42	228.79	227.88	Till	2.31	250.61	NM	NM	NM	NM	Outside RoW	Outside RoW
SP11-9	BH-D9	Outside of ROW	7/12/2011	5693949	530789	249.50	12.19	237.30	9.14	12.19	240.35	237.30	Till	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-04A	15-RD-04	Outside of ROW	6/13/2015	5699450	531894	251.76	7.62	244.14	6.71	7.62	245.05	244.14	Clay	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-04B	15-RD-04	Outside of ROW	6/13/2015	5699450	531894	251.76	14.48	237.28	13.56	14.48	238.20	237.28	Till	Damaged	Damaged	Damaged	Damaged	2.22	253.98	Outside RoW	Outside RoW

Table D-4 Summary of Standpipe Sites and Water Level Measurements in 2019 and 2020

Instrument #	Test Hole	Station	Installation Date	Northing (m)	Easting (m)	Ground Elevation (m)	Tip Depth (m)	Tip Elevation (m)	Depth to Top of Sand Pack (m)	Depth to Bottom of Sand Pack (m)	Top of Sand Pack Elevation (m)	Bottom of Sand Pack Elevation (m)	Stratigraphic Unit	Monitoring Events							
														2019/Sep/16		2019/Nov/14		2020/Jul/09		2020-Oct-06 to 2020-Oct-19	
														Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)	Groundwater Level Relative to Grade (+ above ground) (m)	GWL Elevation (m)
PW15-01	15-RD-PW1	Outside of ROW	7/30/2015	5699447	531897	251.76	23.16	228.60	16.00	16.76	235.76	235.00	Bedrock	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-05A	15-RD-05	Outside of ROW	6/14/2015	5701483	532787	247.09	7.62	239.47	6.71	7.62	240.38	239.47	Clay	NM	NM	NM	NM	NM	NM	Outside RoW	Outside RoW
SP15-05B	15-RD-05	Outside of ROW	6/14/2015	5701483	532787	247.09	11.89	235.20	10.97	11.89	236.12	235.20	Clay	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Not Accessible	Outside RoW	Outside RoW

NM: not measured
Note: Instrument numbers were not included in the original logs or monitoring tables. The instrument numbers included here have been assigned by TREK.