



March 28, 2016

BASELINE DATA REPORT

McNab Valley Surface Water Quality, 2009 to 2014

Submitted to:

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REPORT



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EXECUTIVE SUMMARY

Golder Associates Ltd. (Golder) was retained by BURNCO Rock Products Ltd (BURNCO) to characterize baseline surface water quality in the lower McNab Creek valley to support the environmental assessment of the proposed development of the BURNCO Aggregate Project (the Proposed Project) on the northwest shore of Howe Sound, BC approximately 22 km southwest of Squamish and 35 km northwest of Vancouver.

Surface water sampling was conducted between monthly between November 2009 and December 2010 for two sites (one each on McNab and Harlequin Creeks) and during three additional events in September and October 2012, and March 2014 at 15 sites to capture seasonal and spatial variability in the site of the Proposed Project and surrounding area. Samples were analyzed for general parameters, metals, nutrients and hydrocarbons.

Surface water in the study area generally had low metals and nutrient concentrations, with the exception of aluminum, and hydrocarbons were not detectable. Aluminum consistently exceeded the CCME WQG for the total form with the highest concentrations coincided with elevated suspended solids measured at sites downstream or alongside the road that runs north/south within the Study Area on its west side. Dissolved aluminum also consistently exceeded the maximum and 30-day BC MOE WQGs. The aluminum content of the water likely reflects the natural mineralogy of the area.



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LIST OF ABBREVIATIONS

BCMOE	British Columbia Ministry of Environment
CCME	Canadian Council of Ministers of the Environment
DL	Detection Limit
HEPH	Heavy Extractable Petroleum Hydrocarbons
LEPH	Light Extractable Petroleum Hydrocarbons
MDL	Method Detection Limit
NTU	Nephelometric Turbidity Units
PAH	Polycyclic Aromatic Hydrocarbons
PC	Principal Component
PCA	Principal Component Analysis
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percent Difference
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TP	Total Phosphorous
TSS	Total Suspended Solids
SE	Standard Error
WC	Watercourse



1.0 INTRODUCTION

1.1 Background

BURNCO Rock Products Ltd (BURNCO) is proposing the development of the BURNCO Aggregate Project (the Proposed Project) in the McNab Valley on the northwest shore of Howe Sound, BC approximately 22 km southwest of Squamish and 35 km northwest of Vancouver. The Project site comprises a portion of the McNab valley and watershed which contains several different water courses that flow into the marine foreshore of the Project site. Golder Associates Ltd. (Golder) was retained by BURNCO to characterize background surface water quality conditions in the McNab valley adjacent to Howe Sound.

McNab Creek (BC Watershed Code 900-106300) flows north-easterly for approximately 12.7 km from its headwaters on Thirtynine Mountain to its mouth on the western shore of Thornbrough Channel. The lower 1 km of the McNab Creek channel and estuary is aggraded with sand, cobble and boulders due to recent and historic forest harvesting in the upper portions of the watershed. Where it flows across or adjacent to the Property, McNab creek has a low-gradient channel with gravel and cobble bars and a maximum width of 200 m. There are no glaciers and few alpine areas of late-persisting snow within the watershed. Lakes comprise less than 1% of the watershed area and there is no significant water storage except in snowpacks, and groundwater.

A non-gazetted watercourse known locally as Harlequin Creek flows eastward down the hillside to the west of the project, before turning southward to flow toward Howe sound along the west side of a logging road. The creek flows under the logging road bridge a short distance upstream from its mouth on Howe Sound. Harlequin Creek is fish-bearing and supports cutthroat trout, sculpins, and in the lower 200 m below a beaver dam, juvenile coho salmon. Harlequin Creek is situated outside the proposed Project footprint and is not expected to be affected by the project.

Another small, ephemeral unnamed watercourse (Watercourse (WC) 5) is situated in the cutblock immediately north of Harlequin Creek. This watercourse may support cutthroat trout (*Oncorhynchus clarkii*) during the winter months and a limited population of coho salmon (*O. kisutch*). The creek experiences limited flow during summer months. Like Harlequin Creek, this creek is situated outside the proposed project footprint, and is not expected to be affected by the project.

An artificially constructed groundwater-fed channel (Watercourse 2 or WC 2) lies roughly in the center of the McNab watershed. The watercourse is approximately 1,225 m long by 4 to 12 m wide. Only a small portion of the upper segment is available as spawning habitat by chum and coho salmon.

1.2 Objectives

Surface water sites were selected to capture seasonal and spatial variability in surface water flow in water courses within the vicinity of the proposed Project. Samples collected were analyzed for general water quality parameters and for potential contaminants of concern to determine natural and non-natural influences on surface waters in the Project Area. In-situ measurements of physical parameters were also taken.

Water quality parameters were selected based on existing land use and potential impacts to water quality that may occur during construction and operation (e.g. sedimentation, increased runoff, introduction of contaminants including hydrocarbons and metals). Combined, these data provide an indication of existing baseline conditions as well as potential parameters of concern within the Application Site. This information will also contribute to the design of monitoring studies to be implemented during construction, selection of appropriate mitigation and compensation measures, as well as management strategies.



2.0 METHODS

2.1 Sampling Locations and Frequency

Table 1 illustrates sampling locations and Table 1 summarizes station coordinates and sampling frequency. Monthly water quality data was collected from two sites in 2009 and 2010: McNab (MCF-7) Creek during eleven sampling events from November 2009 through December 2010 (with exception of December of 2009 and April and November of 2010); and Harlequin Creek (MCF-11) from February through December, 2010 (with exception of April and November). Other stations were added to the sampling program in 2012 and 2014 and sampled at a lesser frequency.

2.2 Sample Collection and Analyses

In-situ measurements of pH, temperature, conductivity, redox potential, and dissolved oxygen were made in 2012 and 2014 with a YSI 6600 probe calibrated following the manufacturer's instructions.

One water sample for laboratory analysis was collected from each location as follows:

- Stream water samples were collected as single replicates in clean, labeled bottles by field members wearing clean nitrile gloves;
- Sample containers were triple rinsed with sample water prior to filling (unless pre-treated);
- Samples were collected while facing upstream by submerging the bottles until they were almost full, leaving only enough room to add the preservatives;
- Where safety considerations allowed, waters samples were collected mid-stream; and
- Bottles were labeled to include the date, time, project number, site ID, sample collected, and preservative added.



MCNAB VALLEY BASELINE SURFACE WATER QUALITY

Table 1: Surface Water Sampling and Frequency

Site	Sampling Year				Total # samples	UTM Coordinates	Description of Site
	2009	2010	2012	2014			
McNab Creek							
MCF-1	NA	NA	Sep, Oct	Mar	3	10 U 471508 5491342	Upper main segment
MCF-7	Nov	Jan, Feb, Mar, May, Jun, Jul, Aug, Sep, Oct, Dec	Sep, Oct	Mar	14	10 U 472362 5490312	Lower main segment
MCF-13	NA	NA	Oct	Mar	2	10 U 472435 5490126	Upstream of the estuary
WC2							
MCF-5	NA	NA	Sep, Oct	Mar	3	10 U 471689 5490632	Upper main WC 2
MCF-6	NA	NA	Sep, Oct	Mar	3	10 U 471764 5490178	Lower main WC 2
MCF-14	NA	NA	NA	Mar	1	10 U 472040 5490052	Mouth of WC 2 west
MCF-15	NA	NA	NA	Mar	1	10 U 472256 5490095	Mouth of WC 2 east
WC5							
MCF-8	NA	NA	Sep, Oct	Mar	3	10 U 471353 5490166	Downstream of the road
MCF-9	NA	NA	Sep, Oct	Mar	3	10 U 471283 5490173	Upstream of the road
MCF-12	NA	NA	Sep, Oct	Mar	3	10 U 471633 5489960	Lower segment near foreshore
Remnant Stream Between WC2 and WC5							
MCF-2*	NA	NA	Oct	NA	1	10 U 471411 5491152	Upstream of the road
MCF-3*	NA	NA	Oct	Mar	2	10 U 471392 5490994	Upstream of the road
MCF-4*	NA	NA	Oct	Mar	2	10 U 471326 5490495	Upstream of the road
Harlequin Creek							
MCF-10	NA	NA	Oct	Mar	2	10 U 471320 5489984	Upstream
MCF-11	NA	Feb, Mar, May, Jun, Jul, Aug, Sep, Oct, Dec	Sep, Oct	Mar	12	10 U 471302 5489733	Lower segment near foreshore

Notes:

NA – not applicable

* streams at MCF-2 in September 2012 and March 2014 and at MCF-3 and MCF-4 in September 2012 and March 2014 were dry, therefore, no samples were collected from these sites at these sampling events.



MCNAB VALLEY BASELINE SURFACE WATER QUALITY

After preservation, samples were stored in coolers with icepacks until shipment to either Maxxam Analytical (2009 and 2010 samples) or ALS Environmental (2012 and 2014 samples), both in Burnaby, BC for analysis of the following parameters¹:

- General parameters: pH, turbidity, conductivity, colour, concentrations of total dissolved solids (TDS) and total suspended solids (TSS), acidity, alkalinity, and hardness;
- Major anions: chloride, fluoride, bromide, and sulphate;
- Nutrient: ammonia, nitrate, nitrite, total Kjeldahl nitrogen (TKN), total nitrogen, total phosphorus, and dissolved orthophosphate;
- Total organic carbon (TOC);
- Total and dissolved metals; and
- Hydrocarbons: polycyclic aromatic hydrocarbons (PAH) and light and heavy extractable petroleum hydrocarbons (LEPH/HEPH). These parameters were analyzed only in samples from MCF-1, MCF-9, MCF-12 and MCF-13.

Details regarding analytical methods are presented in the laboratory reports (Appendix C).

Table 2 summarizes containers used for and preservation and handling of for water samples.

Table 2: Containers, preservation, and handling methods for water quality samples, McNab Valley Baseline Studies

Analyte	Container	Preservative	Handling
General	1 L plastic	None	Shipped in cooler with ice packs; store at 4°C
Total Organic Carbon	125 mL amber glass	Hydrochloric acid	
Dissolved Metals	250 mL plastic	None (filtered and preserved in the lab)	
Total Metals	250 mL plastic	nitric acid	
Ammonia, TKN	250 mL amber glass	Sulphuric acid	
Hydrocarbons (PAH/LEPH/HEPH)	2 x 500 mL amber glass	Sodium bisulphate (pre-charged)	

¹ Maxxam and ALS are Canadian Association of Laboratory Accreditation (CALA) accredited laboratories for the analyses requested.



2.3 Data Screening and Analysis

Water chemistry data were screened against the Canadian Council of Ministers of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the protection of freshwater aquatic life (CCME 1999, with updates to 2015) and the British Columbia Water Quality Guidelines (BC WQG; BC MOE 2015a, b) (screening table provided in Appendix A):

- CCME CWQG: The CWQGs are generally derived to protect sensitive species from chronic effects. More recently derived CWQG (e.g., cadmium, nitrate) consist of separate values for long-term (an indefinite period of time with guideline derivation relying on “chronic” toxicity tests [e.g., >7-d exposure]) and short-term (defined as 24 to 96 h, derived using severe-effects [e.g., lethality] data) exposure (e.g., CCME 1999).
- BC WQG: The provincial guidelines provide both a 30-day average/chronic and maximum WQGs that are categorized as either approved or working guidelines (BC MOE 2015a, b). The 30-day average/chronic WQGs were used here for comparative purposes only, as they are generally intended to be applied to mean concentrations of five samples collected over a 30-day period of time (Meays 2010).

The CCME and BC freshwater WQGs for metals are generally intended to be applied to total concentrations in unfiltered waters with some exceptions. For example, the BC WQG for aluminum is applied to the dissolved form, separate guidelines have been derived for total and dissolved iron, and where total manganese exceeds the guideline due to particulate matter, BC MOE recommends that the guideline be applied to the dissolved form of manganese.

2.4 Quality Assurance/Quality Control

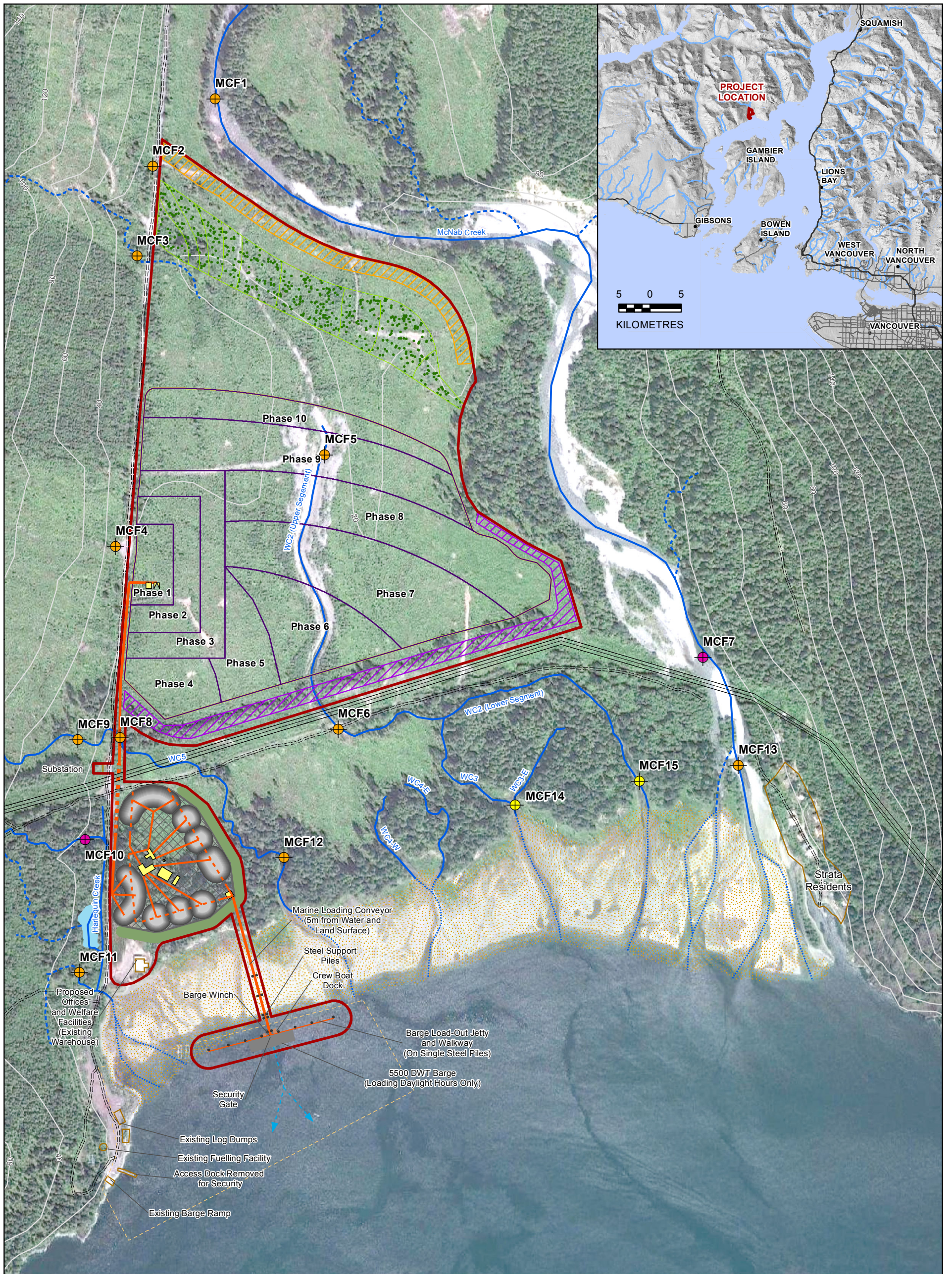
QA/QC measures were taken to assess and minimize possible contamination of the collected water samples. QA/QC for water samples were achieved by following proper sampling, handling, and shipping procedures. During the 2012 and 2014 sampling events, field blanks and travel blank samples were collected for general parameters, anions and nutrients and total metals. Field blanks were filled with de-ionized water in the laboratory and then exposed to the same conditions as the collected samples (i.e., they were exposed to the air during sampling, and preserved). Travel blanks were filled with de-ionized water in the laboratory, and kept sealed in the field, thereby assessing potential contamination related to transport and storage only. The frequency of detection of a concentration for a water quality variable above the analytical detection limit was noted for both travel and field blanks.

Duplicate water samples were randomly taken at 10% of the sites during each field trip in 2012 and 2014 and analyzed for general parameters, nutrients, anions and total metals only. For each pair of QA/QC field duplicate water samples, the relative percent differences (RPD) were calculated (Appendix B):

$$\text{where: } RPD = 100 \frac{rep1 - rep2}{[(rep1 + rep2)/2]}$$

BC MOE (2013) indicates that field duplicates with RPD values exceeding 20% should be noted and the data should be interpreted accordingly. Where concentrations are within five times the method detection limit (MDL), RPDs are not calculated because the RPD is more sensitive to variation as values approach the analytical detection limit.

Path: X:\Project Data\BC\McNab\Figures\MXD\Surface Water\Quality\Baseline_Report_Surface_Water_Quality_Sampling_Locations.mxd

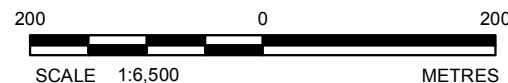


LEGEND

- | | | |
|--|---|---|
| <p>Surface Water Sampling Station</p> <ul style="list-style-type: none"> ● 2009-2010, 2012 and 2014 ● 2012 and 2014 ● 2014 Only | <ul style="list-style-type: none"> Project Area Final Pit Lake Outline Proposed Aggregate Pit Phases Processing Area Existing Feature Existing Log Tenure Area Fines Storage Area Product Stockpile McNab Creek Flood Protection Dyke Pit Lake Containment Berm Processing Area Berm Possible Processing Plant Configuration | <ul style="list-style-type: none"> Intertidal Zone Elevated Conveyor Underground Conveyor Barge Load-out Transmission Line Road (Existing) Contour (20m) Permanent / Perennial Channel Intermittent Channel Intertidal Channel ▶ Barge Route ● Pile |
|--|---|---|

REFERENCE

Watercourses from the Province of British Columbia and field data. Base data from the Province of British Columbia. Contours from TRIM positional data. Base Imagery from Google Maps 20100807. Additional detailed site features provided by McElhanney. Projection: UTM Zone 10 Datum: NAD 83



PROJECT		BURNCO ROCK PRODUCTS LTD. BURNCO AGGREGATE PROJECT, HOWE SOUND, B.C.	
TITLE		MCNAB VALLEY WATER QUALITY BASELINE REPORT SURFACE WATER SAMPLING LOCATIONS	
PROJECT NO. 11-1422-0046		PHASE No.	
DESIGN	JS	14 Apr. 2014	SCALE AS SHOWN
GIS	DL	10 Mar. 2016	REV. 1
CHECK	BW	27 Apr. 2015	FIGURE 1
REVIEW	BW	27 Apr. 2015	





3.0 RESULTS AND DISCUSSION

3.1 Physical Parameters, Nutrients, and Anions

In-situ measurements of pH, temperature, conductivity, redox potential, and dissolved oxygen were taken during the September 2012, October 2012, and March 2014 sampling events. Field measurements of pH ranged from 5.6 to 8.0 and were similar to measurements later made in the lab (pH 5.8 to 7.8). Samples collected from station MCF-7 in McNab Creek routinely had lab-measured pH values of less than 6.5 (equal to CCME and BC WQG lower value) indicative of natural pH conditions that are more acidic (Figure 2). Surface water temperatures ranged between 9 and 18°C in September, 8 and 12°C in October, and 5 and 7°C in March. Dissolved oxygen ranged between 6.4 and 18 mg/L and 59 to 150% saturation. Several measurements from WC2, and Harlequin Creek taken in September 2012 showed dissolved oxygen levels below CCME WQG for cold water biota (9.5 mg/L).

Measurements of conductivity were generally similar between the field and lab. Conductivity was generally low in streams throughout the Study Area (<35 µS/cm) except at some stations near the outflow to Howe Sound. Conductivity was notably high at MCF-12 in September 2012 (20,000 µS/cm) and at MCF-14 in March 2014 (710-1,900 µS/cm). These water samples also had elevated concentrations of chloride, sulphate, calcium, magnesium, and sodium, which is indicative of saltwater influence during these sampling events. These parameters were also elevated above typical values at MCF-12 and MCF-13 in October 2012 and MCF-15 in March 2014, indicating some possible saltwater influence.

Concentrations of total suspended solids (TSS) in surface water were low or below the detection limit (<3 mg/L) in most samples collected throughout the Study Area. A notable exception was the sample collected in September 2012 at the furthest downstream station on Harlequin Creek (MCF-11), where TSS was 420 mg/L. TSS was also elevated, relative to other sampling events, at MCF-8 in September 2012 (24 mg/L) and March 2014 (39 mg/L). Turbidity reflected TSS concentrations with high turbidity values recorded for samples with high TSS concentrations. The maximum turbidity was in the range of 52 to 59 NTU at MCF-8 and MCF-11. The elevated TSS and turbidity likely resulted from soil erosion from the road because these parameters were not elevated in samples collected at MCF-9 or MCF-10, upstream of the road. Turbidity was low in most other samples and did not exceed 1 NTU.

Surface waters within the Study Area generally were low in major nutrients during most times of the year. Maximum concentrations of total ammonia and nitrate were 0.10 and 0.95 mg/L (as N), respectively, and did not exceed CCME and BC MOE WQGs. Nitrite concentrations were below detection limits (<0.001 mg/L) in all samples. Concentrations of phosphorous in the streams throughout the Study Area were low and the majority of samples did not exceed 0.01 mg/L. The maximum concentration of phosphorous was 0.41 mg/L. Phosphorus is usually a limiting nutrient in freshwater environment (Weiner 2008) and concentrations below 0.01 mg/L correspond to oligotrophic (low nutrient) freshwater systems (CCME 2013). Sulphate concentrations were low and the maximum concentration was 7.6 mg/L (apart from those samples with salt water influence).

Total organic carbon (TOC) concentrations were low (<3 mg/L) throughout the Study Area with the exception of MCF-8 in March 2014 which had a TOC concentration of 9.28 mg/L.



MCNAB VALLEY BASELINE SURFACE WATER QUALITY

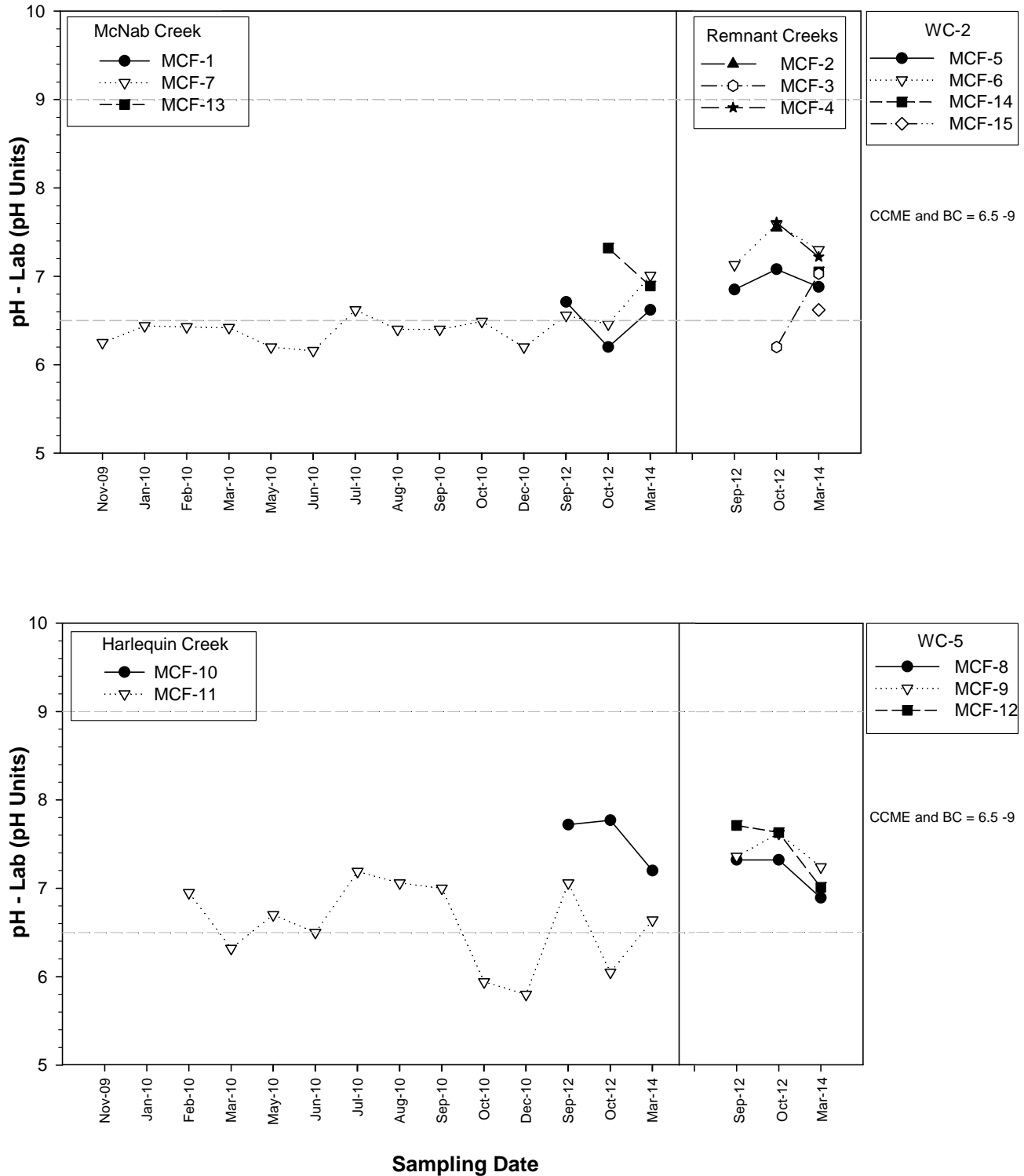


Figure 2: Lab-measured pH of surface water samples collected from McNab Valley, 2009 to 2014.



3.2 Metals

Concentrations of metals in surface water samples collected from the Study Area were low with few exceptions. Most metals were detected at concentrations below federal and provincial guidelines, apart from the following exceedances:

- Total aluminum exceeded the CCME pH-dependent WQGs in 40 of 56 samples. The maximum concentration of total aluminum was 3.3 mg/L (Figure 3).
- Dissolved aluminum exceeded the BC MOE pH-dependent WQG maximum concentration in 13 of 56 samples and exceeded the 30-day average/chronic WQG in 33 of 56 samples. The maximum concentration of dissolved aluminum was 0.20 mg/L (Figure 4).
- Total boron exceeded the CCME (1.5 mg/L) and the BC MOE WQG 30-day average WQGs for antimony (1.2 mg/L) in 1 of 56 samples. The maximum concentration of total boron was 1.53 mg/L.
- Total cadmium exceeded the CCME long term WQG (0.00037 mg/L) in 14 of 56 samples. The maximum concentration of total cadmium was 0.00024 mg/L.
- Dissolved cadmium exceeded the BC MOE 30-day average (0.000065 to 0.0017 mg/L) hardness-dependent WQG in 16 of 56 samples and the BC MOE Max (0.00011 to 0.0024 mg/L) hardness-dependent WQG in 8 of 56 samples. The maximum concentration of dissolved cadmium was 0.00013 mg/L.
- Total chromium exceeded the CCME long-term and BC MOE WQG 30-day average or chromium VI (0.001 mg/L) in 2 of 56 samples. The maximum concentration of total chromium was 0.0032 mg/L.
- Total cobalt exceeded the BC MOE WQG 30-day average for cobalt (0.004 mg/L) in 1 of 56 samples. The maximum concentration of total chromium was 0.0072 mg/L.
- Total copper exceeded the CCME long term (0.002 to 0.004 mg/L) and BC MOE 30-day average (0.002-0.09 mg/L) hardness-dependent WQGs in 3 of 56 samples. Total copper exceeded the BC MOE maximum (0.002 to 2.1 mg/L) hardness-dependent WQG in 2 of 56 samples. The maximum concentration of total copper was 0.0071 mg/L.
- Total iron exceeded the CCME (0.3 mg/L) long term WQG in 4 of 56 samples and exceeded the BC MOE WQG maximum (1 mg/L) in 3 of 56 samples. The maximum concentration of total iron was 10.3 mg/L.
- Dissolved iron exceeded the BC MOE WQG (0.35 mg/L) in 1 of 56 samples. The maximum concentration of dissolved iron was 0.62 mg/L.
- Total nickel exceeded the BC MOE 30-day average WQG (0.0025 to 0.15 mg/L) in 2 of 56 samples. The maximum concentration of total nickel was 0.0037 mg/L.



MCNAB VALLEY BASELINE SURFACE WATER QUALITY

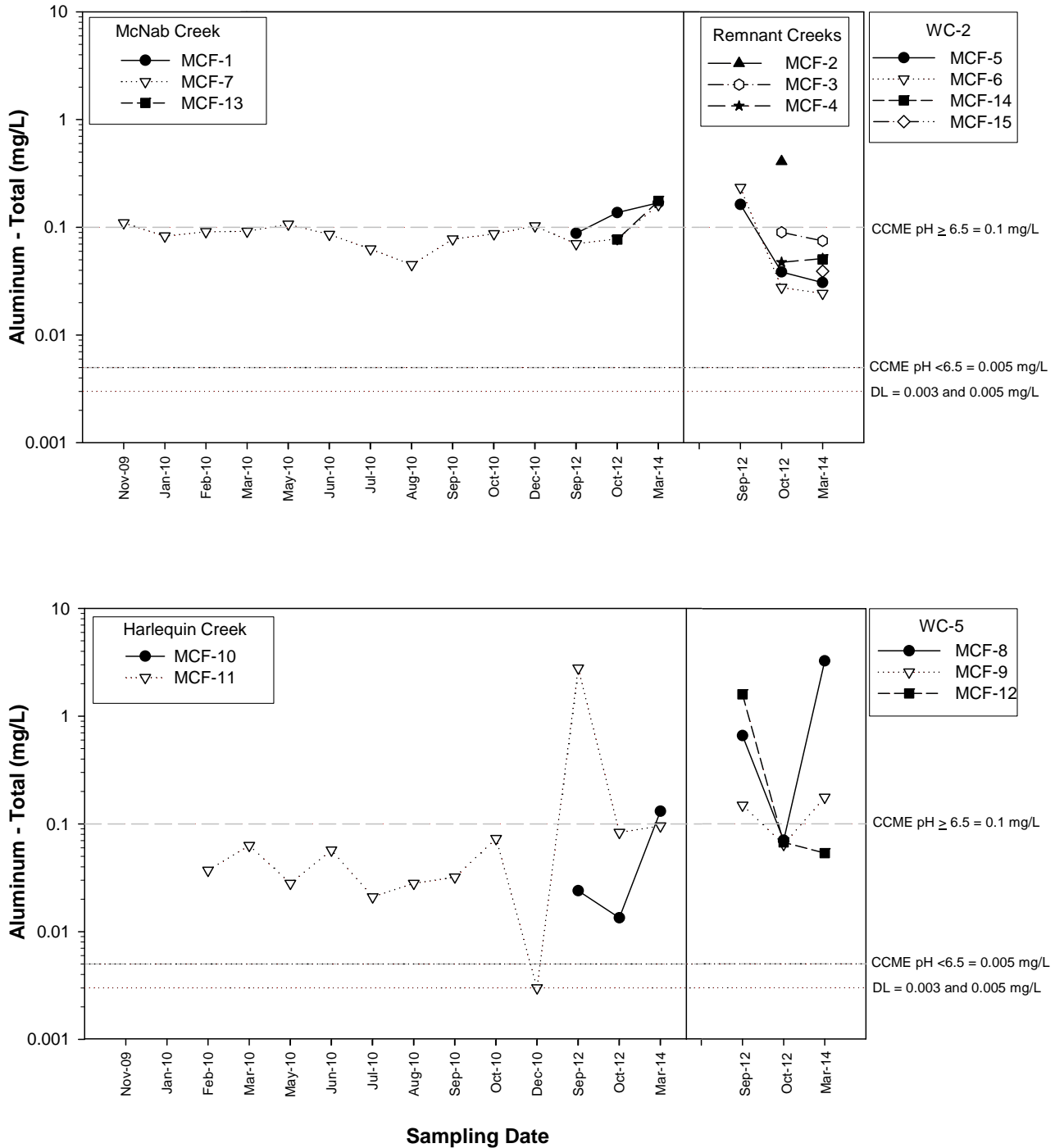


Figure 3: Total aluminum in surface water samples collected from McNab Valley, 2009 to 2014.



MCNAB VALLEY BASELINE SURFACE WATER QUALITY

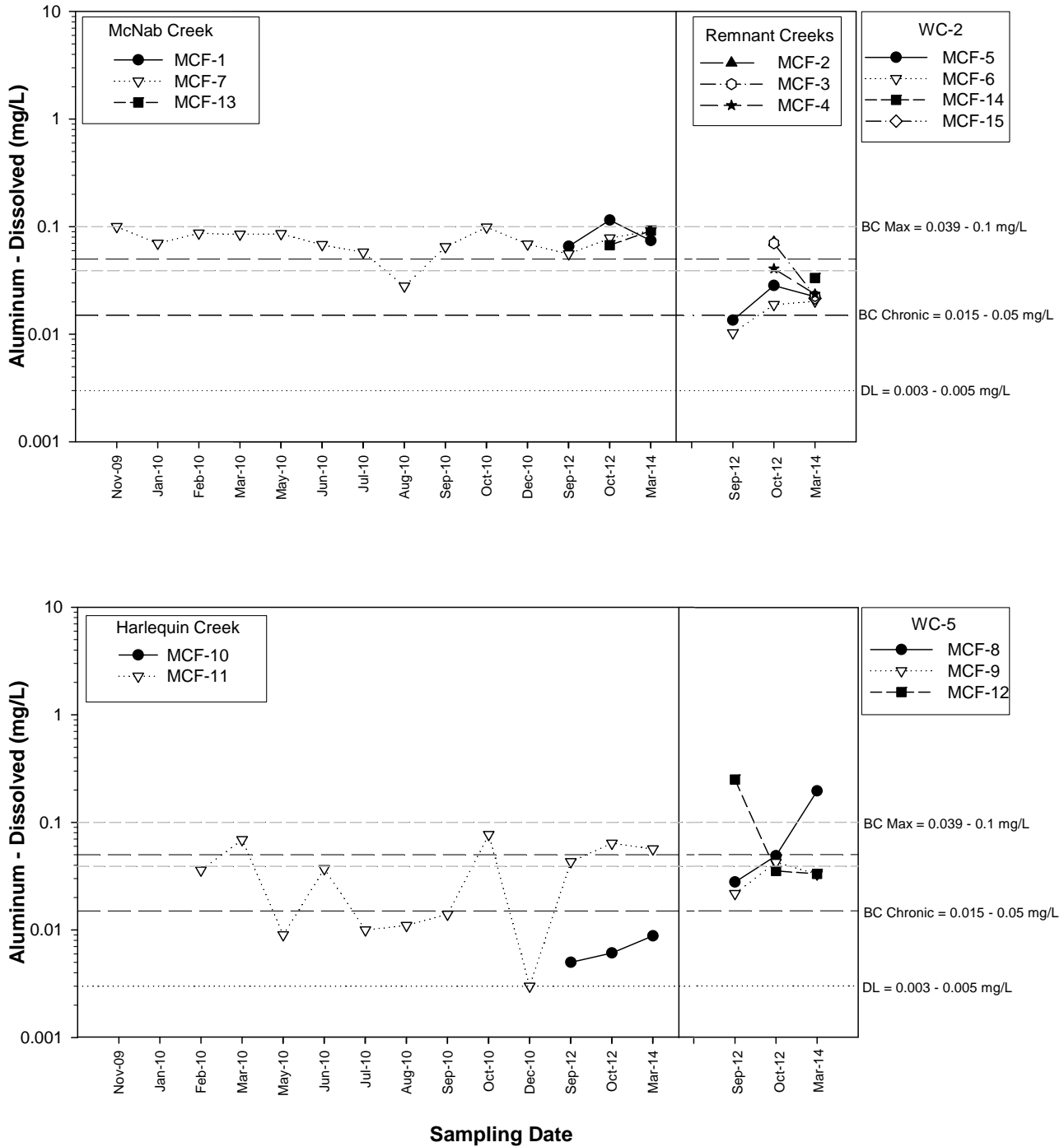


Figure 4: Dissolved aluminum in surface water samples collected from McNab Valley, 2009 to 2014.



3.3 Hydrocarbons

Most individual PAH concentrations were below detection limits (<0.00001 to <0.00005 mg/L) and none exceeded CCME or BC MOE guidelines. Similarly, LEPH and HEPH levels were below detection limits (<0.25 mg/L) in all samples.

3.4 Quality Assurance and Quality Control (QA/QC)

The RPD of duplicates obtained at MCF-7 in September 2012, MCF-10 in October 2012, and MCF-15 in March 2014 were less than 20% for all measurements of physical parameters, nutrients, metals, and hydrocarbons (Appendix B).

Measurements obtained from travel and field blanks in September 2012 and October 2012 were below detection limits for all water quality parameters. The travel and field blank results indicate that contamination of samples during sample handling in the field and transportation was unlikely.

The data were considered reliable for the purposes of characterizing baseline water quality in the Project area.

4.0 SUMMARY

Surface water in the study area generally had low metals and nutrient concentrations, with the exception of aluminum, and hydrocarbons were not detectable. Aluminum consistently exceeded the CCME WQG for the total form with the highest concentrations coincided with elevated suspended solids measured at sites downstream or alongside the road that runs north/south within the Study Area on its west side. Dissolved aluminum also consistently exceeded the maximum and 30-day BC MOE WQGs. The aluminum content of the water likely reflects the natural mineralogy of the area.

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ATTACHMENT A

Water Quality Screening Table

APPENDIX A Water Quality Chemical Analysis

Main data table with columns for Sample ID, Units, Detection Limit, CCME Guidelines, BC WQG - Most Conservative of Freshwater Aquatic Life and Wildlife, and various sampling dates from 2012 to 2014. The table is organized into sections like Field Parameters, Physical Tests, Inorganic Carbon, Trace Metals, Dissolved Metals, and Polycyclic Aromatic Hydrocarbons.

British Columbia Ministry of the Environment (BC ME), British Columbia Approved Water Quality Guidelines (Criteria). Science and Information Branch, BC MOE Victoria, BC. Includes updates...
b = WQG based on methyl mercury that is 0.5% of total mercury
c = Predicted
d = Freshwater aquatic etc. (1) = storm area, (2) = long-term, (3) = monitoring guideline, (4) = narrows-dependent, (5) = restrictive.

APPENDIX A
Water Quality Chemical Analysis

Table with columns for Sample ID, Units, Detection Limit, CCME Guidelines, Notes, BC WQG - Most Conservative of Freshwater Aquatic Life and Wildlife, and various monitoring points (MCF-2 to MCF-11, GW1, GW2, GW3). Rows include Field Parameters (pH, Temperature, Conductivity, etc.), Physical Tests, Anions and Nutrients, Total Metals, Dissolved Metals, Hydrocarbons, and Polycyclic Aromatic Hydrocarbons.

Notes:
British Columbia Ministry of the Environment (BC MoE), British Columbia Approved Water Quality Guidelines (Criteria). Science and Information Branch, BC MoE, Victoria, BC. Includes updates.
Units: - indicates units or meters or the environment; water quality units for the presence of freshwater aquatic life, swimming, etc.
* For laboratory results at a pH < 6.5, 0.1 unrounded change permitted within the pH range.
b = WQG based on methyl mercury that is 0.5% of total mercury
c = Phosphate
FW = freshwater aquatic life; s = short-term; L = long-term; W = working generic; H = harassment/operation; A = aesthetic.
MCF = maximum concentration factor
* indicates sample was below the detection limit.
** indicates variable was not measured for this site.
Grey highlight: datum exceeds CCME maximum WQG
Border: datum exceeds CCME chronic WQG
Bold: datum exceeds BC maximum WQG
Underline: datum exceeds BC chronic WQG



ATTACHMENT B

Quality Assurance and Quality Control

ATTACHMENT B
Water Quality Chemical Analysis

Burnco Water Quality Raw Data 2012-2014
c indicates sample was below the detection limit.
** indicates variable was not measured for that site.

Table with 17 columns: Sample ID, Units, Detection Limit, MCF-7 (10-SEP-12, MCF-7 (MCF-7 (10-SEP-12, RPD, FIELD BLANK (10-SEP-12, TRAVEL BLANK (11-SEP-12, MCF-10 (17-OCT-12, MCF-10 (17-OCT-12, RPD, TRAVEL BLANK (17-OCT-12, FIELD BLANK (17-OCT-12, MCF-15 (27-MAR-14, MCF-15 (27-MAR-14, RPD. Rows include Physical Tests, Anions and Nutrients, Organic/Inorganic Carbon, Total Metals, Dissolved Metals, and Hydrocarbons.

ATTACHMENT B
Water Quality Chemical Analysis

Table with columns for Sample ID, Units, Detection Limit, and various MCF (Method Comparison Factor) values from MCF-1 to MCF-13. The table is divided into sections: Physical Tests, Anions and Nutrients, Organic / Inorganic Carbon, Total Metals, Dissolved Metals, and Hydrocarbons. Each section lists numerous chemical parameters with their corresponding units and MCF values.

Notes:
* indicates sample was below the detection limit.
** indicates variable was not measured for that site.



ATTACHMENT C

Laboratory Reports

REPORTED TO: Golder Associates Ltd.



REPORT DATE: December 1, 2009 14:02:10

GROUP NUMBER: 101124097

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:		McNab Cr.		
CANTEST ID:		911240305	REPORTING LIMIT	UNITS
pH, Laboratory		6.25	-	pH units
Conductivity		8	1	μ S/cm
Turbidity		0.28	0.1	NTU
Hardness (Total)	CaCO3	2	1	mg/L
Hardness	CaCO3	2	1	mg/L
Total Dissolved Solids		<	10	mg/L
Total Suspended Solids		<	1	mg/L
Total Alkalinity	CaCO3	4.4	0.5	mg/L
Bicarbonate Alkalinity	HCO3	5.4	0.5	mg/L
Carbonate Alkalinity	CO3	<	0.5	mg/L
Hydroxide Alkalinity	OH	<	0.5	mg/L
Total Acidity		2.0	0.5	mg/L
Dissolved Fluoride	F	<	0.05	mg/L
Dissolved Chloride	Cl	0.70	0.2	mg/L
Nitrate and Nitrite	N	0.05	0.01	mg/L
Nitrate	N	0.05	0.01	mg/L
Nitrite	N	<	0.002	mg/L
Dissolved Sulphate	SO4	0.67	0.5	mg/L
Ammonia Nitrogen	N	0.02	0.01	mg/L
Total Kjeldahl Nitrogen	N	<	0.2	mg/L
Total Phosphorus	P	<	0.02	mg/L as P

μ S/cm = microsiemens per centimeter
 mg/L = milligrams per liter
 < = Less than reporting limit

NTU = nephelometric turbidity units
 mg/L as P = milligrams per liter as P

REPORTED TO: Golder Associates Ltd.



REPORT DATE: December 1, 2009 14:02:10

GROUP NUMBER: 101124097

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		McNab Cr.	McNab Cr.		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	REPORTING LIMIT	UNITS
CANTEST ID:		911240305	911240305		
Aluminum	Al	0.11	0.1	0.005	mg/L
Antimony	Sb	<	<	0.0005	mg/L
Arsenic	As	<	<	0.001	mg/L
Barium	Ba	0.001	0.001	0.001	mg/L
Beryllium	Be	<	<	0.0005	mg/L
Bismuth	Bi	<	<	0.0005	mg/L
Boron	B	<	<	0.025	mg/L
Cadmium	Cd	<	<	0.00005	mg/L
Calcium	Ca	0.64	0.66	0.05	mg/L
Cesium	Cs	<	<	0.0005	mg/L
Chromium	Cr	<	<	0.001	mg/L
Cobalt	Co	<	<	0.0005	mg/L
Copper	Cu	<	<	0.0005	mg/L
Iron	Fe	<	<	0.05	mg/L
Lanthanum	La	<	<	0.0005	mg/L
Lead	Pb	<	<	0.00025	mg/L
Lithium	Li	0.002	0.0017	0.0005	mg/L
Magnesium	Mg	0.13	0.11	0.025	mg/L
Manganese	Mn	0.0013	0.001	0.0005	mg/L
Mercury	Hg	<	<	0.02	µg/L
Molybdenum	Mo	<	<	0.0005	mg/L
Nickel	Ni	<	<	0.001	mg/L
Phosphorus	P	<	<	0.075	mg/L
Potassium	K	0.06	<	0.05	mg/L
Rhenium	Re	<	<	0.0005	mg/L
Rubidium	Rb	<	<	0.0005	mg/L
Selenium	Se	<	<	0.001	mg/L
Silicon	Si	1.1	1.1	0.25	mg/L
Silver	Ag	<	<	0.0002	mg/L
Sodium	Na	0.62	0.63	0.025	mg/L
Strontium	Sr	0.0036	0.0033	0.0005	mg/L
Sulphur	S	<	-	5	mg/L
Tellurium	Te	<	<	0.001	mg/L

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: December 1, 2009 14:02:10

GROUP NUMBER: 101124097

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		McNab Cr.	McNab Cr.		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	REPORTING LIMIT	UNITS
CANTEST ID:		911240305	911240305		
Thallium	Tl	<	<	0.0001	mg/L
Thorium	Th	0.0004	0.0006	0.00025	mg/L
Tin	Sn	<	0.0006	0.0005	mg/L
Titanium	Ti	<	<	0.001	mg/L
Tungsten	W	<	<	0.0005	mg/L
Uranium	U	<	<	0.00025	mg/L
Vanadium	V	<	<	0.0005	mg/L
Zinc	Zn	<	<	0.005	mg/L
Zirconium	Zr	<	<	0.0005	mg/L

mg/L = milligrams per liter
 < = Less than reporting limit

µg/L = micrograms per liter

Analysis Report



CANTEST LTD.

Professional
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Services

4606 Canada Way
Burnaby, B.C.
V5G 1K5

FAX: 604 731 2386

TEL: 604 734 7276

1 800 665 8566

REPORT ON: Analysis of Water Sample

REPORTED TO: Golder Associates Ltd.
500-4260 Still Creek Dr
Burnaby, BC
V5C 6C6

Att'n: Max Schuetz

CHAIN OF CUSTODY: 2068374
PROJECT NAME: McNab
PROJECT NUMBER: 0914160004/5000

NUMBER OF SAMPLES: 1

REPORT DATE: December 1, 2009 14:02:10

DATE SUBMITTED: November 24, 2009

GROUP NUMBER: 101124097

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Anions in Water by Ion Chromatography - was determined based on Method 4110 in Standard Methods (21st Edition) and EPA Method 300.0 (Revision 2.1).

Acidity in Water or Liquid - was determined based on Method 2310 in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Conductivity in Water - was performed based on Method 2510 in Standard Methods (21st Edition) and Method X322 in the BC Laboratory Manual (2005 Edition).

Nitrate and Nitrite in Water - was performed using Flow Injection Analysis where Nitrate is reduced to Nitrite by passing the sample through a cadmium reduction column. The nitrite produced is then determined by diazotizing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish azo dye which is then measured colorimetrically at 540 nm.

Ammonia in Water - was performed using Flow Injection Analysis where the aqueous sample is injected into a carrier stream, which merges a sodium hydroxide stream. Gaseous ammonia is formed, which diffuses through a gas permeable membrane into an indicator stream. This indicator stream is comprised of a mixture of acid-base

(Continued)

CANTEST LTD.

REPORTED TO: Golder Associates Ltd.



REPORT DATE: December 1, 2009 14:02:10

GROUP NUMBER: 101124097

Ammonia in Water

indicators, which will react with the ammonia gas; resulting in a colour shift which is measured photometrically @ 590 nm.

Nitrite in Water - was determined based on Method 4500-NO₂ B in Standard Methods for the examination of Water and Wastewater (21st Edition) and from the BC Laboratory Methods Manual (2005).

pH in Water - was determined based on Method 4500-H in Standard Methods (21st Edition) and Method X330 in the BC Laboratory Manual (2005).

Total Dissolved Solids in Water - was determined based on Method 2540 C in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Total Kjeldahl Nitrogen in Water - was determined based on Method 4500-N in Standard Methods (21st Edition) and Method X325 in the BC Laboratory Manual (2005).

Total Phosphate in Water - was determined based on Method 4500-P in Standard Methods (21st Edition) and Method X185 in the BC Laboratory Manual (2005).

Total Suspended Solids in Water - was determined based on Method 2540 D in Standard Methods (21st Edition) and Method X332 in the BC Laboratory Manual (2005).

Turbidity in Water - was performed based on Method 2130 in Standard Methods (21st Edition) and Method X164 in the BC Laboratory Manual (2005 Edition).

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

TEST RESULTS:

(See following pages)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: January 14, 2010 15:03:06

GROUP NUMBER: 110107093

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:		McNabCr.		
DATE SAMPLED:		Jan 7/10		
CANTEST ID:		1001070283		
		REPORTING LIMIT	UNITS	
pH, Laboratory		6.44	-	pH units
Conductivity		8	1	µS/cm
Turbidity		0.22	0.1	NTU
Hardness (Total)	CaCO3	2	1	mg/L
Hardness	CaCO3	2	1	mg/L
Total Dissolved Solids		<	10	mg/L
Total Suspended Solids		<	1	mg/L
Total Alkalinity	CaCO3	4.4	0.5	mg/L
Bicarbonate Alkalinity	HCO3	5.4	0.5	mg/L
Carbonate Alkalinity	CO3	<	0.5	mg/L
Hydroxide Alkalinity	OH	<	0.5	mg/L
Total Acidity		2.0	0.5	mg/L
Dissolved Fluoride	F	<	0.05	mg/L
Dissolved Chloride	Cl	0.44	0.2	mg/L
Nitrate and Nitrite	N	0.05	0.01	mg/L
Nitrate	N	0.05	0.01	mg/L
Nitrite	N	<	0.002	mg/L
Dissolved Sulphate	SO4	0.71	0.5	mg/L
Ammonia Nitrogen	N	0.01	0.01	mg/L
Total Kjeldahl Nitrogen	N	<	0.2	mg/L
Total Phosphorus	P	<	0.02	mg/L as P

µS/cm = microsiemens per centimeter
 mg/L = milligrams per liter
 < = Less than reporting limit

NTU = nephelometric turbidity units
 mg/L as P = milligrams per liter as P

REPORTED TO: Golder Associates Ltd.



REPORT DATE: January 14, 2010 15:03:06

GROUP NUMBER: 110107093

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		McNabCr.	McNabCr.		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Jan 7/10	Jan 7/10		
CANTEST ID:		1001070283	1001070283	REPORTING LIMIT	UNITS
Aluminum	Al	0.083	0.070	0.005	mg/L
Antimony	Sb	<	<	0.0005	mg/L
Arsenic	As	<	<	0.001	mg/L
Barium	Ba	0.001	0.001	0.001	mg/L
Beryllium	Be	<	<	0.0005	mg/L
Bismuth	Bi	<	<	0.0005	mg/L
Boron	B	<	<	0.025	mg/L
Cadmium	Cd	<	<	0.00005	mg/L
Calcium	Ca	0.8	0.72	0.05	mg/L
Cesium	Cs	<	<	0.0005	mg/L
Chromium	Cr	<	<	0.001	mg/L
Cobalt	Co	<	<	0.0005	mg/L
Copper	Cu	<	0.0005	0.0005	mg/L
Iron	Fe	<	<	0.05	mg/L
Lanthanum	La	<	<	0.0005	mg/L
Lead	Pb	<	<	0.00025	mg/L
Lithium	Li	<	<	0.0005	mg/L
Magnesium	Mg	0.11	0.09	0.025	mg/L
Manganese	Mn	<	<	0.0005	mg/L
Mercury	Hg	<	<	0.02	µg/L
Molybdenum	Mo	<	<	0.0005	mg/L
Nickel	Ni	<	<	0.001	mg/L
Phosphorus	P	<	<	0.075	mg/L
Potassium	K	0.08	0.07	0.05	mg/L
Rhenium	Re	<	<	0.0005	mg/L
Rubidium	Rb	<	<	0.0005	mg/L
Selenium	Se	<	<	0.001	mg/L
Silicon	Si	1.3	1.3	0.25	mg/L
Silver	Ag	<	<	0.0002	mg/L
Sodium	Na	0.52	0.5	0.025	mg/L
Strontium	Sr	0.0033	0.0033	0.0005	mg/L

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: January 14, 2010 15:03:06

GROUP NUMBER: 110107093

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		McNabCr.	McNabCr.		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Jan 7/10	Jan 7/10		
CANTEST ID:		1001070283	1001070283	REPORTING LIMIT	UNITS
Sulphur	S	<	-	5	mg/L
Tellurium	Te	<	<	0.001	mg/L
Thallium	Tl	<	<	0.0001	mg/L
Thorium	Th	<	<	0.00025	mg/L
Tin	Sn	<	<	0.0005	mg/L
Titanium	Ti	<	<	0.001	mg/L
Tungsten	W	<	<	0.0005	mg/L
Uranium	U	<	<	0.00025	mg/L
Vanadium	V	<	<	0.0005	mg/L
Zinc	Zn	<	<	0.005	mg/L
Zirconium	Zr	<	<	0.0005	mg/L

mg/L = milligrams per liter
 < = Less than reporting limit

µg/L = micrograms per liter

Analysis Report



CANTEST LTD.

Professional
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4606 Canada Way
Burnaby, B.C.
V5G 1K5

FAX: 604 731 2386

TEL: 604 734 7276

1 800 665 8566

REPORT ON: Analysis of Water Sample

REPORTED TO: Golder Associates Ltd.
500-4260 Still Creek Dr
Burnaby, BC
V5C 6C6

Att'n: Max Schuetz

CHAIN OF CUSTODY: 2068343
PROJECT NAME: Burnco
PROJECT NUMBER: 0914160004

NUMBER OF SAMPLES: 1

REPORT DATE: January 14, 2010 15:03:06

DATE SUBMITTED: January 7, 2010

GROUP NUMBER: 110107093

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Anions in Water by Ion Chromatography - was determined based on Method 4110 in Standard Methods (21st Edition) and EPA Method 300.0 (Revision 2.1).

Acidity in Water or Liquid - was determined based on Method 2310 in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Conductivity in Water - was performed based on Method 2510 in Standard Methods (21st Edition) and Method X322 in the BC Laboratory Manual (2005 Edition).

Nitrate and Nitrite in Water - was performed using Flow Injection Analysis where Nitrate is reduced to Nitrite by passing the sample through a cadmium reduction column. The nitrite produced is then determined by diazotizing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish azo dye which is then measured colorimetrically at 540 nm.

Ammonia in Water - was performed using Flow Injection Analysis where the aqueous sample is injected into a carrier stream, which merges a sodium hydroxide stream. Gaseous ammonia is formed, which diffuses through a gas permeable membrane into an indicator stream. This indicator stream is comprised of a mixture of acid-base

(Continued)

CANTEST LTD.

REPORTED TO: Golder Associates Ltd.



REPORT DATE: January 14, 2010 15:03:06

GROUP NUMBER: 110107093

Ammonia in Water

indicators, which will react with the ammonia gas; resulting in a colour shift which is measured photometrically @ 590 nm.

Nitrite in Water - was determined based on Method 4500-NO₂ B in Standard Methods for the examination of Water and Wastewater (21st Edition) and from the BC Laboratory Methods Manual (2005).

pH in Water - was determined based on Method 4500-H in Standard Methods (21st Edition) and Method X330 in the BC Laboratory Manual (2005).

Total Dissolved Solids in Water - was determined based on Method 2540 C in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Total Kjeldahl Nitrogen in Water - was determined based on Method 4500-N in Standard Methods (21st Edition) and Method X325 in the BC Laboratory Manual (2005).

Total Phosphate in Water - was determined based on Method 4500-P in Standard Methods (21st Edition) and Method X185 in the BC Laboratory Manual (2005).

Total Suspended Solids in Water - was determined based on Method 2540 D in Standard Methods (21st Edition) and Method X332 in the BC Laboratory Manual (2005).

Turbidity in Water - was performed based on Method 2130 in Standard Methods (21st Edition) and Method X164 in the BC Laboratory Manual (2005 Edition).

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

TEST RESULTS:

(See following pages)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	McNab Cr. (1)	Harlequin Cr. (2)		
DATE SAMPLED:	Feb 18/10	Feb 18/10		
CANTEST ID:	1002190163	1002190164	REPORTING LIMIT	UNITS
pH, Laboratory	6.43	6.95	-	pH units
Conductivity	7	27	1	µS/cm
Turbidity	0.12	0.25	0.1	NTU
Hardness (Total) CaCO3	2	8	1	mg/L
Hardness CaCO3	2	8	1	mg/L
Total Dissolved Solids	<	32	10	mg/L
Total Suspended Solids	<	1	1	mg/L
Total Alkalinity CaCO3	5.1	10.4	0.5	mg/L
Bicarbonate Alkalinity HCO3	6.3	12.7	0.5	mg/L
Carbonate Alkalinity CO3	<	<	0.5	mg/L
Hydroxide Alkalinity OH	<	<	0.5	mg/L
Total Acidity	2.0	2.0	0.5	mg/L
Dissolved Fluoride F	<	<	0.05	mg/L
Dissolved Chloride Cl	0.51	0.72	0.2	mg/L
Nitrate and Nitrite N	0.05	0.07	0.05	mg/L
Dissolved Nitrate N	0.05	0.07	0.05	mg/L
Nitrite N	<	<	0.002	mg/L
Dissolved Sulphate SO4	0.73	4.45	0.5	mg/L
Ammonia Nitrogen N	0.02	<	0.01	mg/L
Total Kjeldahl Nitrogen N	0.4	0.3	0.2	mg/L
Total Phosphorus P	<	<	0.02	mg/L as P

µS/cm = microsiemens per centimeter
 mg/L = milligrams per liter
 < = Less than reporting limit

NTU = nephelometric turbidity units
 mg/L as P = milligrams per liter as P

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		McNab Cr. (1)	McNab Cr. (1)	Harlequin Cr. (2)	Harlequin Cr. (2)		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Feb 18/10	Feb 18/10	Feb 18/10	Feb 18/10		
CANTEST ID:		1002190163	1002190163	1002190164	1002190164	REPORTING LIMIT	UNITS
Aluminum	Al	0.091	0.087	0.037	0.036	0.005	mg/L
Antimony	Sb	<	<	<	<	0.0005	mg/L
Arsenic	As	<	<	<	<	0.001	mg/L
Barium	Ba	0.001	0.001	0.001	0.001	0.001	mg/L
Beryllium	Be	<	<	<	<	0.0005	mg/L
Bismuth	Bi	<	<	<	<	0.0005	mg/L
Boron	B	<	<	<	<	0.025	mg/L
Cadmium	Cd	<	<	0.00006	0.00006	0.00005	mg/L
Calcium	Ca	0.77	0.71	2.45	2.51	0.05	mg/L
Cesium	Cs	<	<	<	<	0.0005	mg/L
Chromium	Cr	<	<	<	<	0.001	mg/L
Cobalt	Co	<	<	<	<	0.0005	mg/L
Copper	Cu	<	<	<	0.0006	0.0005	mg/L
Iron	Fe	<	<	<	<	0.05	mg/L
Lanthanum	La	<	<	<	<	0.0005	mg/L
Lead	Pb	<	<	<	<	0.00025	mg/L
Lithium	Li	<	<	<	<	0.0005	mg/L
Magnesium	Mg	0.1	0.09	0.34	0.34	0.025	mg/L
Manganese	Mn	0.001	0.0009	0.0025	0.0024	0.0005	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	<	<	<	<	0.0005	mg/L
Nickel	Ni	<	<	<	<	0.001	mg/L
Phosphorus	P	<	<	<	<	0.075	mg/L
Potassium	K	0.1	0.09	0.18	0.19	0.05	mg/L
Rhenium	Re	<	<	<	<	0.0005	mg/L
Rubidium	Rb	<	<	<	<	0.0005	mg/L
Selenium	Se	<	<	<	<	0.001	mg/L
Silicon	Si	1.6	1.5	5.6	5.7	0.25	mg/L
Silver	Ag	<	<	<	<	0.0002	mg/L
Sodium	Na	0.55	0.54	2.13	2.25	0.025	mg/L
Strontium	Sr	0.0034	0.0034	0.027	0.027	0.0005	mg/L

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:	McNab Cr. (1)	McNab Cr. (1)	Harlequin Cr. (2)	Harlequin Cr. (2)		
SAMPLE PREPARATION:	TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:	Feb 18/10	Feb 18/10	Feb 18/10	Feb 18/10		
CANTEST ID:	1002190163	1002190163	1002190164	1002190164	REPORTING LIMIT	UNITS
Sulphur S	<	-	<	-	5	mg/L
Tellurium Te	<	<	<	<	0.001	mg/L
Thallium Tl	<	<	<	<	0.0001	mg/L
Thorium Th	<	<	<	<	0.00025	mg/L
Tin Sn	<	<	<	<	0.0005	mg/L
Titanium Ti	<	<	0.001	<	0.001	mg/L
Tungsten W	<	<	<	<	0.0005	mg/L
Uranium U	<	<	<	<	0.00025	mg/L
Vanadium V	<	<	<	<	0.0005	mg/L
Zinc Zn	<	<	0.009	0.009	0.005	mg/L
Zirconium Zr	<	<	<	<	0.0005	mg/L

mg/L = milligrams per liter
 < = Less than reporting limit

µg/L = micrograms per liter

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Conventional Parameters in Water

Parameter	QC Type	QC Result	Units	Lower Limit	Upper Limit	
pH, Laboratory	pH Calibration Verification	100.3	% Recovery	98	102	
	Duplicate	0.3	R.P.D.	0	3	
Conductivity	Conductivity Calibration Ver.	98.6	% Recovery	96	104	
	Duplicate	0.5	R.P.D.	0	5	
Turbidity	Blank	< 0.1	NTU	0	0.1	
	Duplicate	5.3	R.P.D.	0	15	
	Duplicate	6.9	R.P.D.	0	15	
Total Dissolved Solids	Duplicate	1.2	R.P.D.	0	18	
Total Suspended Solids	Blank	< 1	mg/L	0	3	
	TSS Control Standard (CaV)	97.2	% Recovery	91	105	
	Duplicate	0.6	R.P.D.	0	18	
	Duplicate	0.6	R.P.D.	0	18	
	Duplicate	1.2	R.P.D.	0	18	
	Duplicate	1.7	R.P.D.	0	18	
Total Alkalinity	CaCO3	Blank	3.6	mg/L	0	4
		Alkalinity Calibration Ver.	94.1	% Recovery	85	115
	Duplicate	0.0	R.P.D.	0	9	
	Duplicate	0.0	R.P.D.	0	9	
Bicarbonate Alkalinity	HCO3	Duplicate	0.0	R.P.D.	0	9
		Duplicate	0.0	R.P.D.	0	9
Total Acidity	Duplicate	0.0	R.P.D.	0	11	
Dissolved Fluoride	F	Dionex Certified Standard	98.0	% Recovery	90	110
		Duplicate	0.0	R.P.D.	0	10
Dissolved Chloride	Cl	Dionex Certified Standard	98.7	% Recovery	90	110
		Duplicate	0.0	R.P.D.	0	12
		Duplicate	0.0	R.P.D.	0	12

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Conventional Parameters in Water

Parameter	QC Type	QC Result	Units	Lower Limit	Upper Limit	
Dissolved Chloride	Cl	Duplicate	0.4	R.P.D.	0	12
		Duplicate	0.5	R.P.D.	0	12
		Duplicate	0.9	R.P.D.	0	12
		Duplicate	1.5	R.P.D.	0	12
Dissolved Nitrate	N	Dionex Certified Standard	92.9	% Recovery	90	110
		Duplicate	0.7	R.P.D.	0	10
		Duplicate	1.6	R.P.D.	0	10
Nitrite	N	Blank	< 0.002	mg/L	0	0.002
		Spike	105.0	% Recovery	86	112
		Calibration Verification	99.0	% Recovery	93	107
		Duplicate	NC	R.P.D.	0	12
Dissolved Sulphate	SO4	Dionex Certified Standard	96.0	% Recovery	90	110
		Duplicate	0.0	R.P.D.	0	10
		Duplicate	0.0	R.P.D.	0	10
		Duplicate	1.2	R.P.D.	0	10
		Duplicate	1.4	R.P.D.	0	10
		Duplicate	2.1	R.P.D.	0	10
		Duplicate	2.8	R.P.D.	0	10
Ammonia Nitrogen	N	Blank	< 0.01	mg/L	0	0.01
		Spike	92.0	% Recovery	70	132
		Spike	95.0	% Recovery	70	132
		Spike	100.0	% Recovery	70	132
		Spike	101.0	% Recovery	70	132
		Spike	107.0	% Recovery	70	132
		Duplicate	0.0	R.P.D.	0	20
		Duplicate	0.0	R.P.D.	0	20
		Duplicate	4.7	R.P.D.	0	20

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Conventional Parameters in Water

Parameter	QC Type	QC Result	Units	Lower Limit	Upper Limit
Ammonia Nitrogen N	Duplicate	PASS	R.P.D.	0	20
Total Kjeldahl Nitrogen N	Blank	< 0.2	mg/L	0	0.2
	Spike	82.0	% Recovery	66	124
	Spike	103.0	% Recovery	66	124
	Duplicate	PASS	R.P.D.	0	20
	Duplicate	PASS	R.P.D.	0	20
Total Phosphorus P	Blank	< 0.02	mg/L as P	0	0.05
	Spike	96.0	% Recovery	84	118
	Calibration Verification	96.0	% Recovery	92	108
	Duplicate	1.5	R.P.D.	0	16

uS/cm = microsiemens per centimeter

mg/L = milligrams per liter

< = Less than reporting limit

R.P.D. = Relative Percent Difference

PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.

NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

NTU = nephelometric turbidity units

mg/L as P = milligrams per liter as P

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Dissolved Metals Analysis in Water (QC# 132908)

Parameter		Dissolved Blank (mg/L)	Dissolved Blank Limits	Duplicate (R.P.D.) 1002190305	Duplicate Limits
Aluminum	Al	< 0.001	0.015	-	-
Antimony	Sb	< 0.0001	0.001	-	-
Arsenic	As	< 0.0002	0.001	-	-
Barium	Ba	< 0.0002	0.001	-	-
Beryllium	Be	< 0.0001	0.001	-	-
Boron	B	< 0.005	0.01	-	-
Cadmium	Cd	< 0.00001	0.001	-	-
Calcium	Ca	-	-	1.3	20
Cobalt	Co	< 0.0001	0.001	-	-
Copper	Cu	0.0001	0.001	-	-
Iron	Fe	< 0.01	0.005	(*)	20
Lead	Pb	< 0.00005	0.001	-	-
Magnesium	Mg	< 0.005	0.005	0.4	20
Manganese	Mn	< 0.0001	0.001	0.4	20
Mercury	Hg	< 0.02	0.05	-	-
Molybdenum	Mo	< 0.0001	0.001	-	-
Nickel	Ni	< 0.0002	0.001	-	-
Potassium	K	< 0.01	0.05	-	-
Selenium	Se	< 0.0002	0.001	-	-
Silver	Ag	0.00043	0.001	-	-
Sodium	Na	< 0.005	0.01	-	-
Tin	Sn	< 0.0001	0.005	-	-
Zinc	Zn	< 0.001	0.01	-	-
Zirconium	Zr	< 0.0001	0.01	-	-

mg/L = milligrams per liter

Mercury Hg expressed as: ug/L (micrograms per liter)

R.P.D. = Relative Percent Difference

(*) = Quality Control results exceeded internally set limits; after review by Quality Assurance Unit, non-conformance overridden and batch sample analysis results released for reporting

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Total Metals Analysis in Water (QC# 132894)

Parameter		Duplicate (R.P.D.) 1002180091	Duplicate Limits	Duplicate (R.P.D.) 1002190053	Duplicate Limits	Duplicate (R.P.D.) 1002190156	Duplicate Limits
Aluminum	Al	PASS	20	7.7	20	8.3	20
Antimony	Sb	NC	20	NC	20	NC	20
Arsenic	As	0	20	NC	20	NC	20
Barium	Ba	1.7	20	0	20	NC	20
Beryllium	Be	-	-	NC	20	-	-
Cadmium	Cd	NC	20	NC	20	NC	20
Calcium	Ca	-	-	1.9	20	-	-
Chromium	Cr	NC	20	PASS	20	2.8	20
Cobalt	Co	-	-	NC	20	-	-
Copper	Cu	8.7	20	5	20	2.9	20
Iron	Fe	PASS	20	0	20	4.4	20
Lead	Pb	3.5	20	PASS	20	NC	20
Lithium	Li	-	-	NC	20	-	-
Magnesium	Mg	1.6	20	1.4	20	3.4	20
Manganese	Mn	0	20	0	20	6.5	20
Molybdenum	Mo	-	-	PASS	20	-	-
Nickel	Ni	-	-	NC	20	-	-
Sulphur	S	-	-	PASS	20	-	-
Selenium	Se	NC	20	NC	20	PASS	20
Silver	Ag	-	-	NC	20	-	-
Sodium	Na	0.9	20	1.4	20	3.4	20
Strontium	Sr	-	-	2.6	20	-	-
Thallium	Tl	-	-	NC	20	-	-
Thorium	Th	-	-	NC	20	-	-
Tin	Sn	-	-	NC	20	-	-
Zinc	Zn	4	20	PASS	20	PASS	20
Zirconium	Zr	-	-	NC	20	-	-

mg/L = milligrams per liter

R.P.D. = Relative Percent Difference

PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.

NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Total Metals Analysis in Water (QC# 132894)

Parameter		Duplicate (R.P.D.) 1002190184	Duplicate Limits	Duplicate (R.P.D.) 1002190291	Duplicate Limits	ICPMS (Elan) Spike (% Recovery) 1002190163	ICPMS (Elan) Spike Limits
Aluminum	Al	6.5	20	1.9	20	91	70 - 130
Antimony	Sb	NC	20	0	20	-	-
Arsenic	As	NC	20	2.1	20	92	80 - 118
Barium	Ba	0	20	2.7	20	92	70 - 130
Beryllium	Be	-	-	-	-	95	79 - 123
Boron	B	-	-	-	-	90	70 - 130
Cadmium	Cd	NC	20	0	20	96	74 - 124
Chromium	Cr	NC	20	9.5	20	92	70 - 130
Cobalt	Co	-	-	-	-	91	76 - 126
Copper	Cu	1.1	20	1.1	20	98	77 - 125
Iron	Fe	PASS	20	0.4	20	100	70 - 130
Lead	Pb	0	20	0	20	93	77 - 124
Magnesium	Mg	3.8	20	-	-	-	-
Manganese	Mn	0	20	0.8	20	92	69 - 131
Molybdenum	Mo	-	-	-	-	93	68 - 118
Nickel	Ni	-	-	-	-	98	77 - 123
Selenium	Se	NC	20	0	20	86	70 - 130
Silver	Ag	-	-	-	-	90	70 - 130
Sodium	Na	1.3	20	0.8	20	-	-
Strontium	Sr	-	-	-	-	91	70 - 130
Uranium	U	-	-	-	-	88	65 - 133
Vanadium	V	-	-	-	-	89	75 - 123
Zinc	Zn	0	20	3.8	20	90	70 - 130

mg/L = milligrams per liter

R.P.D. = Relative Percent Difference

PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.

NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Total Metals Analysis in Water (QC# 132894)

Parameter		ICPMS Elan Lab Fortified Blk (% Recovery)	ICPMS Elan Lab Fortified Blk Limits	Total Blank (mg/L)	Total Blank Limits
Aluminum	Al	95	78 - 122	0.001	0.015
Antimony	Sb	90	75 - 117	< 0.0001	0.001
Arsenic	As	85	72 - 114	< 0.0002	0.001
Barium	Ba	95	81 - 119	< 0.0002	0.001
Beryllium	Be	90	73 - 115	< 0.0001	0.001
Cadmium	Cd	89	78 - 116	< 0.00001	0.001
Chromium	Cr	95	83 - 119	< 0.0002	0.001
Cobalt	Co	95	85 - 119	< 0.0001	0.001
Copper	Cu	95	85 - 120	< 0.0001	0.001
Iron	Fe	100	50 - 150	-	-
Lead	Pb	89	80 - 116	< 0.00005	0.001
Lithium	Li	-	-	< 0.0001	0.001
Manganese	Mn	90	82 - 120	< 0.0001	0.001
Molybdenum	Mo	95	82 - 114	< 0.0001	0.001
Nickel	Ni	100	78 - 118	< 0.0002	0.001
Potassium	K	-	-	< 0.01	0.05
Selenium	Se	70	58 - 120	< 0.0002	0.001
Silver	Ag	96	85 - 117	< 0.00004	0.001
Strontium	Sr	90	83 - 115	-	-
Thallium	Tl	88	86 - 118	< 0.00002	0.001
Thorium	Th	-	-	< 0.00005	0.0005
Tin	Sn	-	-	< 0.0001	0.005
Uranium	U	-	-	< 0.00005	0.0005
Vanadium	V	-	-	< 0.0001	0.001
Zinc	Zn	80	64 - 126	0.001	0.01
Zirconium	Zr	-	-	< 0.0001	0.01

mg/L = milligrams per liter

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Total Metals Analysis in Water (QC# 132934)

Parameter	Duplicate (R.P.D.) 1002190164	Duplicate Limits	Duplicate (R.P.D.) 1002200005	Duplicate Limits	Spike (% Recovery) 1002190164	Spike Limits
Mercury Hg	NC	20	NC	20	108	70 - 128

ug/L = micrograms per liter

R.P.D. = Relative Percent Difference

NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control for Total Metals Analysis in Water (QC# 132934)

Parameter	Spike (% Recovery)	Spike Limits	
	1002200005		
Mercury	Hg	92	70 - 128

ug/L = micrograms per liter

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Instrument Quality Control for the PSA Mercury Analyzer-AF (QC# 256842)

QC Type: Calibration Verification

Parameter		% Recovery	Limits
Mercury	Hg	98	90 - 110

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control Frequency Summary

Suspended Solids Analysis (Batch# 132884)

QC Type	No. Samples
Blank	1
TSS Control Standard (CalVer)	1
Duplicate	5

Water Lab Ion Chromatography (Batch# 132885)

QC Type	No. Samples
Blank	2
Duplicate	6

Total Metals Preparation (Batch# 132894)

QC Type	No. Samples
ICPMS (Elan) Spike	1
ICPMS Elan Lab Fortified Blk	1
Total Blank	2
Duplicate	5

Turbidity Analysis (Batch# 132899)

QC Type	No. Samples
Blank	1
Duplicate	2

Dissolved Metals Preparation (Batch# 132908)

QC Type	No. Samples
Duplicate	2
Dissolved Blank	3

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control Frequency Summary

Mercury Water Bromination Prep (Batch# 132934)

QC Type	No. Samples
Duplicate	3
Spike	3

Auto-Titrator Analysis (Batch# 133013)

QC Type	No. Samples
Blank	1
Duplicate	2

TKN Preparation (Batch# 133014)

QC Type	No. Samples
Blank	1
Duplicate	2
Spike	2

Ammonia Water/Lq Auto Analyzer (Batch# 133086)

QC Type	No. Samples
Blank	1
Duplicate	5
Spike	5

Suspended Solids Analysis (Batch# 132884)

QC Type	No. Samples
Batch Size	52

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control Frequency Summary

Water Lab Ion Chromatography (Batch# 132885)

QC Type	No. Samples
Batch Size	57

Total Metals Preparation (Batch# 132894)

QC Type	No. Samples
Batch Size	55

Turbidity Analysis (Batch# 132899)

QC Type	No. Samples
Batch Size	14

Dissolved Metals Preparation (Batch# 132908)

QC Type	No. Samples
Batch Size	30

Mercury Water Bromination Prep (Batch# 132934)

QC Type	No. Samples
Batch Size	34

Auto-Titrator Analysis (Batch# 133013)

QC Type	No. Samples
Batch Size	19

(Continued on next page)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

Batch Quality Control Frequency Summary

TKN Preparation (Batch# 133014)

QC Type	No. Samples
Batch Size	27

Ammonia Water/Lq Auto Analyzer (Batch# 133086)

QC Type	No. Samples
Batch Size	47

Analysis Report



CANTEST LTD.

Professional
Analytical
Services

4606 Canada Way
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V5G 1K5

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1 800 665 8566

REPORT ON: Analysis of Water Samples

REPORTED TO: Golder Associates Ltd.
500-4260 Still Creek Dr
Burnaby, BC
V5C 6C6

Att'n: Max Schuetz

CHAIN OF CUSTODY: 2186733
PROJECT NAME: McNab
PROJECT NUMBER: 0914160004/6000

NUMBER OF SAMPLES: 2

REPORT DATE: March 12, 2010 09:35:59

DATE SUBMITTED: February 19, 2010

GROUP NUMBER: 110219049

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Anions in Water by Ion Chromatography - was determined based on Method 4110 in Standard Methods (21st Edition) and EPA Method 300.0 (Revision 2.1).

Acidity in Water or Liquid - was determined based on Method 2310 in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Conductivity in Water - was performed based on Method 2510 in Standard Methods (21st Edition) and Method X322 in the BC Laboratory Manual (2005 Edition).

Ammonia in Water - was performed using Flow Injection Analysis where the aqueous sample is injected into a carrier stream, which merges a sodium hydroxide stream. Gaseous ammonia is formed, which diffuses through a gas permeable membrane into an indicator stream. This indicator stream is comprised of a mixture of acid-base indicators, which will react with the ammonia gas; resulting in a colour shift which is measured photometrically @ 590 nm.

Nitrite in Water - was determined based on Method 4500-NO₂ B in Standard Methods for the examination of Water and Wastewater (21st Edition) and from the BC Laboratory Methods Manual (2005).

(Continued)

REPORTED TO: Golder Associates Ltd.



REPORT DATE: March 12, 2010 09:35:59

GROUP NUMBER: 110219049

pH in Water - was determined based on Method 4500-H in Standard Methods (21st Edition) and Method X330 in the BC Laboratory Manual (2005).

Total Dissolved Solids in Water - was determined based on Method 2540 C in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Total Kjeldahl Nitrogen in Water - was determined based on Method 4500-N in Standard Methods (21st Edition) and Method X325 in the BC Laboratory Manual (2005).

Total Phosphate in Water - was determined based on Method 4500-P in Standard Methods (21st Edition) and Method X185 in the BC Laboratory Manual (2005).

Total Suspended Solids in Water - was determined based on Method 2540 D in Standard Methods (21st Edition) and Method X332 in the BC Laboratory Manual (2005).

Turbidity in Water - was performed based on Method 2130 in Standard Methods (21st Edition) and Method X164 in the BC Laboratory Manual (2005 Edition).

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

TEST RESULTS:

(See following pages)

REPORTED TO: Golder Associates Ltd.

MAXXAM

REPORT DATE: April 19, 2010 15:01:21

GROUP NUMBER: 110331089

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	1 - Harlequin Creek	2 - McNab Creek		
DATE SAMPLED:	Mar 31/10	Mar 31/10		
MAXXAM ID:	1003310245	1003310248	REPORTING LIMIT	UNITS
pH, Laboratory	6.32	6.42	-	pH units
Turbidity	0.15	0.15	0.1	NTU
Hardness (Total) CaCO3	2	2	1	mg/L
Hardness CaCO3	2	2	1	mg/L
Total Dissolved Solids	22	48	10	mg/L
Total Suspended Solids	<	<	1	mg/L
Total Alkalinity CaCO3	4.5	4.9	0.5	mg/L
Bicarbonate Alkalinity HCO3	5.5	5.9	0.5	mg/L
Carbonate Alkalinity CO3	<	<	0.5	mg/L
Hydroxide Alkalinity OH	<	<	0.5	mg/L
Total Acidity	1.0	1.0	0.5	mg/L
Dissolved Fluoride F	<	<	0.05	mg/L
Dissolved Chloride Cl	0.76	0.65	0.2	mg/L
Nitrate and Nitrite N	0.13	0.05	0.01	mg/L
Nitrate N	0.13	0.05	0.01	mg/L
Nitrite N	<	<	0.002	mg/L
Dissolved Sulphate SO4	1.11	0.73	0.5	mg/L
Ammonia Nitrogen N	0.01	0.01	0.01	mg/L
Total Kjeldahl Nitrogen N	<	<	0.2	mg/L
Total Phosphorus P	<	<	0.02	mg/L as P

NTU = nephelometric turbidity units
 mg/L as P = milligrams per liter as P
 < = Less than reporting limit

mg/L = milligrams per liter

REPORTED TO: Golder Associates Ltd.

MAXXAM

REPORT DATE: April 19, 2010 15:01:21

GROUP NUMBER: 110331089

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		1 - Harlequin Creek	1 - Harlequin Creek	2 - McNab Creek	2 - McNab Creek		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Mar 31/10	Mar 31/10	Mar 31/10	Mar 31/10		
MAXXAM ID:		1003310245	1003310245	1003310248	1003310248	REPORTING LIMIT	UNITS
Aluminum	Al	0.063	0.069	0.092	0.085	0.005	mg/L
Antimony	Sb	<	<	<	<	0.0005	mg/L
Arsenic	As	<	<	<	<	0.001	mg/L
Barium	Ba	0.003	0.003	0.001	0.001	0.001	mg/L
Beryllium	Be	<	<	<	<	0.0005	mg/L
Bismuth	Bi	<	<	<	<	0.0005	mg/L
Boron	B	<	<	<	<	0.025	mg/L
Cadmium	Cd	<	<	<	<	0.00005	mg/L
Calcium	Ca	0.7	0.69	0.79	0.8	0.05	mg/L
Cesium	Cs	<	<	<	<	0.0005	mg/L
Chromium	Cr	<	<	<	<	0.001	mg/L
Cobalt	Co	<	<	<	<	0.0005	mg/L
Copper	Cu	<	<	<	<	0.0005	mg/L
Iron	Fe	<	<	<	<	0.05	mg/L
Lanthanum	La	<	<	<	<	0.0005	mg/L
Lead	Pb	<	<	<	<	0.00025	mg/L
Lithium	Li	<	<	<	<	0.0005	mg/L
Magnesium	Mg	0.15	0.16	0.12	0.11	0.025	mg/L
Manganese	Mn	0.0016	0.0015	<	<	0.0005	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	<	<	<	<	0.0005	mg/L
Nickel	Ni	<	<	<	<	0.001	mg/L
Phosphorus	P	<	<	<	<	0.075	mg/L
Potassium	K	0.05	0.05	0.1	0.09	0.05	mg/L
Rhenium	Re	<	<	<	<	0.0005	mg/L
Rubidium	Rb	<	<	<	<	0.0005	mg/L
Selenium	Se	<	<	<	<	0.001	mg/L
Silicon	Si	1.9	1.9	1.3	1.2	0.25	mg/L
Silver	Ag	<	<	<	<	0.0002	mg/L
Sodium	Na	0.8	0.82	0.59	0.58	0.025	mg/L
Strontium	Sr	0.0074	0.0076	0.0038	0.0037	0.0005	mg/L

(Continued on next page)

REPORTED TO: Golder Associates Ltd.

MAXXAM

REPORT DATE: April 19, 2010 15:01:21

GROUP NUMBER: 110331089

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		1 - Harlequin Creek	1 - Harlequin Creek	2 - McNab Creek	2 - McNab Creek		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Mar 31/10	Mar 31/10	Mar 31/10	Mar 31/10		
MAXXAM ID:		1003310245	1003310245	1003310248	1003310248	REPORTING LIMIT	UNITS
Sulphur	S	<	<	<	<	5	mg/L
Tellurium	Te	<	<	<	<	0.001	mg/L
Thallium	Tl	<	<	<	<	0.0001	mg/L
Thorium	Th	<	<	<	<	0.00025	mg/L
Tin	Sn	<	<	<	<	0.0005	mg/L
Titanium	Ti	<	<	<	<	0.001	mg/L
Tungsten	W	<	<	<	<	0.0005	mg/L
Uranium	U	<	<	<	<	0.00025	mg/L
Vanadium	V	<	<	<	<	0.0005	mg/L
Zinc	Zn	<	<	<	<	0.005	mg/L
Zirconium	Zr	<	<	<	<	0.0005	mg/L

mg/L = milligrams per liter
 < = Less than reporting limit

µg/L = micrograms per liter

Analysis Report

REPORT ON: Analysis of Water Samples

REPORTED TO: Golder Associates Ltd.
500-4260 Still Creek Dr
Burnaby, BC
V5C 6C6

Att'n: Max Schuetz

CHAIN OF CUSTODY: 2187130
PROJECT NAME: McNab
PROJECT NUMBER: 0914160004/6000

NUMBER OF SAMPLES: 2

REPORT DATE: April 19, 2010 15:01:21

DATE SUBMITTED: March 31, 2010

GROUP NUMBER: 110331089

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Anions in Water by Ion Chromatography - was determined based on Method 4110 in Standard Methods (21st Edition) and EPA Method 300.0 (Revision 2.1).

Acidity in Water or Liquid - was determined based on Method 2310 in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Alkalinity in Water - was performed based on Method 2320 in Standard Methods (21st Edition).

Hardness in Water - was calculated based on Method 2340 B in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Nitrate and Nitrite in Water - was performed using Flow Injection Analysis where Nitrate is reduced to Nitrite by passing the sample through a cadmium reduction column. The nitrite produced is then determined by diazotizing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish azo dye which is then measured colorimetrically at 540 nm.

Ammonia in Water - was performed using Flow Injection Analysis where the aqueous sample is injected into a carrier stream, which merges a sodium hydroxide stream. Gaseous ammonia is formed, which diffuses through a gas permeable membrane into an indicator stream. This indicator stream is comprised of a mixture of acid-base

(Continued)

REPORTED TO: Golder Associates Ltd.

MAXXAM

REPORT DATE: April 19, 2010 15:01:21

GROUP NUMBER: 110331089

Ammonia in Water

indicators, which will react with the ammonia gas; resulting in a colour shift which is measured photometrically @ 590 nm.

Nitrite in Water - was determined based on Method 4500-NO₂ B in Standard Methods for the examination of Water and Wastewater (21st Edition) and from the BC Laboratory Methods Manual (2005).

pH in Water - was determined based on Method 4500-H in Standard Methods (21st Edition) and Method X330 in the BC Laboratory Manual (2005).

Total Dissolved Solids in Water - was determined based on Method 2540 C in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Total Kjeldahl Nitrogen in Water - was determined based on Method 4500-N in Standard Methods (21st Edition) and Method X325 in the BC Laboratory Manual (2005).

Total Phosphate in Water - was determined based on Method 4500-P in Standard Methods (21st Edition) and Method X185 in the BC Laboratory Manual (2005).

Total Suspended Solids in Water - was determined based on Method 2540 D in Standard Methods (21st Edition) and Method X332 in the BC Laboratory Manual (2005).

Turbidity in Water - was performed based on Method 2130 in Standard Methods (21st Edition) and Method X164 in the BC Laboratory Manual (2005 Edition).

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

(Continued)

REPORTED TO: Golder Associates Ltd.

MAXXAM

REPORT DATE: April 19, 2010 15:01:21

GROUP NUMBER: 110331089

Field Filtered Metals in Water - Samples were filtered in the field (e.g. at the time of sampling) and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS). NOTE: If Sulphur is included in this report, only non-acid volatile sulphur is reported.

TEST RESULTS:

(See following pages)

Your Project #: 0914160004/6006 MCNAB
Your C.O.C. #: 2188666

Attention: Max Schuetz
GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2010/06/04

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B032749
Received: 2010/05/13, 16:45

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3	2	N/A	2010/05/21	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/05/21	2010/05/21	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	2	N/A	2010/05/17	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/05/21	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/05/19	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	2	N/A	2010/05/26		
Hardness (calculated as CaCO3)	2	N/A	2010/05/25		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/05/25	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/05/23	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/05/14	2010/05/26	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/05/20	2010/05/25	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/05/20	2010/05/20	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	2	N/A	2010/05/20		
Nitrate + Nitrite (N)	2	N/A	2010/05/17		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/05/17	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	2	N/A	2010/05/18	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	2	N/A	2010/05/18	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/05/21	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/05/17	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/05/19	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	2	N/A	2010/05/22		
Total Phosphorus	2	N/A	2010/05/17	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids	2	N/A	2010/05/18	BRN SOP-00277 R5.0	Based on SM - 2540 D
Turbidity	2	N/A	2010/05/18	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Encryption Key

 Crystal Ireland
04 Jun 2010 15:08:06 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CRYSTAL IRELAND, Burnaby Customer Service
Email: Crystal.Ireland@MaxxamAnalytics.com
Phone# (604) 638-5016

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

-2-

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B032749
 Report Date: 2010/06/04

 GOLDER ASSOCIATES LTD
 Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		U12183		U12184		
Sampling Date		2010/05/13		2010/05/13		
	Units	HARLEQUIN CREEK	RDL	MCNAB CREEK	RDL	QC Batch
Misc. Inorganics						
Acidity (pH 4.5)	mg/L	<0.5	0.5	<0.5	0.5	3973132
Acidity (pH 8.3)	mg/L	1.4	0.5	1.1	0.5	3973132
Fluoride (F)	mg/L	0.05	0.01	0.03	0.01	3967074
ANIONS						
Nitrite (N)	mg/L	<0.005	0.005	<0.005	0.005	3962540
Calculated Parameters						
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	N/A	ONSITE
Nitrate (N)	mg/L	0.03	0.02	0.04	0.02	3957363
Misc. Inorganics						
Alkalinity (Total as CaCO3)	mg/L	6.8	0.5	2.2	0.5	3974279
Alkalinity (PP as CaCO3)	mg/L	<0.5	0.5	<0.5	0.5	3974279
Bicarbonate (HCO3)	mg/L	8.2	0.5	2.6	0.5	3974279
Carbonate (CO3)	mg/L	<0.5	0.5	<0.5	0.5	3974279
Hydroxide (OH)	mg/L	<0.5	0.5	<0.5	0.5	3974279
Anions						
Dissolved Sulphate (SO4)	mg/L	4.5	0.5	<0.5	0.5	3963730
Dissolved Chloride (Cl)	mg/L	<0.5	0.5	<0.5	0.5	3963723
Nutrients						
Ammonia (N)	mg/L	0.01 (1)	0.01	0.009	0.005	3972590
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.15	0.02	0.04	0.02	3957843
Nitrate plus Nitrite (N)	mg/L	0.03	0.02	0.04	0.02	3962475
Total Nitrogen (N)	mg/L	0.17	0.02	0.08	0.02	3972547
Total Phosphorus (P)	mg/L	0.007	0.005	<0.005	0.005	3959837
Physical Properties						
Conductivity	uS/cm	29	1	8	1	3974276
pH	pH Units	6.7		6.2		3974181
Physical Properties						
Total Suspended Solids	mg/L	<4	4	<4	4	3962551
Total Dissolved Solids	mg/L	14	10	<10	10	3961420
Turbidity	NTU	0.2	0.1	0.2	0.1	3964939

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		U12183	U12184		
Sampling Date		2010/05/13	2010/05/13		
	Units	HARLEQUIN CREEK	MCNAB CREEK	RDL	QC Batch
Misc. Inorganics					
Dissolved Hardness (CaCO3)	mg/L	7.8	2.0	0.5	3957276
Dissolved Metals by ICPMS					
Dissolved Aluminum (Al)	mg/L	0.009	0.086	0.003	3970142
Dissolved Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	3970142
Dissolved Arsenic (As)	mg/L	0.0002	0.0001	0.0001	3970142
Dissolved Barium (Ba)	mg/L	0.001	0.001	0.001	3970142
Dissolved Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	3970142
Dissolved Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Boron (B)	mg/L	<0.05	<0.05	0.05	3970142
Dissolved Cadmium (Cd)	mg/L	0.00012	<0.00001	0.00001	3970142
Dissolved Cesium (Cs)	mg/L	<0.0002	<0.0002	0.0002	3970142
Dissolved Chromium (Cr)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	3970142
Dissolved Copper (Cu)	mg/L	0.0002	0.0004	0.0002	3970142
Dissolved Iron (Fe)	mg/L	0.015	0.010	0.005	3970142
Dissolved Lanthanum (La)	mg/L	<0.0002	<0.0002	0.0002	3970142
Dissolved Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	3970142
Dissolved Lithium (Li)	mg/L	<0.005	<0.005	0.005	3970142
Dissolved Manganese (Mn)	mg/L	0.001	<0.001	0.001	3970142
Dissolved Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	3970142
Dissolved Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Nickel (Ni)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Phosphorus (P)	mg/L	<0.01	<0.01	0.01	3970142
Dissolved Rubidium (Rb)	mg/L	0.0003	0.0003	0.0002	3970142
Dissolved Selenium (Se)	mg/L	0.0001	<0.0001	0.0001	3970142
Dissolved Silicon (Si)	mg/L	5.5	1.1	0.1	3970142
Dissolved Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	3970142
Dissolved Strontium (Sr)	mg/L	0.028	0.003	0.001	3970142
Dissolved Tellurium (Te)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	3970142
Dissolved Thorium (Th)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Tin (Sn)	mg/L	<0.005	<0.005	0.005	3970142
Dissolved Titanium (Ti)	mg/L	<0.005	<0.005	0.005	3970142
Dissolved Tungsten (W)	mg/L	<0.001	<0.001	0.001	3970142
Dissolved Uranium (U)	mg/L	<0.0001	0.0002	0.0001	3970142
Dissolved Vanadium (V)	mg/L	<0.005	<0.005	0.005	3970142

RDL = Reportable Detection Limit

Maxxam Job #: B032749
 Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
 Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		U12183	U12184		
Sampling Date		2010/05/13	2010/05/13		
	Units	HARLEQUIN CREEK	MCNAB CREEK	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.011	<0.005	0.005	3970142
Dissolved Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	3970142
Dissolved Calcium (Ca)	mg/L	2.57	0.69	0.05	3957277
Dissolved Magnesium (Mg)	mg/L	0.33	0.08	0.05	3957277
Dissolved Potassium (K)	mg/L	0.18	0.10	0.05	3957277
Dissolved Sodium (Na)	mg/L	2.12	0.46	0.05	3957277
Dissolved Sulphur (S)	mg/L	<3	<3	3	3970142

RDL = Reportable Detection Limit

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		U12183	U12184		
Sampling Date		2010/05/13	2010/05/13		
	Units	HARLEQUIN CREEK	MCNAB CREEK	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	8.1	2.2	0.5	3957275
Total Metals by ICPMS					
Total Aluminum (Al)	mg/L	0.028	0.107	0.003	3970483
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	3970483
Total Arsenic (As)	mg/L	0.0002	0.0001	0.0001	3970483
Total Barium (Ba)	mg/L	0.001	0.002	0.001	3970483
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	3970483
Total Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	3970483
Total Boron (B)	mg/L	<0.05	<0.05	0.05	3970483
Total Cadmium (Cd)	mg/L	0.00012	0.00004	0.00001	3970483
Total Cesium (Cs)	mg/L	<0.0002	<0.0002	0.0002	3970483
Total Chromium (Cr)	mg/L	<0.001	<0.001	0.001	3970483
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	3970483
Total Copper (Cu)	mg/L	0.0004	0.0057	0.0002	3970483
Total Iron (Fe)	mg/L	0.045	0.030	0.005	3970483
Total Lanthanum (La)	mg/L	<0.0002	<0.0002	0.0002	3970483
Total Lead (Pb)	mg/L	<0.0002	0.0002	0.0002	3970483
Total Lithium (Li)	mg/L	<0.005	<0.005	0.005	3970483
Total Manganese (Mn)	mg/L	0.002	<0.001	0.001	3970483
Total Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	3970483
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	3970483
Total Nickel (Ni)	mg/L	<0.001	0.002	0.001	3970483
Total Phosphorus (P)	mg/L	<0.01	<0.01	0.01	3970483
Total Rubidium (Rb)	mg/L	0.0004	0.0002	0.0002	3970483
Total Selenium (Se)	mg/L	0.0001	<0.0001	0.0001	3970483
Total Silicon (Si)	mg/L	5.8	1.1	0.1	3970483
Total Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	3970483
Total Strontium (Sr)	mg/L	0.028	0.003	0.001	3970483
Total Tellurium (Te)	mg/L	<0.001	<0.001	0.001	3970483
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	3970483
Total Thorium (Th)	mg/L	<0.001	<0.001	0.001	3970483
Total Tin (Sn)	mg/L	<0.005	<0.005	0.005	3970483
Total Titanium (Ti)	mg/L	<0.005	<0.005	0.005	3970483
Total Tungsten (W)	mg/L	<0.001	<0.001	0.001	3970483
Total Uranium (U)	mg/L	<0.0001	0.0002	0.0001	3970483
Total Vanadium (V)	mg/L	<0.005	<0.005	0.005	3970483

RDL = Reportable Detection Limit

Maxxam Job #: B032749
 Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
 Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		U12183	U12184		
Sampling Date		2010/05/13	2010/05/13		
	Units	HARLEQUIN CREEK	MCNAB CREEK	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.012	0.010	0.005	3970483
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	3970483
Total Calcium (Ca)	mg/L	2.72	0.74	0.05	3957278
Total Magnesium (Mg)	mg/L	0.32	0.08	0.05	3957278
Total Potassium (K)	mg/L	0.21	0.12	0.05	3957278
Total Sodium (Na)	mg/L	2.10	0.47	0.05	3957278
Total Sulphur (S)	mg/L	<3	<3	3	3970483

RDL = Reportable Detection Limit

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

RESULTS OF CHEMICAL ANALYSES OF WATER Comments

Sample U12183-02 Turbidity: Sample was analyzed after holding time expired.

Sample U12184-02 Turbidity: Sample was analyzed after holding time expired.

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3959837	Total Phosphorus (P)	2010/05/17	99	80 - 120	98	80 - 120	<0.005	mg/L	NC	20
3961420	Total Dissolved Solids	2010/05/19	110	80 - 120	98	80 - 120	<10	mg/L	2.2	20
3962475	Nitrate plus Nitrite (N)	2010/05/17	99	80 - 120	103	80 - 120	<0.02	mg/L	NC	25
3962540	Nitrite (N)	2010/05/17	99	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
3962551	Total Suspended Solids	2010/05/18	108	80 - 120	101	80 - 120	<4	mg/L	NC	25
3963723	Dissolved Chloride (Cl)	2010/05/17	NC	80 - 120	101	80 - 120	<0.5	mg/L	1.5	20
3963730	Dissolved Sulphate (SO4)	2010/05/17	120	80 - 120	102	80 - 120	<0.5	mg/L	10.8	20
3964939	Turbidity	2010/05/18			101	80 - 120	<0.1	NTU	1.2	20
3967074	Fluoride (F)	2010/05/19	110	80 - 120	110	80 - 120	<0.01	mg/L	0	20
3970142	Dissolved Arsenic (As)	2010/05/23	104	80 - 120	100	80 - 120	<0.0001	mg/L	NC	20
3970142	Dissolved Beryllium (Be)	2010/05/23	113	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
3970142	Dissolved Cadmium (Cd)	2010/05/23	113	80 - 120	99	80 - 120	<0.00001	mg/L	NC	20
3970142	Dissolved Chromium (Cr)	2010/05/23	103	80 - 120	102	80 - 120	<0.001	mg/L	NC	20
3970142	Dissolved Cobalt (Co)	2010/05/23	104	80 - 120	101	80 - 120	<0.0005	mg/L	NC	20
3970142	Dissolved Copper (Cu)	2010/05/23	106	80 - 120	104	80 - 120	<0.0002	mg/L	NC	20
3970142	Dissolved Lead (Pb)	2010/05/23	108	80 - 120	103	80 - 120	<0.0002	mg/L	NC	20
3970142	Dissolved Lithium (Li)	2010/05/23	108	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
3970142	Dissolved Nickel (Ni)	2010/05/23	106	80 - 120	100	80 - 120	<0.001	mg/L	NC	20
3970142	Dissolved Selenium (Se)	2010/05/23	110	80 - 120	101	80 - 120	<0.0001	mg/L	NC	20
3970142	Dissolved Uranium (U)	2010/05/23	110	80 - 120	106	80 - 120	<0.0001	mg/L	NC	20
3970142	Dissolved Vanadium (V)	2010/05/23	103	80 - 120	100	80 - 120	<0.005	mg/L	NC	20
3970142	Dissolved Zinc (Zn)	2010/05/23	106	80 - 120	104	80 - 120	<0.005	mg/L	NC	20
3970142	Dissolved Aluminum (Al)	2010/05/23					<0.003	mg/L	0.7	20
3970142	Dissolved Antimony (Sb)	2010/05/23					<0.0005	mg/L	NC	20
3970142	Dissolved Barium (Ba)	2010/05/23					<0.001	mg/L	NC	20
3970142	Dissolved Bismuth (Bi)	2010/05/23					<0.001	mg/L	NC	20
3970142	Dissolved Boron (B)	2010/05/23					<0.05	mg/L	NC	20
3970142	Dissolved Cesium (Cs)	2010/05/23					<0.0002	mg/L		
3970142	Dissolved Iron (Fe)	2010/05/23					<0.005	mg/L	NC	20
3970142	Dissolved Lanthanum (La)	2010/05/23					<0.0002	mg/L		
3970142	Dissolved Manganese (Mn)	2010/05/23					<0.001	mg/L	NC	20
3970142	Dissolved Mercury (Hg)	2010/05/23					<0.00002	mg/L	NC	20
3970142	Dissolved Molybdenum (Mo)	2010/05/23					<0.001	mg/L	NC	20
3970142	Dissolved Phosphorus (P)	2010/05/23					<0.01	mg/L	NC	20
3970142	Dissolved Rubidium (Rb)	2010/05/23					<0.0002	mg/L		
3970142	Dissolved Silicon (Si)	2010/05/23					<0.1	mg/L	3.0	20
3970142	Dissolved Silver (Ag)	2010/05/23					<0.00002	mg/L	NC	20
3970142	Dissolved Strontium (Sr)	2010/05/23					<0.001	mg/L	NC	20
3970142	Dissolved Tellurium (Te)	2010/05/23					<0.001	mg/L		
3970142	Dissolved Thallium (Tl)	2010/05/23					<0.00005	mg/L	NC	20

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3970142	Dissolved Thorium (Th)	2010/05/23					<0.001	mg/L		
3970142	Dissolved Tin (Sn)	2010/05/23					<0.005	mg/L	NC	20
3970142	Dissolved Titanium (Ti)	2010/05/23					<0.005	mg/L	NC	20
3970142	Dissolved Tungsten (W)	2010/05/23					<0.001	mg/L		
3970142	Dissolved Zirconium (Zr)	2010/05/23					<0.0005	mg/L	NC	20
3970142	Dissolved Sulphur (S)	2010/05/23					<3	mg/L		
3970483	Total Arsenic (As)	2010/05/25	102	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
3970483	Total Beryllium (Be)	2010/05/25	103	80 - 120	106	80 - 120	<0.0001	mg/L	NC	20
3970483	Total Cadmium (Cd)	2010/05/25	106	80 - 120	112	80 - 120	<0.00001	mg/L	13.3	20
3970483	Total Chromium (Cr)	2010/05/25	97	80 - 120	102	80 - 120	<0.001	mg/L	NC	20
3970483	Total Cobalt (Co)	2010/05/25	98	80 - 120	103	80 - 120	<0.0005	mg/L	NC	20
3970483	Total Copper (Cu)	2010/05/25	98	80 - 120	103	80 - 120	<0.0002	mg/L	NC	20
3970483	Total Lead (Pb)	2010/05/25	104	80 - 120	106	80 - 120	<0.0002	mg/L	NC	20
3970483	Total Lithium (Li)	2010/05/25	105	80 - 120	104	80 - 120	<0.005	mg/L	NC	20
3970483	Total Nickel (Ni)	2010/05/25	1470 ₍₁₎	80 - 120	99	80 - 120	<0.001	mg/L	NC	20
3970483	Total Selenium (Se)	2010/05/25	99	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
3970483	Total Uranium (U)	2010/05/25	101	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
3970483	Total Vanadium (V)	2010/05/25	100	80 - 120	98	80 - 120	<0.005	mg/L	NC	20
3970483	Total Zinc (Zn)	2010/05/25	NC	80 - 120	113	80 - 120	<0.005	mg/L	NC	20
3970483	Total Aluminum (Al)	2010/05/25					<0.003	mg/L	3.0	20
3970483	Total Antimony (Sb)	2010/05/25					<0.0005	mg/L	NC	20
3970483	Total Barium (Ba)	2010/05/25					<0.001	mg/L	NC	20
3970483	Total Bismuth (Bi)	2010/05/25					<0.001	mg/L	NC	20
3970483	Total Boron (B)	2010/05/25					<0.05	mg/L	NC	20
3970483	Total Cesium (Cs)	2010/05/25					<0.0002	mg/L		
3970483	Total Iron (Fe)	2010/05/25					<0.005	mg/L	2.0	20
3970483	Total Lanthanum (La)	2010/05/25					<0.0002	mg/L		
3970483	Total Manganese (Mn)	2010/05/25					<0.001	mg/L	NC	20
3970483	Total Mercury (Hg)	2010/05/25					<0.00002	mg/L	NC	20
3970483	Total Molybdenum (Mo)	2010/05/25					<0.001	mg/L	NC	20
3970483	Total Phosphorus (P)	2010/05/25					<0.01	mg/L		
3970483	Total Rubidium (Rb)	2010/05/25					<0.0002	mg/L		
3970483	Total Silicon (Si)	2010/05/25					<0.1	mg/L	4.8	20
3970483	Total Silver (Ag)	2010/05/25					<0.00002	mg/L	NC	20
3970483	Total Strontium (Sr)	2010/05/25					<0.001	mg/L	4.2	20
3970483	Total Tellurium (Te)	2010/05/25					<0.001	mg/L		
3970483	Total Thallium (Tl)	2010/05/25					<0.00005	mg/L	NC	20
3970483	Total Thorium (Th)	2010/05/25					<0.001	mg/L		
3970483	Total Tin (Sn)	2010/05/25					<0.005	mg/L	NC	20
3970483	Total Titanium (Ti)	2010/05/25					<0.005	mg/L	NC	20

Maxxam Job #: B032749
Report Date: 2010/06/04

GOLDER ASSOCIATES LTD
Client Project #: 0914160004/6006 MCNAB

Sampler Initials: PM

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3970483	Total Tungsten (W)	2010/05/25					<0.001	mg/L		
3970483	Total Zirconium (Zr)	2010/05/25					<0.0005	mg/L	NC	20
3970483	Total Sulphur (S)	2010/05/25					<3	mg/L		
3972547	Total Nitrogen (N)	2010/05/20	NC	80 - 120	94	80 - 120	<0.02	mg/L		
3972590	Ammonia (N)	2010/05/20	NC	80 - 120	96	80 - 120	<0.005	mg/L	0.5	20
3973132	Acidity (pH 8.3)	2010/05/21			100	80 - 120	0.9, RDL=0.5	mg/L	NC	20
3973132	Acidity (pH 4.5)	2010/05/21					<0.5	mg/L	NC	20
3974276	Conductivity	2010/05/21			98	80 - 120	<1	uS/cm	0.6	20
3974279	Alkalinity (Total as CaCO ₃)	2010/05/21	NC	80 - 120	94	80 - 120	<0.5	mg/L	1.0	20
3974279	Alkalinity (PP as CaCO ₃)	2010/05/21					<0.5	mg/L	NC	20
3974279	Bicarbonate (HCO ₃)	2010/05/21					<0.5	mg/L	1.0	20
3974279	Carbonate (CO ₃)	2010/05/21					<0.5	mg/L	NC	20
3974279	Hydroxide (OH)	2010/05/21					<0.5	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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

CHAIN OF CUSTODY RECORD



4606 Canada Way
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V5G 1K5

Tel: 604.734.7276
Fax: 604.731.2386
Toll Free: 800.665.8566

www.cantest.com

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2188666

Client Name: Golden Postal Code: _____
 Street Address (Including suite number): 500-4260 Still Cr. Dr. City: _____
 Telephone: 604 290 8891 Fax: - E-Mail Address (Required for Electronic Reporting): mschuetz@golden.com
 Contact Name: Max Schuetz Sampler's Name: Paul McEllyott
 Quotation Number: _____ Project Number: 0914160004/0005 Project Name: McNab P.O. Number: _____

Page 1 of 1
RESULTS REQUESTED BY:

 Day Month Year
 (Surcharges May Apply)

Special Instructions: AutoFax AutoEmail
 Return Cooler Ship Sample Bottles (please specify)

Sample(s) are from a Drinking Water source servicing multiple households Yes

Group Number	Sample Identification	Date/Time Sampled (DDMM & 24hr clock)	Sample Type	Total Metals*	Dissolved Metals (Not Filtered)	Field Filtered Metals*	Soil Metals*	pH/Hardness	Conductivity	TSS/Turbidity	TDS	Alkalinity (total / spec.)	BOD	COD	Coliform, Total & E.coli	Coliform, Fecal	F Cl SO ₂ NO ₃	Nitrite/Nitrate	Oil & Grease (Total / Mineral)	Oil & Grease (Special Waste)	PCP (Tri, Tetra and Penta)	PCP (Mono and Di)	BETXVPH	VOC	EPH (not PAH corrected)	PAH	LEPH/HEPH (PAH corrected)	PCB	Asbestos	TKN/Ammonia	Acidity	Chloride/Fluoride	Sulphate	Phosphorus/Phosphate	HOLD - DO NOT ANALYZE	Number of Containers
				LAB	Harlequin Creek	05/13/10	Water																													
McNab Creek																																				7
USE ONLY																																				

Relinquished by: _____ Date: _____ Time: _____ Received by: _____
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____
 Method of Shipment: _____ Waybill No.: _____ Received for Lab by: _____ Date: _____ Time: _____
 Shipped by: _____ Shipment Condition: _____ Cooler opened by: MND Date: May 13/10 Time: 16:45

Total Number of Containers: _____

FOR LABORATORY USE ONLY
 Sample Status at Receipt: Ambient Cold Frozen N/A
 Temperature: _____ °C
 Container Seal Intact? Yes No N/A
 Comments: _____
 Page 1 of 1
 Number of Containers: _____

***Please indicate appropriate regulatory guidelines:**

WATER	SOIL
<input type="checkbox"/> CCME	<input type="checkbox"/> CCME
<input type="checkbox"/> BC-CSR	<input type="checkbox"/> BC-CSR
<input type="checkbox"/> Other (please specify)	<input type="checkbox"/> Other (please specify)

Your C.O.C. #: 9099701, 90997-01

Attention: Max Schuetz
GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2010/07/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B045396
Received: 2010/06/16, 07:09

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3	2	N/A	2010/06/18	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/06/21	2010/06/21	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	2	N/A	2010/06/16	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/06/21	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/06/22	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	2	N/A	2010/06/24		
Hardness (calculated as CaCO3)	2	N/A	2010/06/22		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/06/22	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/06/21	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/06/16	2010/06/24	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/06/22	2010/06/23	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/06/17	2010/06/17	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	2	N/A	2010/06/21		
Nitrate + Nitrite (N)	2	N/A	2010/06/16		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/06/16	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	2	N/A	2010/06/16	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	2	N/A	2010/06/19	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/06/21	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/06/16	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/06/21	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	2	N/A	2010/06/18		
Total Phosphorus	2	N/A	2010/06/17	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids-LowLevel	2	N/A	2010/06/18	BRN SOP-00277 R5.0	Based on SM-2540 D
Turbidity	2	N/A	2010/06/16	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Encryption Key

 Crystal Ireland
07 Jul 2010 15:07:37 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CRYSTAL IRELAND, Burnaby Customer Service
Email: Crystal.Ireland@MaxxamAnalytics.com
Phone# (604) 638-5016

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section

Maxxam Job #: B045396
Report Date: 2010/07/07

-2-

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B045396

Report Date: 2010/07/07

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		U80791	U80792		
Sampling Date		2010/06/15	2010/06/15		
	Units	MCNAB CR	HARLEQUIN CR	RDL	QC Batch
Misc. Inorganics					
Acidity (pH 4.5)	mg/L	<0.5	<0.5	0.5	4040500
Acidity (pH 8.3)	mg/L	<0.5	<0.5	0.5	4040500
Fluoride (F)	mg/L	0.01	0.01	0.01	4049381
ANIONS					
Nitrite (N)	mg/L	<0.005	<0.005	0.005	4035440
Calculated Parameters					
Filter and HNO3 Preservation	N/A	LAB	LAB	N/A	ONSITE
Nitrate (N)	mg/L	0.02	0.12	0.02	4033244
Misc. Inorganics					
Alkalinity (Total as CaCO3)	mg/L	2.2	3.5	0.5	4046943
Alkalinity (PP as CaCO3)	mg/L	<0.5	<0.5	0.5	4046943
Bicarbonate (HCO3)	mg/L	2.7	4.2	0.5	4046943
Carbonate (CO3)	mg/L	<0.5	<0.5	0.5	4046943
Hydroxide (OH)	mg/L	<0.5	<0.5	0.5	4046943
Anions					
Dissolved Sulphate (SO4)	mg/L	7.6	3.5	0.5	4036285
Dissolved Chloride (Cl)	mg/L	2.9	1.1	0.5	4036273
Nutrients					
Ammonia (N)	mg/L	0.054	0.098	0.005	4045195
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.05	<0.02	0.02	4033246
Nitrate plus Nitrite (N)	mg/L	0.02	0.12	0.02	4035329
Total Nitrogen (N)	mg/L	0.07	0.13	0.02	4037995
Total Phosphorus (P)	mg/L	<0.005	<0.005	0.005	4036429
Physical Properties					
Conductivity	uS/cm	7	12	1	4046936
pH	pH Units	6.16	6.50		4046915
Physical Properties					
Total Suspended Solids	mg/L	<1	<1	1	4039724
Total Dissolved Solids	mg/L	<10	22	10	4042027
Turbidity	NTU	0.2	0.3	0.1	4034508

N/A = Not Applicable

RDL = Reportable Detection Limit

Maxxam Job #: B045396

Report Date: 2010/07/07

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		U80791	U80792		
Sampling Date		2010/06/15	2010/06/15		
	Units	MCNAB CR	HARLEQUIN CR	RDL	QC Batch
Misc. Inorganics					
Dissolved Hardness (CaCO ₃)	mg/L	1.7	2.6	0.5	4033240
Dissolved Metals by ICPMS					
Dissolved Aluminum (Al)	mg/L	0.068	0.037	0.003	4042828
Dissolved Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4042828
Dissolved Arsenic (As)	mg/L	0.0001	<0.0001	0.0001	4042828
Dissolved Barium (Ba)	mg/L	0.001	0.003	0.001	4042828
Dissolved Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4042828
Dissolved Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Boron (B)	mg/L	<0.05	<0.05	0.05	4042828
Dissolved Cadmium (Cd)	mg/L	0.00001	0.00004	0.00001	4042828
Dissolved Cesium (Cs)	mg/L	<0.0002	<0.0002	0.0002	4042828
Dissolved Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4042828
Dissolved Copper (Cu)	mg/L	0.0004	0.0004	0.0002	4042828
Dissolved Iron (Fe)	mg/L	0.010	0.029	0.005	4042828
Dissolved Lanthanum (La)	mg/L	<0.0002	<0.0002	0.0002	4042828
Dissolved Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4042828
Dissolved Lithium (Li)	mg/L	<0.005	<0.005	0.005	4042828
Dissolved Manganese (Mn)	mg/L	<0.001	0.003	0.001	4042828
Dissolved Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4042828
Dissolved Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Phosphorus (P)	mg/L	<0.01	<0.01	0.01	4042828
Dissolved Rubidium (Rb)	mg/L	0.0002	<0.0002	0.0002	4042828
Dissolved Selenium (Se)	mg/L	<0.0001	<0.0001	0.0001	4042828
Dissolved Silicon (Si)	mg/L	0.9	2.6	0.1	4042828
Dissolved Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4042828
Dissolved Strontium (Sr)	mg/L	0.002	0.010	0.001	4042828
Dissolved Tellurium (Te)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4042828
Dissolved Thorium (Th)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Tin (Sn)	mg/L	<0.005	<0.005	0.005	4042828
Dissolved Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4042828
Dissolved Tungsten (W)	mg/L	<0.001	<0.001	0.001	4042828
Dissolved Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4042828
Dissolved Vanadium (V)	mg/L	<0.005	<0.005	0.005	4042828

RDL = Reportable Detection Limit

Maxxam Job #: B045396
 Report Date: 2010/07/07

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		U80791	U80792		
Sampling Date		2010/06/15	2010/06/15		
	Units	MCNAB CR	HARLEQUIN CR	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.005	0.005	0.005	4042828
Dissolved Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4042828
Dissolved Calcium (Ca)	mg/L	0.56	0.81	0.05	4033242
Dissolved Magnesium (Mg)	mg/L	0.07	0.15	0.05	4033242
Dissolved Potassium (K)	mg/L	0.08	0.05	0.05	4033242
Dissolved Sodium (Na)	mg/L	0.37	0.92	0.05	4033242
Dissolved Sulphur (S)	mg/L	<3	<3	3	4033242

RDL = Reportable Detection Limit

Maxxam Job #: B045396

Report Date: 2010/07/07

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		U80791	U80792		
Sampling Date		2010/06/15	2010/06/15		
	Units	MCNAB CR	HARLEQUIN CR	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	2.0	3.1	0.5	4033239
Total Metals by ICPMS					
Total Aluminum (Al)	mg/L	0.086	0.057	0.003	4047873
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4047873
Total Arsenic (As)	mg/L	0.0001	<0.0001	0.0001	4047873
Total Barium (Ba)	mg/L	0.001	0.003	0.001	4047873
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4047873
Total Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4047873
Total Boron (B)	mg/L	<0.05	<0.05	0.05	4047873
Total Cadmium (Cd)	mg/L	0.00001	0.00004	0.00001	4047873
Total Cesium (Cs)	mg/L	<0.0002	<0.0002	0.0002	4047873
Total Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4047873
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4047873
Total Copper (Cu)	mg/L	0.0006	0.0003	0.0002	4047873
Total Iron (Fe)	mg/L	0.015	0.081	0.005	4047873
Total Lanthanum (La)	mg/L	<0.0002	<0.0002	0.0002	4047873
Total Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4047873
Total Lithium (Li)	mg/L	<0.005	<0.005	0.005	4047873
Total Manganese (Mn)	mg/L	<0.001	0.003	0.001	4047873
Total Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4047873
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4047873
Total Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4047873
Total Phosphorus (P)	mg/L	<0.01	<0.01	0.01	4047873
Total Rubidium (Rb)	mg/L	<0.0002	<0.0002	0.0002	4047873
Total Selenium (Se)	mg/L	<0.0001	<0.0001	0.0001	4047873
Total Silicon (Si)	mg/L	1.0	3.1	0.1	4047873
Total Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4047873
Total Strontium (Sr)	mg/L	0.002	0.010	0.001	4047873
Total Tellurium (Te)	mg/L	<0.001	<0.001	0.001	4047873
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4047873
Total Thorium (Th)	mg/L	<0.001	<0.001	0.001	4047873
Total Tin (Sn)	mg/L	<0.005	<0.005	0.005	4047873
Total Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4047873
Total Tungsten (W)	mg/L	<0.001	<0.001	0.001	4047873
Total Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4047873
Total Vanadium (V)	mg/L	<0.005	<0.005	0.005	4047873

RDL = Reportable Detection Limit

Maxxam Job #: B045396
 Report Date: 2010/07/07

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		U80791	U80792		
Sampling Date		2010/06/15	2010/06/15		
	Units	MCNAB CR	HARLEQUIN CR	RDL	QC Batch
Total Zinc (Zn)	mg/L	<0.005	<0.005	0.005	4047873
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4047873
Total Calcium (Ca)	mg/L	0.65	0.97	0.05	4033243
Total Magnesium (Mg)	mg/L	0.08	0.17	0.05	4033243
Total Potassium (K)	mg/L	0.11	0.07	0.05	4033243
Total Sodium (Na)	mg/L	0.42	1.00	0.05	4033243
Total Sulphur (S)	mg/L	<3	<3	3	4033243

RDL = Reportable Detection Limit

Maxxam Job #: B045396

Report Date: 2010/07/07

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4034508	Turbidity	2010/06/16			102	80 - 120	<0.1	NTU	NC	20
4035329	Nitrate plus Nitrite (N)	2010/06/16	97	80 - 120	105	80 - 120	<0.02	mg/L	1.8	25
4035440	Nitrite (N)	2010/06/16	98	80 - 120	107	80 - 120	<0.005	mg/L	NC	20
4036273	Dissolved Chloride (Cl)	2010/06/16	NC	80 - 120	98	80 - 120	<0.5	mg/L	0.5	20
4036285	Dissolved Sulphate (SO4)	2010/06/16	NC	80 - 120	104	80 - 120	<0.5	mg/L	NC	20
4036429	Total Phosphorus (P)	2010/06/17	104	80 - 120	92	80 - 120	<0.005	mg/L	NC	20
4037995	Total Nitrogen (N)	2010/06/17			90	80 - 120	<0.02	mg/L	NC	20
4039724	Total Suspended Solids	2010/06/18			99	80 - 120	<1	mg/L		
4040500	Acidity (pH 8.3)	2010/06/18			106	80 - 120	<0.5	mg/L	3.2	20
4040500	Acidity (pH 4.5)	2010/06/18					<0.5	mg/L	NC	20
4042027	Total Dissolved Solids	2010/06/21	NC	80 - 120	98	80 - 120	<10	mg/L	1.7	20
4042828	Dissolved Arsenic (As)	2010/06/21	96	80 - 120	97	80 - 120	<0.0001	mg/L	NC	20
4042828	Dissolved Beryllium (Be)	2010/06/21	103	80 - 120	99	80 - 120	<0.0001	mg/L	NC	20
4042828	Dissolved Cadmium (Cd)	2010/06/21	104	80 - 120	97	80 - 120	<0.00001	mg/L	NC	20
4042828	Dissolved Chromium (Cr)	2010/06/21	94	80 - 120	94	80 - 120	<0.001	mg/L	NC	20
4042828	Dissolved Cobalt (Co)	2010/06/21	94	80 - 120	95	80 - 120	<0.0005	mg/L	NC	20
4042828	Dissolved Copper (Cu)	2010/06/21	95	80 - 120	98	80 - 120	<0.0002	mg/L	NC	20
4042828	Dissolved Lead (Pb)	2010/06/21	99	80 - 120	100	80 - 120	<0.0002	mg/L	NC	20
4042828	Dissolved Lithium (Li)	2010/06/21	99	80 - 120	99	80 - 120	<0.005	mg/L	NC	20
4042828	Dissolved Nickel (Ni)	2010/06/21	94	80 - 120	96	80 - 120	<0.001	mg/L	NC	20
4042828	Dissolved Selenium (Se)	2010/06/21	100	80 - 120	104	80 - 120	<0.0001	mg/L	NC	20
4042828	Dissolved Uranium (U)	2010/06/21	99	80 - 120	101	80 - 120	<0.0001	mg/L	NC	20
4042828	Dissolved Vanadium (V)	2010/06/21	94	80 - 120	92	80 - 120	<0.005	mg/L	NC	20
4042828	Dissolved Zinc (Zn)	2010/06/21	110	80 - 120	96	80 - 120	<0.005	mg/L	NC	20
4042828	Dissolved Aluminum (Al)	2010/06/21					<0.003	mg/L	0.7	20
4042828	Dissolved Antimony (Sb)	2010/06/21					<0.0005	mg/L	NC	20
4042828	Dissolved Barium (Ba)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Bismuth (Bi)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Boron (B)	2010/06/21					<0.05	mg/L	NC	20
4042828	Dissolved Cesium (Cs)	2010/06/21					<0.0002	mg/L	NC	20
4042828	Dissolved Iron (Fe)	2010/06/21					<0.005	mg/L	NC	20
4042828	Dissolved Lanthanum (La)	2010/06/21					<0.0002	mg/L	NC	20
4042828	Dissolved Manganese (Mn)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Mercury (Hg)	2010/06/21					0.00002, RDL=0.00002	mg/L	NC	20
4042828	Dissolved Molybdenum (Mo)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Phosphorus (P)	2010/06/21					<0.01	mg/L	NC	20
4042828	Dissolved Rubidium (Rb)	2010/06/21					<0.0002	mg/L	NC	20
4042828	Dissolved Silicon (Si)	2010/06/21					<0.1	mg/L	10.4	20
4042828	Dissolved Silver (Ag)	2010/06/21					<0.00002	mg/L	NC	20
4042828	Dissolved Strontium (Sr)	2010/06/21					<0.001	mg/L	NC	20

Maxxam Job #: B045396

Report Date: 2010/07/07

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4042828	Dissolved Tellurium (Te)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Thallium (Tl)	2010/06/21					<0.00005	mg/L	NC	20
4042828	Dissolved Thorium (Th)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Tin (Sn)	2010/06/21					<0.005	mg/L	NC	20
4042828	Dissolved Titanium (Ti)	2010/06/21					<0.005	mg/L	NC	20
4042828	Dissolved Tungsten (W)	2010/06/21					<0.001	mg/L	NC	20
4042828	Dissolved Zirconium (Zr)	2010/06/21					<0.0005	mg/L	NC	20
4045195	Ammonia (N)	2010/06/21	NC	80 - 120	97	80 - 120	<0.005	mg/L	2.1	20
4046936	Conductivity	2010/06/21			100	80 - 120	<1	uS/cm	0.4	20
4046943	Alkalinity (Total as CaCO3)	2010/06/21			95	80 - 120	<0.5	mg/L	0.6	20
4046943	Alkalinity (PP as CaCO3)	2010/06/21					<0.5	mg/L		
4046943	Bicarbonate (HCO3)	2010/06/21					<0.5	mg/L		
4046943	Carbonate (CO3)	2010/06/21					<0.5	mg/L		
4046943	Hydroxide (OH)	2010/06/21					<0.5	mg/L		
4047873	Total Arsenic (As)	2010/06/24	102	80 - 120	97	80 - 120	0.0001, RDL=0.0001	mg/L	7.0	20
4047873	Total Beryllium (Be)	2010/06/24	97	80 - 120	109	80 - 120	<0.0001	mg/L	NC	20
4047873	Total Cadmium (Cd)	2010/06/24	103	80 - 120	113	80 - 120	<0.00001	mg/L	NC	20
4047873	Total Chromium (Cr)	2010/06/24	99	80 - 120	84	80 - 120	<0.001	mg/L	NC	20
4047873	Total Cobalt (Co)	2010/06/24	99	80 - 120	95	80 - 120	<0.0005	mg/L	NC	20
4047873	Total Copper (Cu)	2010/06/24	99	80 - 120	107	80 - 120	<0.0002	mg/L	NC	20
4047873	Total Lead (Pb)	2010/06/24	98	80 - 120	101	80 - 120	<0.0002	mg/L	NC	20
4047873	Total Lithium (Li)	2010/06/24	NC	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
4047873	Total Nickel (Ni)	2010/06/24	94	80 - 120	97	80 - 120	<0.001	mg/L	NC	20
4047873	Total Selenium (Se)	2010/06/24	104	80 - 120	95	80 - 120	<0.0001	mg/L	NC	20
4047873	Total Uranium (U)	2010/06/24	99	80 - 120	89	80 - 120	<0.0001	mg/L	NC	20
4047873	Total Vanadium (V)	2010/06/24	103	80 - 120	92	80 - 120	<0.005	mg/L	NC	20
4047873	Total Zinc (Zn)	2010/06/24	108	80 - 120	127 ⁽¹⁾	80 - 120	<0.005	mg/L	NC	20
4047873	Total Aluminum (Al)	2010/06/24					<0.003	mg/L	17.4	20
4047873	Total Antimony (Sb)	2010/06/24					<0.0005	mg/L	NC	20
4047873	Total Barium (Ba)	2010/06/24					<0.001	mg/L	5.0	20
4047873	Total Bismuth (Bi)	2010/06/24					<0.001	mg/L	NC	20
4047873	Total Boron (B)	2010/06/24					<0.05	mg/L	NC	20
4047873	Total Cesium (Cs)	2010/06/23					<0.0002	mg/L		
4047873	Total Iron (Fe)	2010/06/24					<0.005	mg/L	10.5	20
4047873	Total Lanthanum (La)	2010/06/23					<0.0002	mg/L		
4047873	Total Manganese (Mn)	2010/06/24					0.001, RDL=0.001	mg/L	2.3	20
4047873	Total Mercury (Hg)	2010/06/23					0.00004, RDL=0.00002	mg/L		
4047873	Total Molybdenum (Mo)	2010/06/24					<0.001	mg/L	NC	20
4047873	Total Phosphorus (P)	2010/06/23					<0.01	mg/L		
4047873	Total Rubidium (Rb)	2010/06/23					<0.0002	mg/L		

Maxxam Job #: B045396

Report Date: 2010/07/07

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4047873	Total Silicon (Si)	2010/06/24					<0.1	mg/L	12.1	20
4047873	Total Silver (Ag)	2010/06/24					<0.00002	mg/L	NC	20
4047873	Total Strontium (Sr)	2010/06/24					<0.001	mg/L	3.2	20
4047873	Total Tellurium (Te)	2010/06/23					<0.001	mg/L		
4047873	Total Thallium (Tl)	2010/06/24					<0.00005	mg/L	NC	20
4047873	Total Thorium (Th)	2010/06/23					<0.001	mg/L		
4047873	Total Tin (Sn)	2010/06/24					<0.005	mg/L	NC	20
4047873	Total Titanium (Ti)	2010/06/24					<0.005	mg/L	NC	20
4047873	Total Tungsten (W)	2010/06/23					<0.001	mg/L		
4047873	Total Zirconium (Zr)	2010/06/24					<0.0005	mg/L	NC	20
4049381	Fluoride (F)	2010/06/22	103	80 - 120	102	80 - 120	<0.01	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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



INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):			PROJECT INFORMATION:			Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Company Name:	Quotation #:	MAXXAM JOB #:		BOTTLE ORDER #:		90997		
Contact Name: Max Schuetz	Contact Name:	P.O. #:	8045396		CHAIN OF CUSTODY #:		PROJECT MANAGER:		
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Address:	Project #:	C#90997-01-01		CRYSTAL IRELAND				
Phone: (604)296-4200 Fax: (604)298-5253	Phone:	Project Name:							
Email: mschuetz@golder.com	Email:	Site #:							
		Sampled By:							

REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS:	ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:			
		Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Anions in Water by Ion Chromatography	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. <input type="checkbox"/>	
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM		Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ <input type="checkbox"/> Rush Confirmation Number: _____ (call lab for #)													

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Anions in Water by Ion Chromatography	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	# of Bottles	Comments
1	McNab Cr.	June 15/10		Water	N													Report in mg/L as discussed
2	Harlequin Cr.	June 15/10		Water	N													"
3																		H = Harlequin Creek on Sample Bottles
4																		Not Preserved or Filtered
5																		
6																		
7																		
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and	Laboratory Use Only		
	10/06/10	6:30				Not Submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	10/06/10	6:30	CWS				<input type="checkbox"/>	JFS	<input type="checkbox"/> Yes <input type="checkbox"/> No

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Company Name:	Company Name:	Quotation #:	MAXXAM JOB #: 8045396		BOTTLE ORDER #:	
Contact Name: Max Schuetz	Contact Name:	Contact Name:	P.O. #:	90997		PROJECT MANAGER:	
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Address:	Address:	Project #:	CHAIN OF CUSTODY #:		CRYSTAL IRELAND	
Phone: (604)296-4200 Fax: (604)298-5253	Phone:	Phone:	Project Name:	C#90997-01-02			
Email: mschuetz@golder.com	Email:	Email:	Site #:				
			Sampled By:				

REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS	ANALYSIS REQUESTED (Please be specific):						TURNAROUND TIME (TAT) REQUIRED:	
		Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity	PLEASE PROVIDE ADVANCED NOTICE FOR RUSH PROJECTS
									Regular (Standard) TAT: (will be applied if Rush TAT is not specified): <input type="checkbox"/> Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
									Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ <input type="checkbox"/>
									Rush Confirmation Number: _____ (call lab for #)

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

SAMPLES MUST BE KEPT COOL FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity	# of Bottles	Comments
1	McNab Cr.	June 15/15		Water	N	N	_____						Report in mg/L as discussed H = Horlequin Creek on Sample Bottles Not Preserved or Filtered
2	Horlequin Cr.	June 15/15		Water	N	N	_____						
3													
4													
5													
6													
7													
8													
9													
10													

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only		
<i>[Signature]</i>	10/06/15	630	<i>[Signature]</i>	10/06/15	630		Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: JS-	Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No

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

White: Maxxam Yellow: Client

11/1

Your C.O.C. #: 9099801, 90998-01

Attention: Max Schuetz
GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2010/07/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B056929
Received: 2010/07/13, 18:24


Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3	2	N/A	2010/07/15	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/07/16	2010/07/17	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	1	N/A	2010/07/16	BRN-SOP 00234 R3.0	Based on EPA 325.2
Chloride by Automated Colourimetry	1	N/A	2010/07/22	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/07/17	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/07/20	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO ₃)	2	N/A	2010/07/20		
Hardness (calculated as CaCO ₃)	2	N/A	2010/07/20		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/07/20	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/07/19	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/07/14	2010/07/20	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/07/19	2010/07/20	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/07/14	2010/07/15	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	2	N/A	2010/07/19	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	2	N/A	2010/07/15		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/07/14	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	2	N/A	2010/07/16	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO ₃ Preserve for Metals	2	N/A	2010/07/19	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/07/17	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/07/16	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/07/17	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	2	N/A	2010/07/16		
Total Phosphorus	2	N/A	2010/07/15	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids-LowLevel	1	N/A	2010/07/15	BRN SOP-00277 R5.0	Based on SM-2540 D
Total Suspended Solids-LowLevel	1	N/A	2010/07/16	BRN SOP-00277 R5.0	Based on SM-2540 D
Turbidity	2	N/A	2010/07/15	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Maxxam Job #: B056929
Report Date: 2010/07/23

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Encryption Key  VJ Oco
23 Jul 2010 16:27:05 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

VJ OCO, Burnaby Customer Service
Email: VJ.Oco@MaxxamAnalytics.com
Phone# (604) 639-8422

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B056929

Report Date: 2010/07/23

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		V41736		V41737		
Sampling Date		2010/07/13 12:55		2010/07/13 13:33		
	Units	MCNAB	QC Batch	HARLEQUIN	RDL	QC Batch
Misc. Inorganics						
Acidity (pH 4.5)	mg/L	<0.5	4104196	<0.5	0.5	4104196
Acidity (pH 8.3)	mg/L	<0.5	4104196	0.6	0.5	4104196
Fluoride (F)	mg/L	0.01	4117262	0.03	0.01	4117262
ANIONS						
Nitrite (N)	mg/L	<0.005	4103423	<0.005	0.005	4103423
Calculated Parameters						
Filter and HNO3 Preservation	N/A	LAB	4112408	LAB	N/A	4112408
Misc. Inorganics						
Alkalinity (Total as CaCO3)	mg/L	3.3	4110088	9.9	0.5	4110088
Alkalinity (PP as CaCO3)	mg/L	<0.5	4110088	<0.5	0.5	4110088
Bicarbonate (HCO3)	mg/L	4.1	4110088	12	0.5	4110088
Carbonate (CO3)	mg/L	<0.5	4110088	<0.5	0.5	4110088
Hydroxide (OH)	mg/L	<0.5	4110088	<0.5	0.5	4110088
Anions						
Dissolved Sulphate (SO4)	mg/L	<0.5	4110456	4.6	0.5	4110456
Dissolved Chloride (Cl)	mg/L	<0.5	4124793	<0.5	0.5	4110451
Nutrients						
Ammonia (N)	mg/L	0.025	4111979	0.033	0.005	4111979
Total Phosphorus (P)	mg/L	<0.005	4103964	<0.005	0.005	4103964
Physical Properties						
Conductivity	uS/cm	7	4110167	31	1	4110167
pH	pH Units	6.62	4109788	7.19		4109788
Physical Properties						
Total Suspended Solids	mg/L	<1	4103630	1	1	4106468
Total Dissolved Solids	mg/L	<10	4106480	20	10	4106480
Turbidity	NTU	0.2	4105260	0.3	0.1	4105260

N/A = Not Applicable

RDL = Reportable Detection Limit

Maxxam Job #: B056929

Report Date: 2010/07/23

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		V41736		V41737		
Sampling Date		2010/07/13 12:55		2010/07/13 13:33		
	Units	MCNAB	QC Batch	HARLEQUIN	RDL	QC Batch
Misc. Inorganics						
Dissolved Hardness (CaCO3)	mg/L	1.8	4100852	8.2	0.5	4100852
Dissolved Metals by ICPMS						
Dissolved Aluminum (Al)	mg/L	0.058	4111413	0.010	0.003	4111413
Dissolved Antimony (Sb)	mg/L	<0.0005	4111413	<0.0005	0.0005	4111413
Dissolved Arsenic (As)	mg/L	0.0001	4111413	0.0003	0.0001	4111413
Dissolved Barium (Ba)	mg/L	0.001	4111413	0.001	0.001	4111413
Dissolved Beryllium (Be)	mg/L	<0.0001	4111413	<0.0001	0.0001	4111413
Dissolved Bismuth (Bi)	mg/L	<0.001	4111413	<0.001	0.001	4111413
Dissolved Boron (B)	mg/L	<0.05	4111413	<0.05	0.05	4111413
Dissolved Cadmium (Cd)	mg/L	<0.00001	4111413	0.00012	0.00001	4111413
Dissolved Chromium (Cr)	mg/L	<0.001	4111413	<0.001	0.001	4111413
Dissolved Cobalt (Co)	mg/L	<0.0005	4111413	<0.0005	0.0005	4111413
Dissolved Copper (Cu)	mg/L	0.0008	4111413	0.0002	0.0002	4126114
Dissolved Iron (Fe)	mg/L	0.006	4111413	0.035	0.005	4111413
Dissolved Lead (Pb)	mg/L	<0.0002	4111413	<0.0002	0.0002	4111413
Dissolved Lithium (Li)	mg/L	<0.005	4111413	<0.005	0.005	4111413
Dissolved Manganese (Mn)	mg/L	<0.001	4111413	0.002	0.001	4111413
Dissolved Mercury (Hg)	mg/L	<0.00002	4111413	<0.00002	0.00002	4111413
Dissolved Molybdenum (Mo)	mg/L	<0.001	4111413	<0.001	0.001	4111413
Dissolved Nickel (Ni)	mg/L	0.001	4111413	<0.001	0.001	4111413
Dissolved Selenium (Se)	mg/L	<0.0001	4111413	0.0001	0.0001	4111413
Dissolved Silicon (Si)	mg/L	0.9	4111413	6.2	0.1	4111413
Dissolved Silver (Ag)	mg/L	<0.00002	4111413	<0.00002	0.00002	4111413
Dissolved Strontium (Sr)	mg/L	0.002	4111413	0.031	0.001	4111413
Dissolved Thallium (Tl)	mg/L	<0.00005	4111413	<0.00005	0.00005	4111413
Dissolved Tin (Sn)	mg/L	<0.005	4111413	<0.005	0.005	4111413
Dissolved Titanium (Ti)	mg/L	<0.005	4111413	<0.005	0.005	4111413
Dissolved Uranium (U)	mg/L	0.0002	4111413	<0.0001	0.0001	4111413
Dissolved Vanadium (V)	mg/L	<0.005	4111413	<0.005	0.005	4111413
Dissolved Zinc (Zn)	mg/L	<0.005	4111413	0.011	0.005	4111413
Dissolved Zirconium (Zr)	mg/L	<0.0005	4111413	<0.0005	0.0005	4111413
Dissolved Calcium (Ca)	mg/L	0.60	4100853	2.71	0.05	4100853
Dissolved Magnesium (Mg)	mg/L	0.06	4100853	0.33	0.05	4100853
Dissolved Potassium (K)	mg/L	0.09	4100853	0.19	0.05	4100853
Dissolved Sodium (Na)	mg/L	0.39	4100853	2.48	0.05	4100853
Dissolved Sulphur (S)	mg/L	<3	4100853	<3	3	4100853

RDL = Reportable Detection Limit

Maxxam Job #: B056929

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CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		V41736	V41737		
Sampling Date		2010/07/13 12:55	2010/07/13 13:33		
	Units	MCNAB	HARLEQUIN	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO ₃)	mg/L	1.9	8.6	0.5	4100851
Total Metals by ICPMS					
Total Aluminum (Al)	mg/L	0.063	0.021	0.003	4111560
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4111560
Total Arsenic (As)	mg/L	<0.0001	0.0003	0.0001	4111560
Total Barium (Ba)	mg/L	<0.001	<0.001	0.001	4111560
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4111560
Total Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4111560
Total Boron (B)	mg/L	<0.05	<0.05	0.05	4111560
Total Cadmium (Cd)	mg/L	<0.00001	0.00011	0.00001	4111560
Total Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4111560
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4111560
Total Copper (Cu)	mg/L	0.0004	0.0006	0.0002	4111560
Total Iron (Fe)	mg/L	0.011	0.063	0.005	4111560
Total Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4111560
Total Lithium (Li)	mg/L	<0.005	<0.005	0.005	4111560
Total Manganese (Mn)	mg/L	<0.001	0.002	0.001	4111560
Total Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4111560
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4111560
Total Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4111560
Total Selenium (Se)	mg/L	<0.0001	0.0001	0.0001	4111560
Total Silicon (Si)	mg/L	0.9	6.6	0.1	4111560
Total Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4111560
Total Strontium (Sr)	mg/L	0.003	0.031	0.001	4111560
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4111560
Total Tin (Sn)	mg/L	<0.005	<0.005	0.005	4111560
Total Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4111560
Total Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4111560
Total Vanadium (V)	mg/L	<0.005	<0.005	0.005	4111560
Total Zinc (Zn)	mg/L	<0.005	0.013	0.005	4111560
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4111560
Total Calcium (Ca)	mg/L	0.64	2.88	0.05	4100854
Total Magnesium (Mg)	mg/L	0.07	0.35	0.05	4100854
Total Potassium (K)	mg/L	0.09	0.20	0.05	4100854
Total Sodium (Na)	mg/L	0.39	2.35	0.05	4100854
Total Sulphur (S)	mg/L	<3	<3	3	4100854

RDL = Reportable Detection Limit

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NITRITE & NITRATE (WATER)

Maxxam ID		V41736	V41737		
Sampling Date		2010/07/13 12:55	2010/07/13 13:33		
	Units	MCNAB	HARLEQUIN	RDL	QC Batch
Calculated Parameters					
Nitrate (N)	mg/L	0.03	0.04	0.02	4100857

TOTAL TKN IN WATER (WATER)

Maxxam ID		V41736	V41737		
Sampling Date		2010/07/13 12:55	2010/07/13 13:33		
	Units	MCNAB	HARLEQUIN	RDL	QC Batch
Nutrients					
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.08	0.07	0.02	4101163
Nitrate plus Nitrite (N)	mg/L	0.03	0.04	0.02	4106630
Total Nitrogen (N)	mg/L	0.10	0.11	0.02	4104429

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Sample V41737, Elements by CRC ICPMS (dissolved): Test repeated.

Maxxam Job #: B056929

Report Date: 2010/07/23

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4103423	Nitrite (N)	2010/07/14	101	80 - 120	104	80 - 120	<0.005	mg/L	NC ⁽¹⁾	20
4103630	Total Suspended Solids	2010/07/15			99	80 - 120	<1	mg/L		
4103964	Total Phosphorus (P)	2010/07/15	91	80 - 120	100	80 - 120	<0.005	mg/L	NC	20
4104196	Acidity (pH 8.3)	2010/07/15			102	80 - 120	<0.5	mg/L	NC	20
4104196	Acidity (pH 4.5)	2010/07/15					<0.5	mg/L	NC	20
4104429	Total Nitrogen (N)	2010/07/15	NC	80 - 120	91	80 - 120	<0.02	mg/L	NC	20
4105260	Turbidity	2010/07/15			101	80 - 120	<0.1	NTU	0.8	20
4106468	Total Suspended Solids	2010/07/16			99	80 - 120	<1	mg/L		
4106480	Total Dissolved Solids	2010/07/17	94	80 - 120	102	80 - 120	<10	mg/L	0	20
4106630	Nitrate plus Nitrite (N)	2010/07/15	100	80 - 120	102	80 - 120	<0.02	mg/L		
4110088	Alkalinity (Total as CaCO ₃)	2010/07/17			104	80 - 120	0.9, RDL=0.5	mg/L	0.3	20
4110088	Alkalinity (PP as CaCO ₃)	2010/07/17					<0.5	mg/L	NC	20
4110088	Bicarbonate (HCO ₃)	2010/07/17					1.1, RDL=0.5	mg/L	0.3	20
4110088	Carbonate (CO ₃)	2010/07/17					<0.5	mg/L	NC	20
4110088	Hydroxide (OH)	2010/07/17					<0.5	mg/L	NC	20
4110167	Conductivity	2010/07/17			98	80 - 120	<1	uS/cm	1.1	20
4110451	Dissolved Chloride (Cl)	2010/07/16	99	80 - 120	98	80 - 120	<0.5	mg/L	NC	20
4110456	Dissolved Sulphate (SO ₄)	2010/07/16	106	80 - 120	101	80 - 120	<0.5	mg/L	1	20
4111413	Dissolved Arsenic (As)	2010/07/19	104	80 - 120	99	80 - 120	<0.0001	mg/L	2.8	20
4111413	Dissolved Beryllium (Be)	2010/07/19	96	80 - 120	101	80 - 120	<0.0001	mg/L	NC	20
4111413	Dissolved Cadmium (Cd)	2010/07/19	99	80 - 120	101	80 - 120	<0.00001	mg/L	7.3	20
4111413	Dissolved Chromium (Cr)	2010/07/19	96	80 - 120	100	80 - 120	<0.001	mg/L	NC	20
4111413	Dissolved Cobalt (Co)	2010/07/19	97	80 - 120	100	80 - 120	<0.0005	mg/L	2.7	20
4111413	Dissolved Copper (Cu)	2010/07/19	97	80 - 120	102	80 - 120	<0.0002	mg/L	NC	20
4111413	Dissolved Lead (Pb)	2010/07/19	99	80 - 120	101	80 - 120	<0.0002	mg/L	NC	20
4111413	Dissolved Lithium (Li)	2010/07/19	88	80 - 120	96	80 - 120	<0.005	mg/L	NC	20
4111413	Dissolved Nickel (Ni)	2010/07/19	94	80 - 120	98	80 - 120	<0.001	mg/L	NC	20
4111413	Dissolved Selenium (Se)	2010/07/19	109	80 - 120	104	80 - 120	<0.0001	mg/L	NC	20
4111413	Dissolved Uranium (U)	2010/07/19	104	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
4111413	Dissolved Vanadium (V)	2010/07/19	99	80 - 120	97	80 - 120	<0.005	mg/L	NC	20
4111413	Dissolved Zinc (Zn)	2010/07/19	99	80 - 120	97	80 - 120	<0.005	mg/L	NC	20
4111413	Dissolved Aluminum (Al)	2010/07/19					<0.003	mg/L	NC	20
4111413	Dissolved Antimony (Sb)	2010/07/19					<0.0005	mg/L	NC	20
4111413	Dissolved Barium (Ba)	2010/07/19					<0.001	mg/L	1.6	20
4111413	Dissolved Bismuth (Bi)	2010/07/19					<0.001	mg/L	NC	20
4111413	Dissolved Boron (B)	2010/07/19					<0.05	mg/L	NC	20
4111413	Dissolved Iron (Fe)	2010/07/19					<0.005	mg/L	1.1	20
4111413	Dissolved Manganese (Mn)	2010/07/19					<0.001	mg/L	0.06	20
4111413	Dissolved Mercury (Hg)	2010/07/19					<0.00002	mg/L	NC	20
4111413	Dissolved Molybdenum (Mo)	2010/07/19					<0.001	mg/L	NC	20

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QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4111413	Dissolved Silicon (Si)	2010/07/19					<0.1	mg/L	2.6	20
4111413	Dissolved Silver (Ag)	2010/07/19					<0.00002	mg/L	NC	20
4111413	Dissolved Strontium (Sr)	2010/07/19					<0.001	mg/L	0.4	20
4111413	Dissolved Thallium (Tl)	2010/07/19					<0.00005	mg/L	NC	20
4111413	Dissolved Tin (Sn)	2010/07/19					<0.005	mg/L	NC	20
4111413	Dissolved Titanium (Ti)	2010/07/19					<0.005	mg/L	NC	20
4111413	Dissolved Zirconium (Zr)	2010/07/19					<0.0005	mg/L	NC	20
4111560	Total Arsenic (As)	2010/07/20	110	80 - 120	111	80 - 120	<0.0001	mg/L		
4111560	Total Beryllium (Be)	2010/07/20	109	80 - 120	100	80 - 120	<0.0001	mg/L		
4111560	Total Cadmium (Cd)	2010/07/20	108	80 - 120	101	80 - 120	<0.00001	mg/L		
4111560	Total Chromium (Cr)	2010/07/20	105	80 - 120	98	80 - 120	<0.001	mg/L		
4111560	Total Cobalt (Co)	2010/07/20	107	80 - 120	99	80 - 120	<0.0005	mg/L		
4111560	Total Copper (Cu)	2010/07/20	128 ⁽²⁾	80 - 120	102	80 - 120	<0.0002	mg/L		
4111560	Total Lead (Pb)	2010/07/20	112	80 - 120	103	80 - 120	<0.0002	mg/L		
4111560	Total Lithium (Li)	2010/07/20	118	80 - 120	93	80 - 120	<0.005	mg/L		
4111560	Total Nickel (Ni)	2010/07/20	102	80 - 120	98	80 - 120	<0.001	mg/L		
4111560	Total Selenium (Se)	2010/07/20	119	80 - 120	100	80 - 120	<0.0001	mg/L		
4111560	Total Uranium (U)	2010/07/20	97	80 - 120	105	80 - 120	<0.0001	mg/L		
4111560	Total Vanadium (V)	2010/07/20	109	80 - 120	96	80 - 120	<0.005	mg/L		
4111560	Total Zinc (Zn)	2010/07/20	NC	80 - 120	118	80 - 120	<0.005	mg/L		
4111560	Total Aluminum (Al)	2010/07/20					<0.003	mg/L		
4111560	Total Antimony (Sb)	2010/07/20					<0.0005	mg/L		
4111560	Total Barium (Ba)	2010/07/20					<0.001	mg/L		
4111560	Total Bismuth (Bi)	2010/07/20					<0.001	mg/L		
4111560	Total Boron (B)	2010/07/20					<0.05	mg/L		
4111560	Total Iron (Fe)	2010/07/20					<0.005	mg/L		
4111560	Total Manganese (Mn)	2010/07/20					<0.001	mg/L		
4111560	Total Mercury (Hg)	2010/07/20					<0.00002	mg/L		
4111560	Total Molybdenum (Mo)	2010/07/20					<0.001	mg/L		
4111560	Total Silicon (Si)	2010/07/20					<0.1	mg/L		
4111560	Total Silver (Ag)	2010/07/20					<0.00002	mg/L		
4111560	Total Strontium (Sr)	2010/07/20					<0.001	mg/L		
4111560	Total Thallium (Tl)	2010/07/20					<0.00005	mg/L		
4111560	Total Tin (Sn)	2010/07/20					<0.005	mg/L		
4111560	Total Titanium (Ti)	2010/07/20					<0.005	mg/L		
4111560	Total Zirconium (Zr)	2010/07/20					<0.0005	mg/L		
4111979	Ammonia (N)	2010/07/19	NC	80 - 120	103	80 - 120	<0.005	mg/L	6.4 ⁽³⁾	20
4117262	Fluoride (F)	2010/07/20	105	80 - 120	95	80 - 120	<0.01	mg/L	NC	20

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Report Date: 2010/07/23

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4124793	Dissolved Chloride (Cl)	2010/07/22	NC	80 - 120	96	80 - 120	<0.5	mg/L	2.4	20
4126114	Dissolved Copper (Cu)	2010/07/23	96	80 - 120	104	80 - 120	<0.0002	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - Sample analysed past recommended hold time

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

(3) - RDL raised due to sample matrix interference.

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Company Name:	Quotation #:	MAXXAM JOB #:	B056929		BOTTLE ORDER #:	
Contact Name: Max Schuetz	Contact Name:	P.O. #:	CHAIN OF CUSTODY #:		PROJECT MANAGER:		
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Address:	Project #:	CHAIN OF CUSTODY #:		CRYSTAL IRELAND		
Phone: (604)296-4200 Fax: (604)298-5253	Phone: Fax:	Project Name:	Site #:		CRYSTAL IRELAND		
Email: mschuetz@golder.com	Email:	Site #:	Sampled By:		CRYSTAL IRELAND		

REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS	ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:			
		Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Anions in Water by Ion Chromatography	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	PLEASE PROVIDE ADVANCED NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) <input type="checkbox"/> Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)	



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

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Anions in Water by Ion Chromatography	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	# of Bottles	Comments	
1	McNab	July 13/16	1255	Water														(In mg/L as discussed)	
2	Harlequin	July 13/16	1333	Water															
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only		
			NICK SANDOX Tucker	10/07/13	16:10		Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: J/S	Custody Seal Intact on Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Contact Name: Max Schuetz	Company Name:	Contact Name:	Quotation #:	P.O. #:	MAXXAM JOB #: B056929	BOTTLE ORDER #: 
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Phone: (604)296-4200 Fax: (604)298-5253	Address:	Phone: Fax:	Project #:	Site #:	CHAIN OF CUSTODY #:	PROJECT MANAGER: 90988
Email: mschuetz@golder.com		Email:		Sampled By:			CRYSTAL IRELAND

REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS	ANALYSIS REQUESTED (Please be specific):	TURNAROUND TIME (TAT) REQUIRED:
		Regulated Drinking Water? (Y/N) <input checked="" type="checkbox"/> Metals Field Filtered? (Y/N) <input checked="" type="checkbox"/> Total Dissolved Solids (Filt. Residue) Total Phosphorus Total Suspended Solids Total TKN in Water Turbidity	PLEASE PROVIDE AT LEAST 24 HOURS NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) <input type="checkbox"/> Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)

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

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity	# of Bottles	Comments
1	McNab	July 13	1255	water									(Fu mg/L as discussed)
2	Horlegun	1	1333	1									
3													
4													
5													
6													
7													
8													
9													
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted:	Laboratory Use Only		
			<i>NICK SANDOR</i>	10/07/13	16:10		Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: J/S	Custody Seal Intact? <input checked="" type="checkbox"/> N/A
			<i>MS</i>						Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No

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

Your C.O.C. #: 9840901, 98409-01

Attention: Max Schuetz
GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2010/09/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B075136
Received: 2010/08/23, 17:45

Sample Matrix: Water
Samples Received: 5


Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3	5	N/A	2010/08/27	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	5	2010/08/25	2010/08/25	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	4	N/A	2010/08/26	BRN-SOP 00234 R3.0	Based on EPA 325.2
Chloride by Automated Colourimetry	1	N/A	2010/08/27	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	5	N/A	2010/08/25	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	5	N/A	2010/08/26	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	5	N/A	2010/08/31		
Hardness (calculated as CaCO3)	5	N/A	2010/08/30		
Mercury (Total) by CVAf	5	2010/09/01	2010/09/01	65-A-002-10	EPA 245.7
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	5	N/A	2010/08/30	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	5	N/A	2010/08/28	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	5	2010/08/24	2010/08/31	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	5	2010/08/27	2010/08/31	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	5	2010/08/25	2010/08/25	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	5	N/A	2010/08/25	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	4	N/A	2010/08/27		Based on USEPA 353.2
Nitrate + Nitrite (N)	1	N/A	2010/08/30		Based on USEPA 353.2
Nitrite (N) by CFA	4	N/A	2010/08/27	BRN SOP-00233 R1.0	EPA 353.2
Nitrite (N) by CFA	1	N/A	2010/08/30	BRN SOP-00233 R1.0	EPA 353.2
Filter and HNO3 Preserve for Metals	5	N/A	2010/08/24	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	5	N/A	2010/08/25	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	4	N/A	2010/08/26	BRN-SOP 00243 R1.0	Based on EPA 375.4
Sulphate by Automated Colourimetry	1	N/A	2010/08/27	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	5	N/A	2010/08/29	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	4	N/A	2010/08/28		
TKN (Calc. TN, N/N) total	1	N/A	2010/08/31		
Total Phosphorus	5	N/A	2010/08/25	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids	5	N/A	2010/08/26	BRN SOP-00277 R5.0	Based on SM - 2540 D
Turbidity	5	N/A	2010/08/25	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

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Maxxam Job #: B075136
Report Date: 2010/09/02

-2-

Encryption Key  VJ Oco
02 Sep 2010 15:00:54 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

VJ OCO, Burnaby Customer Service
Email: VJ.Oco@MaxxamAnalytics.com
Phone# (604) 639-8422

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B075136

Report Date: 2010/09/02

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		W42167		W42168		W42169		W42170	W42171		
Sampling Date		2010/08/23 15:28		2010/08/23 15:42		2010/08/23 12:29		2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	QC Batch	(H) HARLEQUIN	QC Batch	GW1	RDL	GW2	GW3	RDL	QC Batch
Misc. Inorganics											
Acidity (pH 4.5)	mg/L	<0.5	4213907	<0.5	4213907	<0.5	0.5	<0.5	<0.5	0.5	4213907
Acidity (pH 8.3)	mg/L	1.9	4213907	1.4	4213907	2.4	0.5	1.8	1.9	0.5	4213907
Fluoride (F)	mg/L	0.01	4209962	0.03	4209962	0.03	0.01	0.08	0.09	0.01	4209962
ANIONS											
Nitrite (N)	mg/L	<0.005 ⁽¹⁾	4221479	<0.005 ⁽¹⁾	4216727	<0.005 ⁽¹⁾	0.005	<0.005 ⁽¹⁾	<0.005 ⁽¹⁾	0.005	4216727
Calculated Parameters											
Filter and HNO3 Preservation	N/A	LAB	4203046	LAB	4203046	LAB	N/A	LAB	LAB	N/A	4203046
Misc. Inorganics											
Alkalinity (Total as CaCO ₃)	mg/L	3.3	4209491	9.9	4209491	7.4	0.5	14	15	0.5	4209491
Alkalinity (PP as CaCO ₃)	mg/L	<0.5	4209491	<0.5	4209491	<0.5	0.5	<0.5	<0.5	0.5	4209491
Bicarbonate (HCO ₃)	mg/L	4.1	4209491	12	4209491	9.1	0.5	18	18	0.5	4209491
Carbonate (CO ₃)	mg/L	<0.5	4209491	<0.5	4209491	<0.5	0.5	<0.5	<0.5	0.5	4209491
Hydroxide (OH)	mg/L	<0.5	4209491	<0.5	4209491	<0.5	0.5	<0.5	<0.5	0.5	4209491
Anions											
Dissolved Sulphate (SO ₄)	mg/L	0.8	4214154	5.3	4219087	13	0.5	64	75	0.5	4214154
Dissolved Chloride (Cl)	mg/L	1.0	4219023	0.7	4214060	74	0.5	360	470	5	4214060
Nutrients											
Ammonia (N)	mg/L	0.010	4208377	0.008	4208377	0.015	0.005	0.009	0.031	0.005	4208377
Total Phosphorus (P)	mg/L	<0.005	4206447	0.006	4206447	0.006	0.005	0.006	0.007	0.005	4206447
Physical Properties											
Conductivity	uS/cm	16	4209490	35	4209490	305	1	1570	1910	1	4209490
pH	pH Units	6.40	4209477	7.06	4209477	6.77		7.05	7.16		4209477
Physical Properties											
Total Suspended Solids	mg/L	<4	4209720	<4	4209720	<4	4	<4	14	4	4209720
Total Dissolved Solids	mg/L	10	4211298	24	4211298	160	10	770	970	10	4211298
Turbidity	NTU	0.2	4206302	0.7	4206302	1.0	0.1	0.9	3.3	0.1	4206302

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample analysed past recommended hold time

Maxxam Job #: B075136
 Report Date: 2010/09/02

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		W42167	W42168	W42169	W42170	W42171		
Sampling Date		2010/08/23 15:28	2010/08/23 15:42	2010/08/23 12:29	2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	(H) HARLEQUIN	GW1	GW2	GW3	RDL	QC Batch
Elements								
Total Mercury (Hg)	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00002	4225641

Maxxam Job #: B075136
 Report Date: 2010/09/02

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		W42167	W42168	W42169	W42170	W42171		
Sampling Date		2010/08/23 15:28	2010/08/23 15:42	2010/08/23 12:29	2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	(H) HARLEQUIN	GW1	GW2	GW3	RDL	QC Batch
Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	3.9	8.9	23.9	127	156	0.5	4202821

Maxxam Job #: B075136

Report Date: 2010/09/02

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		W42167	W42168	W42169	W42170	W42171		
Sampling Date		2010/08/23 15:28	2010/08/23 15:42	2010/08/23 12:29	2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	(H) HARLEQUIN	GW1	GW2	GW3	RDL	QC Batch
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.028	0.011	0.013	0.011	0.024	0.003	4210049
Dissolved Antimony (Sb)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4210049
Dissolved Arsenic (As)	mg/L	0.0002	0.0004	0.0001	0.0002	0.0004	0.0001	4210049
Dissolved Barium (Ba)	mg/L	0.003	0.001	<0.001	0.001	0.001	0.001	4210049
Dissolved Beryllium (Be)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	4210049
Dissolved Bismuth (Bi)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4210049
Dissolved Boron (B)	mg/L	<0.05	<0.05	<0.05	0.15	0.17	0.05	4210049
Dissolved Cadmium (Cd)	mg/L	0.00003	0.00010	<0.00001	0.00002	0.00002	0.00001	4210049
Dissolved Chromium (Cr)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4210049
Dissolved Cobalt (Co)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4210049
Dissolved Copper (Cu)	mg/L	0.0003	0.0003	0.0002	0.0002	0.0004	0.0002	4210049
Dissolved Iron (Fe)	mg/L	<0.005	0.042	0.009	0.009	0.108	0.005	4210049
Dissolved Lead (Pb)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	4210049
Dissolved Lithium (Li)	mg/L	<0.005	<0.005	<0.005	0.006	0.006	0.005	4210049
Dissolved Manganese (Mn)	mg/L	<0.001	0.003	0.002	0.003	0.018	0.001	4210049
Dissolved Mercury (Hg)	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00002	4210049
Dissolved Molybdenum (Mo)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4210049
Dissolved Nickel (Ni)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4210049
Dissolved Selenium (Se)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	4210049
Dissolved Silicon (Si)	mg/L	2.1	6.3	2.6	3.2	5.1	0.1	4210049
Dissolved Silver (Ag)	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00002	4210049
Dissolved Strontium (Sr)	mg/L	0.006	0.033	0.033	0.158	0.198	0.001	4210049
Dissolved Thallium (Tl)	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	4210049
Dissolved Tin (Sn)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	4210049
Dissolved Titanium (Ti)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	4210049
Dissolved Uranium (U)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	4210049
Dissolved Vanadium (V)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	4210049
Dissolved Zinc (Zn)	mg/L	<0.005	0.010	<0.005	<0.005	<0.005	0.005	4210049
Dissolved Zirconium (Zr)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4210049
Dissolved Calcium (Ca)	mg/L	1.27	2.98	2.40	9.00	11.8	0.05	4203914
Dissolved Magnesium (Mg)	mg/L	0.17	0.36	4.35	25.4	30.8	0.05	4203914
Dissolved Potassium (K)	mg/L	0.23	0.19	2.14	10.0	12.5	0.05	4203914
Dissolved Sodium (Na)	mg/L	1.23	2.29	41.7	227	283	0.05	4203914
Dissolved Sulphur (S)	mg/L	<3	<3	5	24	29	3	4203914

RDL = Reportable Detection Limit

Maxxam Job #: B075136

Report Date: 2010/09/02

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		W42167	W42168	W42169	W42170	W42171		
Sampling Date		2010/08/23 15:28	2010/08/23 15:42	2010/08/23 12:29	2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	(H) HARLEQUIN	GW1	GW2	GW3	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	4.4	9.0	36.9	133	165	0.5	4203017
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	0.045	0.028	0.131	0.122	0.538	0.003	4216157
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4216157
Total Arsenic (As)	mg/L	<0.0001	0.0002	<0.0001	0.0001	0.0004	0.0001	4216157
Total Barium (Ba)	mg/L	0.003	0.001	0.002	0.002	0.005	0.001	4216157
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	4216157
Total Bismuth (Bi)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4216157
Total Boron (B)	mg/L	<0.05	<0.05	<0.05	0.15	0.18	0.05	4216157
Total Cadmium (Cd)	mg/L	0.00002	0.00012	0.00001	<0.00001	0.00001	0.00001	4216157
Total Chromium (Cr)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4216157
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4216157
Total Copper (Cu)	mg/L	0.0004	0.0004	0.0008	0.0006	0.0017	0.0002	4216157
Total Iron (Fe)	mg/L	0.014	0.104	0.088	0.124	0.703	0.005	4216157
Total Lead (Pb)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0002	4216157
Total Lithium (Li)	mg/L	<0.005	<0.005	<0.005	0.007	0.009	0.005	4216157
Total Manganese (Mn)	mg/L	<0.001	0.003	0.003	0.004	0.029	0.001	4216157
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4216157
Total Nickel (Ni)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	4216157
Total Selenium (Se)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	4216157
Total Silicon (Si)	mg/L	2.2	6.5	2.9	3.7	6.2	0.1	4216157
Total Silver (Ag)	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00002	4216157
Total Strontium (Sr)	mg/L	0.007	0.032	0.046	0.162	0.220	0.001	4216157
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	4216157
Total Tin (Sn)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	4216157
Total Titanium (Ti)	mg/L	<0.005	<0.005	<0.005	<0.005	0.029	0.005	4216157
Total Uranium (U)	mg/L	<0.0001	<0.0001	0.0001	0.0001	0.0002	0.0001	4216157
Total Vanadium (V)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	4216157
Total Zinc (Zn)	mg/L	<0.005	0.010	<0.005	<0.005	<0.005	0.005	4216157
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	4216157
Total Calcium (Ca)	mg/L	1.45	2.97	3.16	9.62	12.4	0.05	4203018
Total Magnesium (Mg)	mg/L	0.19	0.38	7.04	26.5	32.5	0.05	4203018
Total Potassium (K)	mg/L	0.23	0.18	3.16	10.3	13.1	0.05	4203018
Total Sodium (Na)	mg/L	1.10	2.42	69.0	241	308	0.05	4203018
Total Sulphur (S)	mg/L	<3	<3	6	23	27	3	4203018

RDL = Reportable Detection Limit

Maxxam Job #: B075136
 Report Date: 2010/09/02

TOTAL TKN IN WATER (WATER)

Maxxam ID		W42167		W42168	W42169	W42170	W42171		
Sampling Date		2010/08/23 15:28		2010/08/23 15:42	2010/08/23 12:29	2010/08/23 12:42	2010/08/23 13:07		
	Units	MCNAB	QC Batch	(H) HARLEQUIN	GW1	GW2	GW3	RDL	QC Batch
Nutrients									
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.11	4204119	0.04	0.05	0.04	0.09	0.02	4204119
Nitrate plus Nitrite (N)	mg/L	0.18 ⁽¹⁾	4221471	0.04 ⁽¹⁾	0.09 ⁽¹⁾	0.11 ⁽¹⁾	0.03 ⁽¹⁾	0.02	4216611
Total Nitrogen (N)	mg/L	0.29	4209014	0.08	0.14	0.15	0.13	0.02	4209014

RDL = Reportable Detection Limit

(1) - Sample analysed past recommended hold time

Maxxam Job #: B075136

Report Date: 2010/09/02

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4206302	Turbidity	2010/08/25			103	80 - 120	<0.1	NTU	1.1	20
4206447	Total Phosphorus (P)	2010/08/25	98	80 - 120	97	80 - 120	<0.005	mg/L	NC	20
4208377	Ammonia (N)	2010/08/25	NC	80 - 120	107	80 - 120	<0.005	mg/L	0.7	20
4209014	Total Nitrogen (N)	2010/08/25	90	80 - 120	98	80 - 120	<0.02	mg/L	0.8	20
4209490	Conductivity	2010/08/26			102	80 - 120	1, RDL=1	uS/cm	0.2	20
4209491	Alkalinity (Total as CaCO ₃)	2010/08/26	NC	80 - 120	96	80 - 120	<0.5	mg/L	1	20
4209491	Alkalinity (PP as CaCO ₃)	2010/08/25					<0.5	mg/L		
4209491	Bicarbonate (HCO ₃)	2010/08/25					<0.5	mg/L		
4209491	Carbonate (CO ₃)	2010/08/25					<0.5	mg/L		
4209491	Hydroxide (OH)	2010/08/25					<0.5	mg/L		
4209720	Total Suspended Solids	2010/08/26	111	80 - 120	102	80 - 120	<4	mg/L	NC	25
4209962	Fluoride (F)	2010/08/26	93	80 - 120	100	80 - 120	<0.01	mg/L	3.8	20
4210049	Dissolved Arsenic (As)	2010/08/28	100	80 - 120	99	80 - 120	<0.0001	mg/L	3.7	20
4210049	Dissolved Beryllium (Be)	2010/08/28	98	80 - 120	95	80 - 120	<0.0001	mg/L	NC	20
4210049	Dissolved Cadmium (Cd)	2010/08/28	100	80 - 120	100	80 - 120	<0.00001	mg/L	5.7	20
4210049	Dissolved Chromium (Cr)	2010/08/28	100	80 - 120	100	80 - 120	<0.001	mg/L	NC	20
4210049	Dissolved Cobalt (Co)	2010/08/28	NC	80 - 120	100	80 - 120	<0.0005	mg/L	3.6	20
4210049	Dissolved Copper (Cu)	2010/08/28	96	80 - 120	102	80 - 120	<0.0002	mg/L	NC	20
4210049	Dissolved Lead (Pb)	2010/08/28	93	80 - 120	98	80 - 120	<0.0002	mg/L	NC	20
4210049	Dissolved Lithium (Li)	2010/08/28	105	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4210049	Dissolved Nickel (Ni)	2010/08/28	NC	80 - 120	99	80 - 120	<0.001	mg/L	3.5	20
4210049	Dissolved Selenium (Se)	2010/08/28	106	80 - 120	99	80 - 120	<0.0001	mg/L	NC	20
4210049	Dissolved Uranium (U)	2010/08/28	100	80 - 120	100	80 - 120	<0.0001	mg/L	2.5	20
4210049	Dissolved Vanadium (V)	2010/08/28	104	80 - 120	99	80 - 120	<0.005	mg/L	NC	20
4210049	Dissolved Zinc (Zn)	2010/08/28	NC	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
4210049	Dissolved Aluminum (Al)	2010/08/28					<0.003	mg/L	4.2	20
4210049	Dissolved Antimony (Sb)	2010/08/28					<0.0005	mg/L	NC	20
4210049	Dissolved Barium (Ba)	2010/08/28					<0.001	mg/L	2.0	20
4210049	Dissolved Bismuth (Bi)	2010/08/28					<0.001	mg/L	NC	20
4210049	Dissolved Boron (B)	2010/08/28					<0.05	mg/L	NC	20
4210049	Dissolved Iron (Fe)	2010/08/28					<0.005	mg/L	2.2	20
4210049	Dissolved Manganese (Mn)	2010/08/28					<0.001	mg/L	2.2	20
4210049	Dissolved Mercury (Hg)	2010/08/28					<0.00002	mg/L	NC	20
4210049	Dissolved Molybdenum (Mo)	2010/08/28					<0.001	mg/L	NC	20
4210049	Dissolved Silicon (Si)	2010/08/28					<0.1	mg/L	1.5	20
4210049	Dissolved Silver (Ag)	2010/08/28					<0.00002	mg/L	NC	20
4210049	Dissolved Strontium (Sr)	2010/08/28					<0.001	mg/L	2.0	20
4210049	Dissolved Thallium (Tl)	2010/08/28					<0.00005	mg/L	NC	20
4210049	Dissolved Tin (Sn)	2010/08/28					<0.005	mg/L	NC	20
4210049	Dissolved Titanium (Ti)	2010/08/28					<0.005	mg/L	NC	20

Maxxam Job #: B075136

Report Date: 2010/09/02

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4210049	Dissolved Zirconium (Zr)	2010/08/28					<0.0005	mg/L	NC	20
4211298	Total Dissolved Solids	2010/08/29	106	80 - 120	104	80 - 120	<10	mg/L	2.8	20
4213907	Acidity (pH 8.3)	2010/08/27			99	80 - 120	<0.5	mg/L	NC	20
4213907	Acidity (pH 4.5)	2010/08/27					<0.5	mg/L	NC	20
4214060	Dissolved Chloride (Cl)	2010/08/26	NC	80 - 120	98	80 - 120	<0.5	mg/L	NC	20
4214154	Dissolved Sulphate (SO4)	2010/08/26	NC	80 - 120	108	80 - 120	<0.5	mg/L	0.8	20
4216157	Total Arsenic (As)	2010/08/31	106	80 - 120	105	80 - 120	<0.0001	mg/L		
4216157	Total Beryllium (Be)	2010/08/31	106	80 - 120	106	80 - 120	<0.0001	mg/L		
4216157	Total Cadmium (Cd)	2010/08/31	108	80 - 120	108	80 - 120	<0.00001	mg/L		
4216157	Total Chromium (Cr)	2010/08/31	107	80 - 120	104	80 - 120	<0.001	mg/L		
4216157	Total Cobalt (Co)	2010/08/31	103	80 - 120	108	80 - 120	<0.0005	mg/L		
4216157	Total Copper (Cu)	2010/08/31	106	80 - 120	111	80 - 120	<0.0002	mg/L		
4216157	Total Lead (Pb)	2010/08/31	104	80 - 120	105	80 - 120	<0.0002	mg/L		
4216157	Total Lithium (Li)	2010/08/31	103	80 - 120	110	80 - 120	<0.005	mg/L		
4216157	Total Nickel (Ni)	2010/08/31	100	80 - 120	108	80 - 120	<0.001	mg/L		
4216157	Total Selenium (Se)	2010/08/31	NC	80 - 120	110	80 - 120	<0.0001	mg/L		
4216157	Total Uranium (U)	2010/08/31	109	80 - 120	106	80 - 120	<0.0001	mg/L		
4216157	Total Vanadium (V)	2010/08/31	107	80 - 120	105	80 - 120	<0.005	mg/L		
4216157	Total Zinc (Zn)	2010/08/31	108	80 - 120	113	80 - 120	<0.005	mg/L		
4216157	Total Aluminum (Al)	2010/08/31					0.003, RDL=0.003	mg/L	NC	20
4216157	Total Antimony (Sb)	2010/08/31					<0.0005	mg/L		
4216157	Total Barium (Ba)	2010/08/31					<0.001	mg/L		
4216157	Total Bismuth (Bi)	2010/08/31					<0.001	mg/L		
4216157	Total Boron (B)	2010/08/31					<0.05	mg/L		
4216157	Total Iron (Fe)	2010/08/31					<0.005	mg/L		
4216157	Total Manganese (Mn)	2010/08/31					<0.001	mg/L		
4216157	Total Molybdenum (Mo)	2010/08/31					<0.001	mg/L		
4216157	Total Silicon (Si)	2010/08/31					<0.1	mg/L		
4216157	Total Silver (Ag)	2010/08/31					<0.00002	mg/L		
4216157	Total Strontium (Sr)	2010/08/31					<0.001	mg/L		
4216157	Total Thallium (Tl)	2010/08/31					<0.00005	mg/L		
4216157	Total Tin (Sn)	2010/08/31					<0.005	mg/L		
4216157	Total Titanium (Ti)	2010/08/31					<0.005	mg/L		
4216157	Total Zirconium (Zr)	2010/08/31					<0.0005	mg/L		
4216611	Nitrate plus Nitrite (N)	2010/08/27	107	80 - 120	101	80 - 120	<0.02	mg/L	NC ⁽¹⁾	25
4216727	Nitrite (N)	2010/08/27	105	80 - 120	104	80 - 120	<0.005	mg/L	NC ⁽¹⁾	20
4219023	Dissolved Chloride (Cl)	2010/08/27	111	80 - 120	109	80 - 120	<0.5	mg/L	0.1	20
4219087	Dissolved Sulphate (SO4)	2010/08/27			111	80 - 120	0.6, RDL=0.5	mg/L	2.2	20
4221471	Nitrate plus Nitrite (N)	2010/08/30	NC	80 - 120	107	80 - 120	<0.02	mg/L	1.2	25

Maxxam Job #: B075136

Report Date: 2010/09/02

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4221479	Nitrite (N)	2010/08/30	105	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4225641	Total Mercury (Hg)	2010/09/01	107	80 - 120	87	80 - 120	<0.00002	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - Sample analysed past recommended hold time

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Company Name:	Quotation #: B00978	MAXXAM JOB #:	BOTTLE ORDER #:			
Contact Name: Max Schuetz	Contact Name:	P.O. #:	3075136	96409			
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Address:	Project #:	CHAIN OF CUSTODY #:	PROJECT MANAGER:			
Phone: (604)296-4200 Fax: (604)298-5253	Phone: Fax:	Project Name:	VI OCO				
Email: mschuetz@golder.com	Email:	Site #:	C#98409-01-01				
		Sampled By:	<i>Not Filtered. Not Reserved</i>				

REGULATORY CRITERIA	SPECIAL INSTRUCTIONS	ANALYSIS REQUESTED (Please be specific)										TURNAROUND TIME (TAT) REQUIRED:			
		Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated Colorimetry	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____	

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

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Rush Confirmation Number: _____ (call lab for #)

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated Colorimetry	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	# of Bottles	Comments
1	McNab	Aug 23/06	1528	water	N	N											7	- total [In mg/L as discussed]
2	(H) Harlequin		1542														7	
3	GW1 GW1		1229														7	
4	GW2		1242														7	
5	GW3		1307														7	
6																		
7																		
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and	Laboratory Use Only	
<i>[Signature]</i>			ANGI XLONG	10/08/23	17:45	Not Submitted	Time Sensitivity: <input type="checkbox"/>	Temperature (°C) on Receipt: 13/5
							Custody Seal intact on Case? <input checked="" type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

INVOICE INFORMATION:

Company Name: #1473 GOLDER ASSOCIATES LTD
 Contact Name: Max Schuetz
 Address: Warehouse 2449 Beta Ave.
 BURNABY BC V5C 6C6
 Phone: (604) 296-4200 Fax: (604) 298-5253
 Email: mschuetz@golder.com

REPORT INFORMATION (if differs from invoice):

Company Name: _____
 Contact Name: _____
 Address: _____
 Phone: _____ Fax: _____
 Email: _____

PROJECT INFORMATION:

Quotation #: B00978
 P.O. #: _____
 Project #: _____
 Project Name: _____
 Site #: _____
 Sampled By: _____

Laboratory Use Only:

MAXXAM JOB #: _____ BOTTLE ORDER #: _____
 CHAIN OF CUSTODY #: _____ PROJECT MANAGER: _____
 C#98409-01-02 VJ 000

REGULATORY CRITERIA:

SPECIAL INSTRUCTIONS:

ANALYSIS REQUESTED (Please be specific):

Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Sulphate by Automated Colourimetry	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified):
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____

Rush Confirmation Number: _____ (call lab for #)

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

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Sulphate by Automated Colourimetry	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity
1	Mohab	Aug 23/10	1528	water	MN							
2	(H) Harlegun		1542									
3	GW1		1229									
4	GW2		1242									
5	GW3		1307									
6												
7												
8												
9												
10												

of Bottles: _____ Comments: _____

7 = (total) [in mg/l as discussed]

RELINQUISHED BY: (Signature/Print) _____
 Date: (YY/MM/DD) _____ Time: _____

RECEIVED BY: (Signature/Print) ANOL XIONG
 Date: (YY/MM/DD) 10/08/23 Time: 17:45

Jars Used and Not Submitted: _____

Laboratory Use Only

Time Sensitive: Temperature (°C) on Receipt: J/S
 Custody Seal intact on Close? N/A Yes No

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

Your P.O. #: 09-1416-0004-6000
Your Project #: 09-1416-0004-6000
Your C.O.C. #: 10894401, 108944-01-01

Attention: Max Schuetz
GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2010/10/06

CERTIFICATE OF ANALYSIS

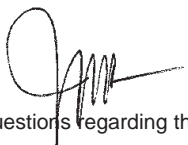
MAXXAM JOB #: B091024
Received: 2010/09/23, 18:40

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3	2	N/A	2010/09/28	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/09/24	2010/09/24	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	2	N/A	2010/09/24	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/09/24	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/09/30	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	2	N/A	2010/10/04		
Hardness (calculated as CaCO3)	2	N/A	2010/10/01		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/10/01	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/09/30	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/09/24	2010/10/04	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/09/29	2010/10/01	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/09/29	2010/09/29	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	1	N/A	2010/09/29	BBY6SOP-00044	Based on EPA 350.1
Ammonia-N	1	N/A	2010/10/05	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	1	N/A	2010/09/24		Based on USEPA 353.2
Nitrate + Nitrite (N)	1	N/A	2010/10/04		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/09/24	BRN SOP-00233 R1.0	EPA 353.2
Filter and HNO3 Preserve for Metals	2	N/A	2010/09/24	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/09/24	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/09/24	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/09/27	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	2	N/A	2010/09/30		
Total Phosphorus	2	N/A	2010/09/27	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids	2	N/A	2010/09/27	BRN SOP-00277 R5.0	Based on SM - 2540 D
Turbidity	2	N/A	2010/09/25	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Encryption Key



VJ Oco
06 Oct 2010 14:33:39 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

VJ OCO, Burnaby Customer Service
Email: VJ.Oco@MaxxamAnalytics.com
Phone# (604) 639-8422

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

-2-

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		X18091			X18092		
Sampling Date		2010/09/23 13:00			2010/09/23 15:10		
	Units	MCNAB CREEK	RDL	QC Batch	HARLEQUIN CREEK	RDL	QC Batch
Misc. Inorganics							
Acidity (pH 4.5)	mg/L	<0.5	0.5	4295433	<0.5	0.5	4295433
Acidity (pH 8.3)	mg/L	<0.5	0.5	4295433	1.8	0.5	4295433
ANIONS							
Nitrite (N)	mg/L	<0.005	0.005	4289039	<0.005	0.005	4289039
Calculated Parameters							
Filter and HNO3 Preservation	N/A	LAB	N/A	4287916	LAB	N/A	4287916
Misc. Inorganics							
Fluoride (F)	mg/L	0.02	0.01	4303818	0.03	0.01	4303818
Alkalinity (Total as CaCO3)	mg/L	2.2	0.5	4289106	12	0.5	4289106
Alkalinity (PP as CaCO3)	mg/L	<0.5	0.5	4289106	<0.5	0.5	4289106
Bicarbonate (HCO3)	mg/L	2.6	0.5	4289106	15	0.5	4289106
Carbonate (CO3)	mg/L	<0.5	0.5	4289106	<0.5	0.5	4289106
Hydroxide (OH)	mg/L	<0.5	0.5	4289106	<0.5	0.5	4289106
Anions							
Dissolved Sulphate (SO4)	mg/L	<0.5	0.5	4289205	2.5	0.5	4289205
Dissolved Chloride (Cl)	mg/L	<0.5	0.5	4289201	<0.5	0.5	4289201
Nutrients							
Ammonia (N)	mg/L	<0.005	0.005	4312761	0.10 ⁽¹⁾	0.05	4298123
Total Phosphorus (P)	mg/L	<0.005	0.005	4288663	0.005	0.005	4288663
Physical Properties							
Conductivity	uS/cm	15	1	4289105	40	1	4289105
pH	pH Units	6.40		4289077	7.00		4289077
Physical Properties							
Total Suspended Solids	mg/L	<4	4	4289562	<4	4	4289562
Total Dissolved Solids	mg/L	10	10	4289568	18	10	4289568
Turbidity	NTU	0.2	0.1	4289729	0.4	0.1	4289729

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - RDL raised due to sample matrix interference.

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		X18091		X18092		
Sampling Date		2010/09/23 13:00		2010/09/23 15:10		
	Units	MCNAB CREEK	QC Batch	HARLEQUIN CREEK	RDL	QC Batch
Misc. Inorganics						
Dissolved Hardness (CaCO3)	mg/L	3.4	4287267	9.0	0.5	4287267
Dissolved Metals by ICPMS						
Dissolved Aluminum (Al)	mg/L	0.065	4298198	0.014	0.003	4298198
Dissolved Antimony (Sb)	mg/L	<0.0005	4298198	<0.0005	0.0005	4298198
Dissolved Arsenic (As)	mg/L	0.0002	4298198	0.0003	0.0001	4298198
Dissolved Barium (Ba)	mg/L	0.002	4298198	0.001	0.001	4298198
Dissolved Beryllium (Be)	mg/L	<0.0001	4298198	<0.0001	0.0001	4298198
Dissolved Bismuth (Bi)	mg/L	<0.001	4298198	<0.001	0.001	4298198
Dissolved Boron (B)	mg/L	<0.05	4298198	<0.05	0.05	4298198
Dissolved Cadmium (Cd)	mg/L	<0.00001	4298198	0.00006	0.00001	4313030
Dissolved Chromium (Cr)	mg/L	<0.001	4298198	<0.001	0.001	4298198
Dissolved Cobalt (Co)	mg/L	<0.0005	4298198	<0.0005	0.0005	4298198
Dissolved Copper (Cu)	mg/L	0.0005	4298198	0.0004	0.0002	4298198
Dissolved Iron (Fe)	mg/L	0.008	4298198	0.042	0.005	4298198
Dissolved Lead (Pb)	mg/L	<0.0002	4298198	<0.0002	0.0002	4298198
Dissolved Lithium (Li)	mg/L	<0.005	4298198	<0.005	0.005	4298198
Dissolved Manganese (Mn)	mg/L	<0.001	4298198	0.003	0.001	4298198
Dissolved Mercury (Hg)	mg/L	<0.00002	4298198	<0.00002	0.00002	4298198
Dissolved Molybdenum (Mo)	mg/L	<0.001	4298198	<0.001	0.001	4298198
Dissolved Nickel (Ni)	mg/L	<0.001	4298198	<0.001	0.001	4298198
Dissolved Selenium (Se)	mg/L	<0.0001	4298198	0.0001	0.0001	4298198
Dissolved Silicon (Si)	mg/L	2.0	4298198	6.2	0.1	4298198
Dissolved Silver (Ag)	mg/L	<0.00002	4298198	<0.00002	0.00002	4298198
Dissolved Strontium (Sr)	mg/L	0.004	4298198	0.033	0.001	4298198
Dissolved Thallium (Tl)	mg/L	<0.00005	4298198	<0.00005	0.00005	4298198
Dissolved Tin (Sn)	mg/L	<0.005	4298198	<0.005	0.005	4298198
Dissolved Titanium (Ti)	mg/L	<0.005	4298198	<0.005	0.005	4298198
Dissolved Uranium (U)	mg/L	0.0002	4298198	<0.0001	0.0001	4298198
Dissolved Vanadium (V)	mg/L	<0.005	4298198	<0.005	0.005	4298198
Dissolved Zinc (Zn)	mg/L	<0.005	4298198	0.010	0.005	4298198
Dissolved Zirconium (Zr)	mg/L	<0.0005	4298198	<0.0005	0.0005	4298198
Dissolved Calcium (Ca)	mg/L	1.16	4287299	2.98	0.05	4287299
Dissolved Magnesium (Mg)	mg/L	0.12	4287299	0.39	0.05	4287299
Dissolved Potassium (K)	mg/L	0.15	4287299	0.20	0.05	4287299

Maxxam Job #: B091024
 Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
 Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		X18091		X18092		
Sampling Date		2010/09/23 13:00		2010/09/23 15:10		
	Units	MCNAB CREEK	QC Batch	HARLEQUIN CREEK	RDL	QC Batch
Dissolved Sodium (Na)	mg/L	0.68	4287299	2.33	0.05	4287299
Dissolved Sulphur (S)	mg/L	<3	4287299	<3	3	4287299

Maxxam Job #: B091024
 Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
 Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		X18091	X18092		
Sampling Date		2010/09/23 13:00	2010/09/23 15:10		
	Units	MCNAB CREEK	HARLEQUIN CREEK	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	3.3	9.7	0.5	4287266

RDL = Reportable Detection Limit

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		X18091	X18092		
Sampling Date		2010/09/23 13:00	2010/09/23 15:10		
	Units	MCNAB CREEK	HARLEQUIN CREEK	RDL	QC Batch
Total Metals by ICPMS					
Total Aluminum (Al)	mg/L	0.078	0.032	0.003	4300576
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4300576
Total Arsenic (As)	mg/L	0.0002	0.0003	0.0001	4300576
Total Barium (Ba)	mg/L	0.002	0.001	0.001	4300576
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4300576
Total Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4300576
Total Boron (B)	mg/L	<0.05	<0.05	0.05	4300576
Total Cadmium (Cd)	mg/L	<0.00001	0.00006	0.00001	4300576
Total Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4300576
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4300576
Total Copper (Cu)	mg/L	0.0004	0.0005	0.0002	4300576
Total Iron (Fe)	mg/L	0.007	0.108	0.005	4300576
Total Lead (Pb)	mg/L	0.0002	<0.0002	0.0002	4300576
Total Lithium (Li)	mg/L	<0.005	<0.005	0.005	4300576
Total Manganese (Mn)	mg/L	<0.001	0.004	0.001	4300576
Total Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4300576
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4300576
Total Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4300576
Total Selenium (Se)	mg/L	<0.0001	0.0001	0.0001	4300576
Total Silicon (Si)	mg/L	1.9	6.4	0.1	4300576
Total Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4300576
Total Strontium (Sr)	mg/L	0.005	0.037	0.001	4300576
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4300576
Total Tin (Sn)	mg/L	<0.005	<0.005	0.005	4300576
Total Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4300576
Total Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4300576
Total Vanadium (V)	mg/L	<0.005	<0.005	0.005	4300576
Total Zinc (Zn)	mg/L	<0.005	0.012	0.005	4300576
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4300576
Total Calcium (Ca)	mg/L	1.11	3.23	0.05	4287394
Total Magnesium (Mg)	mg/L	0.13	0.39	0.05	4287394
Total Potassium (K)	mg/L	0.16	0.20	0.05	4287394
Total Sodium (Na)	mg/L	0.68	2.43	0.05	4287394
Total Sulphur (S)	mg/L	<3	<3	3	4287394

RDL = Reportable Detection Limit

Maxxam Job #: B091024
 Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
 Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

TOTAL TKN IN WATER (WATER)

Maxxam ID		X18091		X18092		
Sampling Date		2010/09/23 13:00		2010/09/23 15:10		
	Units	MCNAB CREEK	QC Batch	HARLEQUIN CREEK	RDL	QC Batch
Nutrients						
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.12	4287274	0.11	0.02	4287274
Nitrate plus Nitrite (N)	mg/L	0.14	4312442	0.07	0.02	4288840
Total Nitrogen (N)	mg/L	0.26	4298869	0.18	0.02	4298869

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

Sample X18092, Elements by CRC ICPMS (dissolved): Test repeated.

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4288663	Total Phosphorus (P)	2010/09/27	105	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4288840	Nitrate plus Nitrite (N)	2010/09/24	88	80 - 120	103	80 - 120	<0.02	mg/L	NC ⁽¹⁾	25
4289039	Nitrite (N)	2010/09/24	88	80 - 120	101	80 - 120	<0.005	mg/L	NC ⁽¹⁾	20
4289105	Conductivity	2010/09/24			100	80 - 120	<1	uS/cm	1.5	20
4289106	Alkalinity (Total as CaCO3)	2010/09/24	NC	80 - 120	96	80 - 120	<0.5	mg/L	12.3	20
4289106	Alkalinity (PP as CaCO3)	2010/09/24					<0.5	mg/L	NC	20
4289106	Bicarbonate (HCO3)	2010/09/24					<0.5	mg/L	12.3	20
4289106	Carbonate (CO3)	2010/09/24					<0.5	mg/L	NC	20
4289106	Hydroxide (OH)	2010/09/24					<0.5	mg/L	NC	20
4289201	Dissolved Chloride (Cl)	2010/09/24	NC	80 - 120	97	80 - 120	<0.5	mg/L	NC	20
4289205	Dissolved Sulphate (SO4)	2010/09/24	NC	80 - 120	91	80 - 120	<0.5	mg/L	1.7	20
4289562	Total Suspended Solids	2010/09/27	104	80 - 120	102	80 - 120	<4	mg/L	NC	25
4289568	Total Dissolved Solids	2010/09/27	98	80 - 120	96	80 - 120	<10	mg/L	1	20
4289729	Turbidity	2010/09/25			102	80 - 120	<0.1	NTU	3.6	20
4295433	Acidity (pH 8.3)	2010/09/28			111	80 - 120	0.7, RDL=0.5	mg/L	2.3	20
4295433	Acidity (pH 4.5)	2010/09/28					<0.5	mg/L	NC	20
4298123	Ammonia (N)	2010/09/29	103	80 - 120	96	80 - 120	<0.005	mg/L	NC ⁽¹⁾	20
4298198	Dissolved Arsenic (As)	2010/09/30	110	80 - 120	102	80 - 120	<0.0001	mg/L	0	20
4298198	Dissolved Beryllium (Be)	2010/09/30	111	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
4298198	Dissolved Cadmium (Cd)	2010/09/30	107	80 - 120	102	80 - 120	<0.00001	mg/L	3.7	20
4298198	Dissolved Chromium (Cr)	2010/09/30	102	80 - 120	99	80 - 120	<0.001	mg/L	NC	20
4298198	Dissolved Cobalt (Co)	2010/09/30	101	80 - 120	100	80 - 120	<0.0005	mg/L	NC	20
4298198	Dissolved Copper (Cu)	2010/09/30	NC	80 - 120	104	80 - 120	<0.0002	mg/L	4.0	20
4298198	Dissolved Lead (Pb)	2010/09/30	104	80 - 120	102	80 - 120	<0.0002	mg/L	NC	20
4298198	Dissolved Lithium (Li)	2010/09/30	107	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
4298198	Dissolved Nickel (Ni)	2010/09/30	NC	80 - 120	105	80 - 120	<0.001	mg/L	5.4	20
4298198	Dissolved Selenium (Se)	2010/09/30	109	80 - 120	101	80 - 120	<0.0001	mg/L	2.3	20
4298198	Dissolved Uranium (U)	2010/09/30	108	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
4298198	Dissolved Vanadium (V)	2010/09/30	NC	80 - 120	100	80 - 120	<0.005	mg/L	3.1	20
4298198	Dissolved Zinc (Zn)	2010/09/30	114	80 - 120	101	80 - 120	<0.005	mg/L	NC	20
4298198	Dissolved Aluminum (Al)	2010/09/30					<0.003	mg/L	9.6	20
4298198	Dissolved Antimony (Sb)	2010/09/30					<0.0005	mg/L	NC	20
4298198	Dissolved Barium (Ba)	2010/09/30					<0.001	mg/L	2.0	20
4298198	Dissolved Bismuth (Bi)	2010/09/30					<0.001	mg/L	NC	20
4298198	Dissolved Boron (B)	2010/09/30					<0.05	mg/L	2.8	20
4298198	Dissolved Iron (Fe)	2010/09/30					<0.005	mg/L	0.7	20
4298198	Dissolved Manganese (Mn)	2010/09/30					<0.001	mg/L	2.6	20
4298198	Dissolved Mercury (Hg)	2010/09/30					<0.00002	mg/L	NC	20
4298198	Dissolved Molybdenum (Mo)	2010/09/30					<0.001	mg/L	1.5	20

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4298198	Dissolved Silicon (Si)	2010/09/30					<0.1	mg/L	1.9	20
4298198	Dissolved Silver (Ag)	2010/09/30					<0.00002	mg/L	NC	20
4298198	Dissolved Strontium (Sr)	2010/09/30					<0.001	mg/L	0.3	20
4298198	Dissolved Thallium (Tl)	2010/09/30					<0.00005	mg/L	NC	20
4298198	Dissolved Tin (Sn)	2010/09/30					<0.005	mg/L	NC	20
4298198	Dissolved Titanium (Ti)	2010/09/30					<0.005	mg/L	NC	20
4298198	Dissolved Zirconium (Zr)	2010/09/30					<0.0005	mg/L	NC	20
4298869	Total Nitrogen (N)	2010/09/29	97	80 - 120	105	80 - 120	<0.02	mg/L	6.2	20
4300576	Total Arsenic (As)	2010/10/01	107	80 - 120	99	80 - 120	<0.0001	mg/L	3.4	20
4300576	Total Beryllium (Be)	2010/10/01	113	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
4300576	Total Cadmium (Cd)	2010/10/01	NC	80 - 120	102	80 - 120	<0.00001	mg/L	2.8	20
4300576	Total Chromium (Cr)	2010/10/01	98	80 - 120	88	80 - 120	<0.001	mg/L	NC	20
4300576	Total Cobalt (Co)	2010/10/01	101	80 - 120	96	80 - 120	<0.0005	mg/L	NC	20
4300576	Total Copper (Cu)	2010/10/01	NC	80 - 120	98	80 - 120	<0.0002	mg/L	4.3	20
4300576	Total Lead (Pb)	2010/10/01	104	80 - 120	99	80 - 120	<0.0002	mg/L	NC	20
4300576	Total Lithium (Li)	2010/10/01	114	80 - 120	104	80 - 120	<0.005	mg/L	NC	20
4300576	Total Nickel (Ni)	2010/10/01	100	80 - 120	102	80 - 120	<0.001	mg/L	NC	20
4300576	Total Selenium (Se)	2010/10/01	103	80 - 120	104	80 - 120	<0.0001	mg/L	NC	20
4300576	Total Uranium (U)	2010/10/01	105	80 - 120	98	80 - 120	<0.0001	mg/L	NC	20
4300576	Total Vanadium (V)	2010/10/01	98	80 - 120	90	80 - 120	<0.005	mg/L	NC	20
4300576	Total Zinc (Zn)	2010/10/01	NC	80 - 120	114	80 - 120	<0.005	mg/L	5.9	20
4300576	Total Aluminum (Al)	2010/10/01					<0.003	mg/L	5.2	20
4300576	Total Antimony (Sb)	2010/10/01					<0.0005	mg/L	NC	20
4300576	Total Barium (Ba)	2010/10/01					<0.001	mg/L	2.8	20
4300576	Total Bismuth (Bi)	2010/10/01					<0.001	mg/L	NC	20
4300576	Total Boron (B)	2010/10/01					<0.05	mg/L	NC	20
4300576	Total Iron (Fe)	2010/10/01					<0.005	mg/L	1.7	20
4300576	Total Manganese (Mn)	2010/10/01					<0.001	mg/L	2.7	20
4300576	Total Mercury (Hg)	2010/10/01					0.00004, RDL=0.00002	mg/L	NC	20
4300576	Total Molybdenum (Mo)	2010/10/01					<0.001	mg/L	NC	20
4300576	Total Silicon (Si)	2010/10/01					<0.1	mg/L	2.3	20
4300576	Total Silver (Ag)	2010/10/01					<0.00002	mg/L	NC	20
4300576	Total Strontium (Sr)	2010/10/01					<0.001	mg/L	3.6	20
4300576	Total Thallium (Tl)	2010/10/01					<0.00005	mg/L	NC	20
4300576	Total Tin (Sn)	2010/10/01					<0.005	mg/L	NC	20
4300576	Total Titanium (Ti)	2010/10/01					<0.005	mg/L	NC	20
4300576	Total Zirconium (Zr)	2010/10/01					<0.0005	mg/L	NC	20
4303818	Fluoride (F)	2010/09/30	104	80 - 120	100	80 - 120	<0.01	mg/L	NC	20
4312442	Nitrate plus Nitrite (N)	2010/10/04			105	80 - 120	<0.02	mg/L		

Maxxam Job #: B091024
Report Date: 2010/10/06

GOLDER ASSOCIATES LTD
Client Project #: 09-1416-0004-6000

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4312761	Ammonia (N)	2010/10/05			97	80 - 120	<0.005	mg/L		
4313030	Dissolved Cadmium (Cd)	2010/10/05	105	80 - 120	99	80 - 120	<0.00001	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - RDL raised due to sample matrix interference.

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #473 GOLDER ASSOCIATES LTD	Company Name:	Quotation #: B00978	MAXXAM JOB #:	BOTTLE ORDER #:	B091024		
Contact Name: Max Schuetz	Contact Name:	P.O. #: 09-1416-0004-6000	CHAIN OF CUSTODY #:	PROJECT MANAGER:	VJ OCO		
Address: Warehouse 2449 Beta Ave. 500, 4266 Still BURNABY BC V5C 6C6 Creek Dr.	Address:	Project #:	C#108944-01-01		108944		
Phone: (604)296-4200 Fax: (604)298-5253	Phone: Fax:	Project Name:	Site #:				
Email: mschuetz@golder.com	Email:	Sampled By:					

REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS:	ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:			
		Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated Colourimetry	Conductance - water	CSR Dissolved Metals in Water Not Filtered Preserved	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) <input type="checkbox"/> Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)	

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

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated Colourimetry	Conductance - water	CSR Dissolved Metals in Water Not Filtered Preserved	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	# of Bottles	Comments
1	McNab. Creek.	23/09/16	1300	Water	N	N												7 Bottles total
2	(H) Harboun Creek	1	1510	Water	N	N												7 Bottles total
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only		
			ANGI XIONG	10/09/23	18:40		Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: J/S	Custody Seal Intact on Cooler? N/A <input type="checkbox"/> Yes <input type="checkbox"/> No

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

Your P.O. #: 09-1416-0004-6000
 Your Project #: MCBAN CR
 Your C.O.C. #: 11621501, 116215-01-01

Attention: Max Schuetz
 GOLDER ASSOCIATES LTD
 4260 STILL CREEK DRIVE
 Suite 500
 BURNABY, BC
 Canada V5C 6C6

Report Date: 2010/11/08


CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A5337
Received: 2010/10/29, 08:45

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3	2	N/A	2010/11/02	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/10/30	2010/10/30	BRN SOP-00264 R4.0	Based on SM2320B
Chloride by Automated Colourimetry	2	N/A	2010/11/01	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/10/30	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/11/01	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	2	N/A	2010/11/05		
Hardness (calculated as CaCO3)	2	N/A	2010/11/08		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/11/08	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/11/06	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/10/29	2010/11/05	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/11/04	2010/11/05	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/11/02	2010/11/02	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	2	N/A	2010/11/01	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	2	N/A	2010/10/30		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/10/30	BRN SOP-00233 R1.0	EPA 353.2
Filter and HNO3 Preserve for Metals	2	N/A	2010/11/04	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/10/30	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/11/01	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/11/02	BRN SOP 00276 R4.0	SM 2540C
TKN (Calc. TN, N/N) total	2	N/A	2010/11/02		
Total Phosphorus	2	N/A	2010/11/02	BRN SOP-00236 R4.0	SM 4500
Total Suspended Solids	2	N/A	2010/11/02	BRN SOP-00277 R5.0	Based on SM - 2540 D
Turbidity	2	N/A	2010/10/30	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Encryption Key  VJ Oco
 08 Nov 2010 17:10:58 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

VJ OCO, Burnaby Customer Service
 Email: VOco@maxxam.ca
 Phone# (604) 639-8422

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0A5337
 Report Date: 2010/11/08

 GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Misc. Inorganics					
Acidity (pH 4.5)	mg/L	<0.5	<0.5	0.5	4389991
Acidity (pH 8.3)	mg/L	2.0	2.2	0.5	4389991
ANIONS					
Nitrite (N)	mg/L	<0.005	<0.005	0.005	4386231
Calculated Parameters					
Filter and HNO3 Preservation	N/A	LAB	LAB	N/A	4396432
Misc. Inorganics					
Fluoride (F)	mg/L	0.02	0.01	0.01	4387213
Alkalinity (Total as CaCO3)	mg/L	2.5	1.1	0.5	4386059
Alkalinity (PP as CaCO3)	mg/L	<0.5	<0.5	0.5	4386059
Bicarbonate (HCO3)	mg/L	3.1	1.4	0.5	4386059
Carbonate (CO3)	mg/L	<0.5	<0.5	0.5	4386059
Hydroxide (OH)	mg/L	<0.5	<0.5	0.5	4386059
Anions					
Dissolved Sulphate (SO4)	mg/L	<0.5	<0.5	0.5	4389526
Dissolved Chloride (Cl)	mg/L	<0.5	<0.5	0.5	4389380
Nutrients					
Ammonia (N)	mg/L	<0.005	<0.005	0.005	4387175
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.37	0.15	0.02	4383174
Total Phosphorus (P)	mg/L	0.013	<0.005	0.005	4388052
Physical Properties					
Conductivity	uS/cm	10	13	1	4386058
pH	pH Units	6.49	5.94		4386051
Physical Properties					
Total Suspended Solids	mg/L	<4	<4	4	4390043
Total Dissolved Solids	mg/L	<10	<10	10	4390249
Turbidity	NTU	0.4	0.2	0.1	4386201

N/A = Not Applicable

RDL = Reportable Detection Limit



Maxxam Job #: B0A5337
Report Date: 2010/11/08

GOLDER ASSOCIATES LTD
Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Misc. Inorganics					
Dissolved Hardness (CaCO3)	mg/L	2.6	2.8	0.5	4382385

RDL = Reportable Detection Limit

Maxxam Job #: B0A5337
 Report Date: 2010/11/08

 GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Dissolved Metals by ICPMS					
Dissolved Aluminum (Al)	mg/L	0.099	0.077	0.003	4394965
Dissolved Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4394965
Dissolved Arsenic (As)	mg/L	0.0002	<0.0001	0.0001	4394965
Dissolved Barium (Ba)	mg/L	0.002	0.005	0.001	4394965
Dissolved Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4394965
Dissolved Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4394965
Dissolved Boron (B)	mg/L	<0.05	<0.05	0.05	4394965
Dissolved Cadmium (Cd)	mg/L	0.00002	0.00002	0.00001	4394965
Dissolved Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4394965
Dissolved Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4394965
Dissolved Copper (Cu)	mg/L	0.0007	0.0003	0.0002	4394965
Dissolved Iron (Fe)	mg/L	0.018	0.010	0.005	4394965
Dissolved Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4394965
Dissolved Lithium (Li)	mg/L	<0.005	<0.005	0.005	4394965
Dissolved Manganese (Mn)	mg/L	<0.001	0.003	0.001	4394965
Dissolved Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4394965
Dissolved Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4394965
Dissolved Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4394965
Dissolved Selenium (Se)	mg/L	<0.0001	<0.0001	0.0001	4394965
Dissolved Silicon (Si)	mg/L	1.6	2.3	0.1	4394965
Dissolved Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4394965
Dissolved Strontium (Sr)	mg/L	0.004	0.010	0.001	4394965
Dissolved Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4394965
Dissolved Tin (Sn)	mg/L	<0.005	<0.005	0.005	4394965
Dissolved Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4394965
Dissolved Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4394965
Dissolved Vanadium (V)	mg/L	<0.005	<0.005	0.005	4394965
Dissolved Zinc (Zn)	mg/L	<0.005	<0.005	0.005	4394965
Dissolved Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4394965
Dissolved Calcium (Ca)	mg/L	0.86	0.84	0.05	4382386
Dissolved Magnesium (Mg)	mg/L	0.10	0.17	0.05	4382386
Dissolved Potassium (K)	mg/L	0.11	<0.05	0.05	4382386
Dissolved Sodium (Na)	mg/L	0.58	0.92	0.05	4382386
Dissolved Sulphur (S)	mg/L	<3	<3	3	4382386

RDL = Reportable Detection Limit



Maxxam Job #: B0A5337
Report Date: 2010/11/08

GOLDER ASSOCIATES LTD
Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	2.5	2.8	0.5	4382472

RDL = Reportable Detection Limit

Maxxam Job #: B0A5337
 Report Date: 2010/11/08

 GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Total Metals by ICPMS					
Total Aluminum (Al)	mg/L	0.087	0.073	0.003	4397833
Total Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4397833
Total Arsenic (As)	mg/L	0.0001	<0.0001	0.0001	4397833
Total Barium (Ba)	mg/L	0.002	0.004	0.001	4397833
Total Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4397833
Total Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4397833
Total Boron (B)	mg/L	<0.05	<0.05	0.05	4397833
Total Cadmium (Cd)	mg/L	0.00001	0.00002	0.00001	4397833
Total Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4397833
Total Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4397833
Total Copper (Cu)	mg/L	0.0005	0.0003	0.0002	4397833
Total Iron (Fe)	mg/L	0.028	0.009	0.005	4397833
Total Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4397833
Total Lithium (Li)	mg/L	<0.005	<0.005	0.005	4397833
Total Manganese (Mn)	mg/L	<0.001	0.004	0.001	4397833
Total Mercury (Hg)	mg/L	0.00002	0.00002	0.00002	4397833
Total Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4397833
Total Nickel (Ni)	mg/L	<0.001	0.001	0.001	4397833
Total Selenium (Se)	mg/L	<0.0001	<0.0001	0.0001	4397833
Total Silicon (Si)	mg/L	1.4	2.1	0.1	4397833
Total Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4397833
Total Strontium (Sr)	mg/L	0.004	0.009	0.001	4397833
Total Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4397833
Total Tin (Sn)	mg/L	<0.005	<0.005	0.005	4397833
Total Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4397833
Total Uranium (U)	mg/L	0.0002	<0.0001	0.0001	4397833
Total Vanadium (V)	mg/L	<0.005	<0.005	0.005	4397833
Total Zinc (Zn)	mg/L	<0.005	<0.005	0.005	4397833
Total Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4397833
Total Calcium (Ca)	mg/L	0.85	0.85	0.05	4382473
Total Magnesium (Mg)	mg/L	0.10	0.17	0.05	4382473
Total Potassium (K)	mg/L	0.10	<0.05	0.05	4382473
Total Sodium (Na)	mg/L	0.54	0.84	0.05	4382473
Total Sulphur (S)	mg/L	<3	<3	3	4382473

RDL = Reportable Detection Limit



Maxxam Job #: B0A5337
Report Date: 2010/11/08

GOLDER ASSOCIATES LTD
Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

TOTAL TKN IN WATER (WATER)

Maxxam ID		Y06339	Y06340		
Sampling Date		2010/10/28 12:32	2010/10/28 13:28		
	Units	MCNAB	(H) HARLEQUIN	RDL	QC Batch
Nutrients					
Nitrate plus Nitrite (N)	mg/L	0.05	0.36	0.02	4386230
Total Nitrogen (N)	mg/L	0.42	0.51	0.02	4391232

RDL = Reportable Detection Limit

Maxxam Job #: B0A5337
 Report Date: 2010/11/08

 GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4386058	Conductivity	2010/10/30			100	80 - 120	<1	uS/cm	0.4	20
4386059	Alkalinity (Total as CaCO3)	2010/10/30	NC	80 - 120	101	80 - 120	<0.5	mg/L	0.2	20
4386059	Alkalinity (PP as CaCO3)	2010/10/30					<0.5	mg/L	NC	20
4386059	Bicarbonate (HCO3)	2010/10/30					<0.5	mg/L	0.2	20
4386059	Carbonate (CO3)	2010/10/30					<0.5	mg/L	NC	20
4386059	Hydroxide (OH)	2010/10/30					<0.5	mg/L	NC	20
4386201	Turbidity	2010/10/30			102	80 - 120	<0.1	NTU	2.6	20
4386230	Nitrate plus Nitrite (N)	2010/10/30	101	80 - 120	91	80 - 120	<0.02	mg/L	NC	25
4386231	Nitrite (N)	2010/10/30	112	80 - 120	98	80 - 120	<0.005	mg/L	NC	20
4387175	Ammonia (N)	2010/11/01	NC	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4387213	Fluoride (F)	2010/11/01	94	80 - 120	98	80 - 120	<0.01	mg/L	1.5	20
4388052	Total Phosphorus (P)	2010/11/02	94	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4389380	Dissolved Chloride (Cl)	2010/11/01	NC	80 - 120	101	80 - 120	<0.5	mg/L	0.03	20
4389526	Dissolved Sulphate (SO4)	2010/11/01	NC	80 - 120	105	80 - 120	<0.5	mg/L	1.5	20
4389991	Acidity (pH 8.3)	2010/11/02			113	80 - 120	<0.5	mg/L	NC	20
4389991	Acidity (pH 4.5)	2010/11/02					<0.5	mg/L	NC	20
4390043	Total Suspended Solids	2010/11/02	100	80 - 120	103	80 - 120	<4	mg/L	NC	25
4390249	Total Dissolved Solids	2010/11/02	106	80 - 120	98	80 - 120	<10	mg/L	3.3	20
4391232	Total Nitrogen (N)	2010/11/02	99	80 - 120	104	80 - 120	<0.02	mg/L	NC(1)	20
4394965	Dissolved Arsenic (As)	2010/11/06	104	80 - 120	102	80 - 120	<0.0001	mg/L	5.6	20
4394965	Dissolved Beryllium (Be)	2010/11/06	108	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
4394965	Dissolved Cadmium (Cd)	2010/11/06	101	80 - 120	102	80 - 120	<0.00001	mg/L	3.9	20
4394965	Dissolved Chromium (Cr)	2010/11/06	105	80 - 120	104	80 - 120	<0.001	mg/L	NC	20
4394965	Dissolved Cobalt (Co)	2010/11/06	106	80 - 120	103	80 - 120	<0.0005	mg/L	NC	20
4394965	Dissolved Copper (Cu)	2010/11/06	103	80 - 120	104	80 - 120	<0.0002	mg/L	2.7	20
4394965	Dissolved Lead (Pb)	2010/11/06	99	80 - 120	103	80 - 120	<0.0002	mg/L	NC	20
4394965	Dissolved Lithium (Li)	2010/11/06	102	80 - 120	103	80 - 120	<0.005	mg/L	NC	20
4394965	Dissolved Nickel (Ni)	2010/11/06	103	80 - 120	100	80 - 120	<0.001	mg/L	NC	20
4394965	Dissolved Selenium (Se)	2010/11/06	104	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
4394965	Dissolved Uranium (U)	2010/11/06	101	80 - 120	101	80 - 120	<0.0001	mg/L	1.3	20
4394965	Dissolved Vanadium (V)	2010/11/06	108	80 - 120	102	80 - 120	<0.005	mg/L	NC	20
4394965	Dissolved Zinc (Zn)	2010/11/06	NC	80 - 120	100	80 - 120	<0.005	mg/L	NC	20
4394965	Dissolved Aluminum (Al)	2010/11/06					<0.003	mg/L	NC	20
4394965	Dissolved Antimony (Sb)	2010/11/06					<0.0005	mg/L	NC	20
4394965	Dissolved Barium (Ba)	2010/11/06					<0.001	mg/L	0.8	20
4394965	Dissolved Bismuth (Bi)	2010/11/06					<0.001	mg/L	NC	20
4394965	Dissolved Boron (B)	2010/11/06					<0.05	mg/L	NC	20
4394965	Dissolved Iron (Fe)	2010/11/06					<0.005	mg/L	NC	20
4394965	Dissolved Manganese (Mn)	2010/11/06					<0.001	mg/L	1.1	20



Maxxam Job #: B0A5337
 Report Date: 2010/11/08

GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4394965	Dissolved Mercury (Hg)	2010/11/06					0.00002, RDL=0.00002	mg/L	NC	20
4394965	Dissolved Molybdenum (Mo)	2010/11/06					<0.001	mg/L	NC	20
4394965	Dissolved Silicon (Si)	2010/11/06					<0.1	mg/L	0.004	20
4394965	Dissolved Silver (Ag)	2010/11/06					<0.00002	mg/L	NC	20
4394965	Dissolved Strontium (Sr)	2010/11/06					<0.001	mg/L	0.6	20
4394965	Dissolved Thallium (Tl)	2010/11/06					<0.00005	mg/L	NC	20
4394965	Dissolved Tin (Sn)	2010/11/06					<0.005	mg/L	NC	20
4394965	Dissolved Titanium (Ti)	2010/11/06					<0.005	mg/L	NC	20
4394965	Dissolved Zirconium (Zr)	2010/11/06					<0.0005	mg/L	NC	20
4397833	Total Arsenic (As)	2010/11/05	98	80 - 120	100	80 - 120	<0.0001	mg/L	NC	20
4397833	Total Beryllium (Be)	2010/11/05	102	80 - 120	105	80 - 120	<0.0001	mg/L	NC	20
4397833	Total Cadmium (Cd)	2010/11/05	100	80 - 120	103	80 - 120	0.00002, RDL=0.00001	mg/L	NC	20
4397833	Total Chromium (Cr)	2010/11/05	101	80 - 120	100	80 - 120	<0.001	mg/L	NC	20
4397833	Total Cobalt (Co)	2010/11/05	105	80 - 120	100	80 - 120	<0.0005	mg/L	NC	20
4397833	Total Copper (Cu)	2010/11/05	NC	80 - 120	104	80 - 120	<0.0002	mg/L	0.1	20
4397833	Total Lead (Pb)	2010/11/05	101	80 - 120	102	80 - 120	<0.0002	mg/L	1.0	20
4397833	Total Lithium (Li)	2010/11/05	106	80 - 120	112	80 - 120	<0.005	mg/L	NC	20
4397833	Total Nickel (Ni)	2010/11/05	103	80 - 120	107	80 - 120	<0.001	mg/L	NC	20
4397833	Total Selenium (Se)	2010/11/05	101	80 - 120	102	80 - 120	<0.0001	mg/L	NC	20
4397833	Total Uranium (U)	2010/11/05	100	80 - 120	100	80 - 120	<0.0001	mg/L	NC	20
4397833	Total Vanadium (V)	2010/11/05	102	80 - 120	100	80 - 120	<0.005	mg/L	NC	20
4397833	Total Zinc (Zn)	2010/11/05	NC	80 - 120	97	80 - 120	<0.005	mg/L	NC	20
4397833	Total Aluminum (Al)	2010/11/05					0.006, RDL=0.003	mg/L	18.9	20
4397833	Total Antimony (Sb)	2010/11/05					<0.0005	mg/L	NC	20
4397833	Total Barium (Ba)	2010/11/05					<0.001	mg/L	2.4	20
4397833	Total Bismuth (Bi)	2010/11/05					<0.001	mg/L	NC	20
4397833	Total Boron (B)	2010/11/05					<0.05	mg/L	NC	20
4397833	Total Iron (Fe)	2010/11/05					<0.005	mg/L	1.2	20
4397833	Total Manganese (Mn)	2010/11/05					<0.001	mg/L	1.8	20
4397833	Total Mercury (Hg)	2010/11/05					0.00002, RDL=0.00002	mg/L	NC	20
4397833	Total Molybdenum (Mo)	2010/11/05					<0.001	mg/L	NC	20
4397833	Total Silicon (Si)	2010/11/05					<0.1	mg/L	1.1	20
4397833	Total Silver (Ag)	2010/11/05					<0.00002	mg/L	NC	20
4397833	Total Strontium (Sr)	2010/11/05					<0.001	mg/L	0.07	20
4397833	Total Thallium (Tl)	2010/11/05					<0.00005	mg/L	NC	20
4397833	Total Tin (Sn)	2010/11/05					<0.005	mg/L	NC	20

Maxxam Job #: B0A5337
 Report Date: 2010/11/08

GOLDER ASSOCIATES LTD
 Client Project #: MCBAN CR

Your P.O. #: 09-1416-0004-6000

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4397833	Total Titanium (Ti)	2010/11/05					<0.005	mg/L	NC	20
4397833	Total Zirconium (Zr)	2010/11/05					<0.0005	mg/L	NC	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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


Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - RDL raised due to sample matrix interference.

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #1473 GOLDER ASSOCIATES LTD	Contact Name: Max Schuetz	Company Name:	Contact Name:	Quotation #: B00978	P.O. #: 09-1416-0004-6000	MAXXAM JOB #: BOAS337	BOTTLE ORDER #: 116215
Address: Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Phone: (604)296-4200 Fax: (604)298-5253	Address:	Phone: Fax:	Project Name: McNab Cr.	Site #:	CHAIN OF CUSTODY #:	PROJECT MANAGER: VJ OCO
Email: mschuetz@golder.com		Email:		Sampled By: Jeff Bertola			C#116215-01-01



REGULATORY CRITERIA:	SPECIAL INSTRUCTIONS:	ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:				
		Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated	Colourimetry	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission): Date Required: _____ Time Required: <input type="checkbox"/> Rush Confirmation Number: _____ (call lab for #)	

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

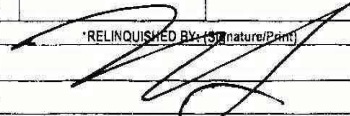
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Acidity pH 4.5 & pH 8.3	Alkalinity - Water	Ammonia-N	Chloride by Automated	Colourimetry	Conductance - water	CSR Dissolved Metals in Water	CSR Total Metals in Water	Fluoride	Nitrite (N) by CFA	pH Water	# of Bottles	Comments
1	McNab.	Oct 28/10	12:32	water	N														Report in mg/l
2	(H) Horlegun	Oct 28/10	13:29	water	N														
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only	
			C. ROSEN	10/10/29	8:45		Time Sensitive: <input type="checkbox"/>	Temperature (°C) on Receipt: 89.6
							Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No	

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1473 GOLDER ASSOCIATES LTD	Company Name:		Quotation #:	B00978	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Max Schuetz	Contact Name:		P.O. #:	09-1416-0004-6000		
Address:	Warehouse 2449 Beta Ave. BURNABY BC V5C 6C6	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(604)296-4200 Fax: (604)298-5253	Phone:		Project Name:	McNab		VJ OCO
Email:	mschuetz@golder.com	Email:		Site #:		C#116215-01-02	
				Sampled By:	Jeff Bernstein		

REGULATORY CRITERIA:					SPECIAL INSTRUCTIONS		ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:	
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM							Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Sulphate by Automated Colourimetry	Total Dissolved Solids (Filt. Residue)	Total Phosphorus	Total Suspended Solids	Total TKN in Water	Turbidity	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ <input type="checkbox"/> Rush Confirmation Number: _____ (call lab for #)			
							# of Bottles	Comments										
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix														
1	McNab	Oct 24/10	12:32	Water	U												Report in mg/L	
2	(H) Kerkgun	Oct 28/10	13:28	Water	U													
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only
			C. ROSEN	10/10/29	14:55		Time Sensitive <input type="checkbox"/> Temperature Control Receipt 1096 Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No

Your Project #: 0914160004 MCNAB
 Your C.O.C. #: G040097

Attention: Max Schuetz
 GOLDER ASSOCIATES LTD
 4260 STILL CREEK DRIVE
 Suite 500
 BURNABY, BC
 Canada V5C 6C6

Report Date: 2010/12/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B7498
 Received: 2010/12/02, 15:45

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3	2	N/A	2010/12/07	BRN SOP-00281 R3.0	Based on SM-2310
Alkalinity - Water	2	2010/12/03	2010/12/03	BBY6SOP-00026	Based on SM2320B
Chloride by Automated Colourimetry	1	N/A	2010/12/03	BRN-SOP 00234 R3.0	Based on EPA 325.2
Chloride by Automated Colourimetry	1	N/A	2010/12/06	BRN-SOP 00234 R3.0	Based on EPA 325.2
Conductance - water	2	N/A	2010/12/03	BRN SOP-00264 R2.0	Based on SM-2510B
Fluoride	2	N/A	2010/12/06	BRN SOP-00282 R4.0	Based SM - 4500 F C
Hardness Total (calculated as CaCO3)	2	N/A	2010/12/08		
Hardness (calculated as CaCO3)	2	N/A	2010/12/06		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2010/12/06	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	2	N/A	2010/12/06	BRN SOP-00206	Based on EPA 200.8
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2010/12/03	2010/12/08	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (total)	2	2010/12/06	2010/12/07	BRN SOP-00206	Based on EPA 200.8
Nitrogen (Total)	2	2010/12/09	2010/12/09	BRN SOP-00242 R3.0	Based on SM-4500N C
Ammonia-N	2	N/A	2010/12/07	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	2	N/A	2010/12/03		Based on USEPA 353.2
Nitrite (N) by CFA	2	N/A	2010/12/03	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	2	N/A	2010/12/06	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	2	N/A	2010/12/03	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	2	N/A	2010/12/03	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/12/03	BRN-SOP 00243 R1.0	Based on EPA 375.4
Total Dissolved Solids (Filt. Residue)	2	N/A	2010/12/04	BBY6SOP-00033	SM 2540C
Total Suspended Solids	2	N/A	2010/12/04	BRN SOP-00277 R5.0	Based on SM - 2540 D
Turbidity	2	N/A	2010/12/03	BRN SOP-00265 R6.0	SM - 2130B

* Results relate only to the items tested.

Encryption Key

VJ Oco
 10 Dec 2010 14:26:54 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

VJ OCO, Burnaby Customer Service
 Email: VOco@maxxam.ca
 Phone# (604) 639-8422

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID	Y80118	Y80119	Y80119	QC Batch	RDL	QC Batch
Sampling Date	2010/12/02 12:43	2010/12/02 12:57	2010/12/02 12:57	HARLEQUIN (H)		
Units	MCNAB	QC Batch	HARLEQUIN (H)		RDL	QC Batch
Misc. Inorganics						
Acidity (pH 4.5)	<0.5	4483459	<0.5		0.5	4483459
Acidity (pH 8.3)	0.6	4483459	1.1		0.5	4483459
ANIONS						
Nitrite (N)	<0.005	4476620	<0.005		0.005	4476620
Calculated Parameters						
Nitrate (N)	0.10	4474475	0.28		0.02	4474475
Misc. Inorganics						
Fluoride (F)	0.02	4479240	0.01		0.01	4479240
Alkalinity (Total as CaCO3)	2.5	4477387	0.7		0.5	4477387
Alkalinity (PP as CaCO3)	<0.5	4477387	<0.5		0.5	4477387
Bicarbonate (HCO3)	3.1	4477387	0.9		0.5	4477387
Carbonate (CO3)	<0.5	4477387	<0.5		0.5	4477387
Hydroxide (OH)	<0.5	4477387	<0.5		0.5	4477387
Anions						
Dissolved Sulphate (SO4)	0.7	4477399	0.8		0.5	4477399
Dissolved Chloride (Cl)	0.8	4482350	<0.5		0.5	4477398
Nutrients						
Ammonia (N)	<0.05(1)	4483613	<0.05(1)		0.05	4483613
Nitrate plus Nitrite (N)	0.10	4476388	0.28		0.02	4476388
Total Nitrogen (N)	0.26	4491519	0.41		0.02	4491519
Physical Properties						
Conductivity	12	4477386	12		1	4477386
pH	6.20	4477381	5.80			4477381
Physical Properties						
Total Suspended Solids	<4	4477207	<4		4	4477207
Total Dissolved Solids	<10	4477675	<10		10	4477675
Turbidity	0.3	4475301	0.2		0.1	4475301

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B0B7498
 Report Date: 2010/12/10

GOLDER ASSOCIATES LTD
 Client Project #: 0914160004 MCNAB

Sampler Initials: MS

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID	Y80118	Y80119		
Sampling Date	2010/12/02 12:43	2010/12/02 12:57		
Units	MCNAB	HARLEQUIN (H)	RDL	QC Batch
Calculated Parameters				
Filter and HNO3 Preservation	N/A	LAB	N/A	4475110
Misc. Inorganics				
Dissolved Hardness (CaCO3)	mg/L	2.7	2.6	0.5

N/A = Not Applicable
 RDL = Reportable Detection Limit

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID	Y80118	Y80119	QC Batch		
Sampling Date	2010/12/02 12:43	2010/12/02 12:57			
	MCNAB	HARLEQUIN (H)	RDL		
Dissolved Metals by ICPMS					
Units					
Dissolved Aluminum (Al)	mg/L	0.069	0.061	0.003	4475660
Dissolved Antimony (Sb)	mg/L	<0.0005	<0.0005	0.0005	4475660
Dissolved Arsenic (As)	mg/L	0.0002	<0.0001	0.0001	4475660
Dissolved Barium (Ba)	mg/L	0.002	0.004	0.001	4475660
Dissolved Beryllium (Be)	mg/L	<0.0001	<0.0001	0.0001	4475660
Dissolved Bismuth (Bi)	mg/L	<0.001	<0.001	0.001	4475660
Dissolved Boron (B)	mg/L	<0.05	<0.05	0.05	4475660
Dissolved Cadmium (Cd)	mg/L	0.00001	0.00005	0.00001	4475660
Dissolved Chromium (Cr)	mg/L	<0.001	<0.001	0.001	4475660
Dissolved Cobalt (Co)	mg/L	<0.0005	<0.0005	0.0005	4475660
Dissolved Copper (Cu)	mg/L	0.0003	0.0004	0.0002	4475660
Dissolved Iron (Fe)	mg/L	0.010	0.011	0.005	4475660
Dissolved Lead (Pb)	mg/L	<0.0002	<0.0002	0.0002	4475660
Dissolved Lithium (Li)	mg/L	<0.005	<0.005	0.005	4475660
Dissolved Manganese (Mn)	mg/L	<0.001	0.003	0.001	4475660
Dissolved Mercury (Hg)	mg/L	<0.00002	<0.00002	0.00002	4475660
Dissolved Molybdenum (Mo)	mg/L	<0.001	<0.001	0.001	4475660
Dissolved Nickel (Ni)	mg/L	<0.001	<0.001	0.001	4475660
Dissolved Selenium (Se)	mg/L	<0.0001	<0.0001	0.0001	4475660
Dissolved Silicon (Si)	mg/L	1.6	2.0	0.1	4475660
Dissolved Silver (Ag)	mg/L	<0.00002	<0.00002	0.00002	4475660
Dissolved Strontium (Sr)	mg/L	0.005	0.009	0.001	4475660
Dissolved Thallium (Tl)	mg/L	<0.00005	<0.00005	0.00005	4475660
Dissolved Tin (Sn)	mg/L	<0.005	<0.005	0.005	4475660
Dissolved Titanium (Ti)	mg/L	<0.005	<0.005	0.005	4475660
Dissolved Uranium (U)	mg/L	0.0001	<0.0001	0.0001	4475660
Dissolved Vanadium (V)	mg/L	<0.005	<0.005	0.005	4475660
Dissolved Zinc (Zn)	mg/L	<0.005	0.005	0.005	4475660
Dissolved Zirconium (Zr)	mg/L	<0.0005	<0.0005	0.0005	4475660
Dissolved Calcium (Ca)	mg/L	0.89	0.78	0.05	4474473
Dissolved Magnesium (Mg)	mg/L	0.12	0.16	0.05	4474473
Dissolved Potassium (K)	mg/L	0.11	0.05	0.05	4474473
Dissolved Sodium (Na)	mg/L	0.66	0.88	0.05	4474473
Dissolved Sulphur (S)	mg/L	<3	<3	3	4474473

RDL = Reportable Detection Limit

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID	Y80118	Y80119	Y80119	QC Batch
Sampling Date	2010/12/02 12:43	2010/12/02 12:57	HARLEQUIN (H)	RDL
Units	MCNAB			
Calculated Parameters				
Total Hardness (CaCO3)	3.5	3.0	0.5	4474474
Total Metals by ICPMS				
Total Aluminium (Al)	0.103	0.076	0.003	4479082
Total Antimony (Sb)	<0.0005	<0.0005	0.0005	4479082
Total Arsenic (As)	0.0002	<0.0001	0.0001	4479082
Total Barium (Ba)	0.002	0.004	0.001	4479082
Total Beryllium (Be)	<0.0001	<0.0001	0.0001	4479082
Total Bismuth (Bi)	<0.001	<0.001	0.001	4479082
Total Boron (B)	<0.05	<0.05	0.05	4479082
Total Cadmium (Cd)	0.00003	0.00005	0.00001	4479082
Total Chromium (Cr)	<0.001	<0.001	0.001	4479082
Total Cobalt (Co)	<0.0005	<0.0005	0.0005	4479082
Total Copper (Cu)	0.0005	0.0008	0.0002	4479082
Total Iron (Fe)	0.029	0.019	0.005	4479082
Total Lead (Pb)	<0.0002	<0.0002	0.0002	4479082
Total Lithium (Li)	<0.005	<0.005	0.005	4479082
Total Manganese (Mn)	0.001	0.004	0.001	4479082
Total Mercury (Hg)	<0.00002	<0.00002	0.00002	4479082
Total Molybdenum (Mo)	<0.001	<0.001	0.001	4479082
Total Nickel (Ni)	<0.001	<0.001	0.001	4479082
Total Selenium (Se)	<0.0001	<0.0001	0.0001	4479082
Total Silicon (Si)	1.8	2.0	0.1	4479082
Total Silver (Ag)	<0.00002	<0.00002	0.00002	4479082
Total Strontium (Sr)	0.006	0.010	0.001	4479082
Total Thallium (Tl)	<0.00005	<0.00005	0.00005	4479082
Total Tin (Sn)	<0.005	<0.005	0.005	4479082
Total Titanium (Ti)	<0.005	<0.005	0.005	4479082
Total Uranium (U)	0.0001	<0.0001	0.0001	4479082
Total Vanadium (V)	<0.005	<0.005	0.005	4479082
Total Zinc (Zn)	<0.005	0.006	0.005	4479082
Total Zirconium (Zr)	<0.0005	<0.0005	0.0005	4479082
Total Calcium (Ca)	1.12	0.91	0.05	4474474
Total Magnesium (Mg)	0.17	0.18	0.05	4474474
Total Potassium (K)	0.15	0.09	0.05	4474474
Total Sodium (Na)	0.90	1.09	0.05	4474474
Total Sulphur (S)	<3	<3	3	4474474

RDL = Reportable Detection Limit

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4475301	Turbidity	2010/12/03			98	80 - 120	<0.1	NTU	NC	20
4475660	Dissolved Arsenic (As)	2010/12/06	99	80 - 120	100	80 - 120	<0.0001	mg/L		
4475660	Dissolved Beryllium (Be)	2010/12/06	104	80 - 120	101	80 - 120	<0.0001	mg/L		
4475660	Dissolved Cadmium (Cd)	2010/12/06	106	80 - 120	103	80 - 120	<0.00001	mg/L		
4475660	Dissolved Chromium (Cr)	2010/12/06	99	80 - 120	101	80 - 120	<0.001	mg/L		
4475660	Dissolved Cobalt (Co)	2010/12/06	97	80 - 120	100	80 - 120	<0.0005	mg/L		
4475660	Dissolved Copper (Cu)	2010/12/06	96	80 - 120	104	80 - 120	<0.0002	mg/L		
4475660	Dissolved Lead (Pb)	2010/12/06	101	80 - 120	104	80 - 120	<0.0002	mg/L	NC	20
4475660	Dissolved Lithium (Li)	2010/12/06	109	80 - 120	110	80 - 120	<0.005	mg/L		
4475660	Dissolved Nickel (Ni)	2010/12/06	113	80 - 120	99	80 - 120	<0.001	mg/L		
4475660	Dissolved Selenium (Se)	2010/12/06	103	80 - 120	100	80 - 120	<0.0001	mg/L		
4475660	Dissolved Uranium (U)	2010/12/06	103	80 - 120	100	80 - 120	<0.0001	mg/L		
4475660	Dissolved Vanadium (V)	2010/12/06	98	80 - 120	98	80 - 120	<0.005	mg/L		
4475660	Dissolved Zinc (Zn)	2010/12/06	97	80 - 120	99	80 - 120	<0.005	mg/L		
4475660	Dissolved Aluminum (Al)	2010/12/06					<0.003	mg/L	NC	20
4475660	Dissolved Antimony (Sb)	2010/12/06					<0.0005	mg/L		
4475660	Dissolved Barium (Ba)	2010/12/06					<0.001	mg/L		
4475660	Dissolved Bismuth (Bi)	2010/12/06					<0.001	mg/L		
4475660	Dissolved Boron (B)	2010/12/06					<0.05	mg/L		
4475660	Dissolved Iron (Fe)	2010/12/06					<0.005	mg/L	NC	20
4475660	Dissolved Manganese (Mn)	2010/12/06					<0.001	mg/L	NC	20
4475660	Dissolved Mercury (Hg)	2010/12/06					<0.00002	mg/L		
4475660	Dissolved Molybdenum (Mo)	2010/12/06					<0.00002	mg/L		
4475660	Dissolved Silicon (Si)	2010/12/06					<0.001	mg/L		
4475660	Dissolved Silver (Ag)	2010/12/06					<0.1	mg/L		
4475660	Dissolved Strontium (Sr)	2010/12/06					<0.00002	mg/L		
4475660	Dissolved Thallium (Tl)	2010/12/06					<0.001	mg/L		
4475660	Dissolved Tin (Sn)	2010/12/06					<0.005	mg/L		
4475660	Dissolved Titanium (Ti)	2010/12/06					<0.005	mg/L		
4475660	Dissolved Zirconium (Zr)	2010/12/06					<0.0005	mg/L		
4476388	Nitrate plus Nitrite (N)	2010/12/03	102	80 - 120	97	80 - 120	<0.02	mg/L	0.05(1)	25
4476620	Nitrite (N)	2010/12/03	96	80 - 120	105	80 - 120	<0.005	mg/L	NC(1)	20
4477207	Total Suspended Solids	2010/12/04	105	80 - 120	103	80 - 120	<4	mg/L	NC	25
4477386	Conductivity	2010/12/03			99	80 - 120	<1	uS/cm	0.2	20
4477387	Alkalinity (Total as CaCO3)	2010/12/03	NC	80 - 120	103	80 - 120	<0.5	mg/L	1.1	20
4477387	Alkalinity (PP as CaCO3)	2010/12/03					<0.5	mg/L	NC	20
4477387	Bicarbonate (HCO3)	2010/12/03					<0.5	mg/L	1.1	20
4477387	Carbonate (CO3)	2010/12/03					<0.5	mg/L	NC	20
4477387	Hydroxide (OH)	2010/12/03					<0.5	mg/L	NC	20
4477398	Dissolved Chloride (Cl)	2010/12/03	NC	80 - 120	95	80 - 120	<0.5	mg/L	6.0	20

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4477999	Dissolved Sulphate (SO4)	2010/12/03	NC	80 - 120	98	80 - 120	<0.5	mg/L	2.5	20
4477675	Total Dissolved Solids	2010/12/04	110	80 - 120	98	80 - 120	<10	mg/L	3.9	20
4479082	Total Arsenic (As)	2010/12/07	NC	80 - 120	102	80 - 120	<0.0001	mg/L	2.6	20
4479082	Total Beryllium (Be)	2010/12/07	105	80 - 120	103	80 - 120	<0.0001	mg/L	NC	20
4479082	Total Cadmium (Cd)	2010/12/07	106	80 - 120	110	80 - 120	<0.00001	mg/L	NC	20
4479082	Total Chromium (Cr)	2010/12/07	98	80 - 120	107	80 - 120	<0.001	mg/L	NC	20
4479082	Total Cobalt (Co)	2010/12/07	96	80 - 120	103	80 - 120	<0.0005	mg/L	NC	20
4479082	Total Copper (Cu)	2010/12/07	NC	80 - 120	103	80 - 120	<0.0002	mg/L	1.3	20
4479082	Total Lead (Pb)	2010/12/07	NC	80 - 120	107	80 - 120	<0.0002	mg/L	1	20
4479082	Total Lithium (Li)	2010/12/07	NC	80 - 120	106	80 - 120	<0.005	mg/L	NC	20
4479082	Total Nickel (Ni)	2010/12/07	NC	80 - 120	103	80 - 120	<0.001	mg/L	1	20
4479082	Total Selenium (Se)	2010/12/07	108	80 - 120	109	80 - 120	<0.0001	mg/L	NC	20
4479082	Total Uranium (U)	2010/12/07	108	80 - 120	108	80 - 120	<0.0001	mg/L	0.7	20
4479082	Total Vanadium (V)	2010/12/07	99	80 - 120	101	80 - 120	<0.005	mg/L	NC	20
4479082	Total Zinc (Zn)	2010/12/07	NC	80 - 120	114	80 - 120	0.009, RDL=0.005	mg/L	1.8	20
4479082	Total Aluminum (Al)	2010/12/07					<0.003	mg/L	NC	20
4479082	Total Antimony (Sb)	2010/12/07					<0.0005	mg/L	NC	20
4479082	Total Barium (Ba)	2010/12/07					<0.001	mg/L	1.4	20
4479082	Total Bismuth (Bi)	2010/12/07					<0.001	mg/L	NC	20
4479082	Total Boron (B)	2010/12/07					<0.05	mg/L	NC	20
4479082	Total Iron (Fe)	2010/12/07					0.006, RDL=0.005	mg/L	0.7	20
4479082	Total Manganese (Mn)	2010/12/07					<0.001	mg/L	0.5	20
4479082	Total Mercury (Hg)	2010/12/07					<0.00002	mg/L	NC	20
4479082	Total Molybdenum (Mo)	2010/12/07					<0.001	mg/L	NC	20
4479082	Total Silicon (Si)	2010/12/07					<0.1	mg/L	1	20
4479082	Total Silver (Ag)	2010/12/07					<0.00002	mg/L	NC	20
4479082	Total Strontium (Sr)	2010/12/07					<0.001	mg/L	0.8	20
4479082	Total Thallium (Tl)	2010/12/07					<0.00005	mg/L	NC	20
4479082	Total Tin (Sn)	2010/12/07					<0.005	mg/L	NC	20
4479082	Total Titanium (Ti)	2010/12/07					<0.005	mg/L	NC	20
4479082	Total Zirconium (Zr)	2010/12/07					<0.0005	mg/L	NC	20
4479240	Fluoride (F)	2010/12/06	98	80 - 120	96	80 - 120	<0.01	mg/L	NC	20
4482350	Dissolved Chloride (Cl)	2010/12/06	NC	80 - 120	96	80 - 120	<0.5	mg/L	NC	20
4483459	Acidity (pH 8.3)	2010/12/07			115	80 - 120	<0.5	mg/L	NC	20
4483459	Acidity (pH 4.5)	2010/12/07					<0.5	mg/L	NC	20

Maxxam Job #: B0B7498
 Report Date: 2010/12/10

GOLDER ASSOCIATES LTD
 Client Project #: 0914160004 MCNAB

Sampler Initials: MS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4483613	Ammonia (N)	2010/12/07	104	80 - 120	98	80 - 120	<0.005	mg/L	NC(2)	20
4491519	Total Nitrogen (N)	2010/12/09	113	80 - 120	116	80 - 120	0.03, RDL=0.02	mg/L	14.7	20

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - RDL raised due to sample matrix interference.

Sample analysed past recommended hold time

(2) - RDL raised due to sample matrix interference.



Maxxam Job#: 6087498

PO #: _____
 Quotation #: _____
 Project #: 091416-0009
 Proj. Name: McNab
 Location: _____
 Sampled By: Max Schwetz

Report To: Same
 PC: _____
 Fax: _____
 Ph: _____

Company Name: _____
 Contact Name: _____
 Address: _____
 Phone / Fax#: _____
 E-mail: _____

REGULATORY REQUIREMENTS SERVICE REQUESTED:
 Regular Turn Around Time (TAT) (5 days for most tests)
 RUSH (Please contact the lab)
 1 Day 2 Day 3 Day
 Date Required: _____
 DRINKING WATER
 Special Instructions: _____
 Return Cooler Ship Sample Bottles (please specify) _____

ANALYSIS REQUESTED

Asbestos	<input type="checkbox"/>	Hold	<input type="checkbox"/>
Coliform, Total & E.coli	<input type="checkbox"/>		
COB	<input type="checkbox"/>		
BOB	<input type="checkbox"/>		
pH	<input type="checkbox"/>		
Conductivity	<input type="checkbox"/>		
Alkalinity	<input type="checkbox"/>		
Total Suspended Solids-TSS	<input type="checkbox"/>		
TDS	<input type="checkbox"/>		
Chloride	<input type="checkbox"/>		
Fluoride	<input type="checkbox"/>		
Suphate	<input type="checkbox"/>		
Nitrate	<input type="checkbox"/>		
Ammonia	<input type="checkbox"/>		
Turbidity	<input type="checkbox"/>		
Total Hardness	<input type="checkbox"/>		
Field Hardness?	<input type="checkbox"/>		
Disolved Metals	<input type="checkbox"/>		
Field Hardness?	<input type="checkbox"/>		
TOG	<input type="checkbox"/>		
SWOG	<input type="checkbox"/>		
Phenols by GAAP	<input type="checkbox"/>		
Phenols by GCMS	<input type="checkbox"/>		
PB8	<input type="checkbox"/>		
CCME-PHC (Fractions 1-4 Plus BTEX)	<input type="checkbox"/>		
CCME-PHC (Fractions 1-4 Plus BTEX)	<input type="checkbox"/>		
PAH	<input type="checkbox"/>		
LEPH/NEPH	<input type="checkbox"/>		
TEH	<input type="checkbox"/>		
VOC/MPH	<input type="checkbox"/>		
BTEX/MPH	<input type="checkbox"/>		
MTBE	<input type="checkbox"/>		

Sample Identification	Lab Identification	Sample Type	Date/Time Sampled
1 McNab		Water	Dec. 2/16 12:43
2 Horkegun (H)		Water	Dec. 3/10 12:57
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

*Parameters as per 091024
 Max Schwetz 604 740 8297*

Regulator/Analyst by: _____
 Date (YY/MM/DD): _____ Time: _____
 Received by: Max Schwetz
 Date (YY/MM/DD): 10/12/08 Time: 15:08
 Temperature on Receipt (C): _____
 Is Sample on Cooler? Yes No
 What: Maxxam Yellow Client

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL DELAYS.
 Maxxam International Corporation or Maxxam Analytica
 COC-1020 (08/07)



GOLDER ASSOCIATES LTD.
ATTN: Ali Canning
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 13-SEP-12
Report Date: 24-SEP-12 12:40 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1208786
Project P.O. #: NOT SUBMITTED
Job Reference: 11-1422-0046
C of C Numbers: 10-239465
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID	Description	Sampled Date	Sampled Time	Client ID
		L1208786-1	Water	10-SEP-12	14:50	MCF-5
WATER						
Physical Tests	Colour, True (CU)		<5.0			
	Conductivity (uS/cm)		21.9			
	Hardness (as CaCO3) (mg/L)		7.38			
	pH (pH)		6.85			
	Total Suspended Solids (mg/L)		<3.0			
	Total Dissolved Solids (mg/L)		20			
	Turbidity (NTU)		0.55			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		5.1			
	Alkalinity, Total (as CaCO3) (mg/L)		6.6			
	Ammonia, Total (as N) (mg/L)		<0.0050			
	Bromide (Br) (mg/L)		<0.050			
	Chloride (Cl) (mg/L)		0.73			
	Fluoride (F) (mg/L)		<0.020			
	Nitrate (as N) (mg/L)		0.155			
	Nitrite (as N) (mg/L)		<0.0010			
	Total Kjeldahl Nitrogen (mg/L)		<0.050			
	Total Nitrogen (mg/L)		0.180			
	Orthophosphate-Dissolved (as P) (mg/L)		<0.0010			
	Phosphorus (P)-Total (mg/L)		0.0025			
	Sulfate (SO4) (mg/L)		2.07			
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		<0.50			
Total Metals	Aluminum (Al)-Total (mg/L)		0.163			
	Antimony (Sb)-Total (mg/L)		<0.00050			
	Arsenic (As)-Total (mg/L)		<0.00050			
	Barium (Ba)-Total (mg/L)		<0.020			
	Beryllium (Be)-Total (mg/L)		<0.0010			
	Boron (B)-Total (mg/L)		<0.10			
	Cadmium (Cd)-Total (mg/L)		<0.000017			
	Calcium (Ca)-Total (mg/L)		2.69			
	Chromium (Cr)-Total (mg/L)		<0.0010			
	Cobalt (Co)-Total (mg/L)		<0.00030			
	Copper (Cu)-Total (mg/L)		<0.0010			
	Iron (Fe)-Total (mg/L)		0.070			
	Lead (Pb)-Total (mg/L)		<0.00050			
	Lithium (Li)-Total (mg/L)		<0.0050			
	Magnesium (Mg)-Total (mg/L)		0.36			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID	Description	Sampled Date	Sampled Time	Client ID
		L1208786-1	Water	10-SEP-12	14:50	MCF-5
WATER						
Total Metals	Manganese (Mn)-Total (mg/L)	0.0111				
	Mercury (Hg)-Total (mg/L)	<0.000010				
	Molybdenum (Mo)-Total (mg/L)	<0.0010				
	Nickel (Ni)-Total (mg/L)	<0.0010				
	Potassium (K)-Total (mg/L)	<2.0				
	Selenium (Se)-Total (mg/L)	<0.0010				
	Silver (Ag)-Total (mg/L)	<0.000020				
	Sodium (Na)-Total (mg/L)	<2.0				
	Thallium (Tl)-Total (mg/L)	<0.00020				
	Tin (Sn)-Total (mg/L)	<0.00050				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	<0.00020				
	Vanadium (V)-Total (mg/L)	<0.0010				
	Zinc (Zn)-Total (mg/L)	<0.0050				
Dissolved Metals	Dissolved Metals Filtration Location	LAB				
	Aluminum (Al)-Dissolved (mg/L)	0.0135				
	Antimony (Sb)-Dissolved (mg/L)	<0.00050				
	Arsenic (As)-Dissolved (mg/L)	<0.00050				
	Barium (Ba)-Dissolved (mg/L)	<0.020				
	Beryllium (Be)-Dissolved (mg/L)	<0.0010				
	Boron (B)-Dissolved (mg/L)	<0.10				
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017				
	Calcium (Ca)-Dissolved (mg/L)	2.47				
	Chromium (Cr)-Dissolved (mg/L)	<0.0010				
	Cobalt (Co)-Dissolved (mg/L)	<0.00030				
	Copper (Cu)-Dissolved (mg/L)	<0.0010				
	Iron (Fe)-Dissolved (mg/L)	<0.030				
	Lead (Pb)-Dissolved (mg/L)	<0.00050				
	Lithium (Li)-Dissolved (mg/L)	<0.0050				
	Magnesium (Mg)-Dissolved (mg/L)	0.29				
	Manganese (Mn)-Dissolved (mg/L)	0.00909				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010				
	Nickel (Ni)-Dissolved (mg/L)	<0.0010				
	Potassium (K)-Dissolved (mg/L)	<2.0				
	Selenium (Se)-Dissolved (mg/L)	<0.0010				
	Silver (Ag)-Dissolved (mg/L)	<0.000020				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1208786-1	Water	10-SEP-12	14:50	MCF-5
Grouping	Analyte					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0				
	Thallium (Tl)-Dissolved (mg/L)	<0.00020				
	Tin (Sn)-Dissolved (mg/L)	<0.00050				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	<0.00020				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	<0.0050				
Hydrocarbons	EPH10-19 (mg/L)	<0.25				
	EPH19-32 (mg/L)	<0.25				
	LEPH (mg/L)	<0.25				
	HEPH (mg/L)	<0.25				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010				
	Acenaphthylene (mg/L)	<0.000010				
	Acridine (mg/L)	<0.000010				
	Anthracene (mg/L)	<0.000010				
	Benz(a)anthracene (mg/L)	<0.000010				
	Benzo(a)pyrene (mg/L)	<0.000010				
	Benzo(b)fluoranthene (mg/L)	<0.000010				
	Benzo(g,h,i)perylene (mg/L)	<0.000010				
	Benzo(k)fluoranthene (mg/L)	<0.000010				
	Chrysene (mg/L)	<0.000010				
	Dibenz(a,h)anthracene (mg/L)	<0.000010				
	Fluoranthene (mg/L)	<0.000010				
	Fluorene (mg/L)	<0.000010				
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010				
	Naphthalene (mg/L)	<0.000050				
	Phenanthrene (mg/L)	<0.000020				
	Pyrene (mg/L)	<0.000010				
	Quinoline (mg/L)	<0.000010				
	Surrogate: Acenaphthene d10 (%)	90.0				
	Surrogate: Acridine d9 (%)	101.8				
	Surrogate: Chrysene d12 (%)	88.1				
Surrogate: Naphthalene d8 (%)	91.8					
Surrogate: Phenanthrene d10 (%)	94.3					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bromide (Br)	DLM	L1208786-1
Duplicate	Chloride (Cl)	DLM	L1208786-1
Duplicate	Fluoride (F)	DLM	L1208786-1
Duplicate	Nitrite (as N)	DLM	L1208786-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208786-1
Matrix Spike	Phosphorus (P)-Total	MS-B	L1208786-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.	
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
		This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.	
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
		This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.	
EPH-SF-FID-VA	Water	EPH in Water by GCFID	BCMOE EPH GCFID
		This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography	

Reference Information

with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Reference Information

PAH-SURR-MS-VA	Water	PAH Surrogates for Waters	EPA 3510, 8270
Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-239465

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.



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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C 6C6

Contact: Ali Canning

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2437404							
WG1547057-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.6		%		85-115	15-SEP-12
WG1547057-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.2		%		85-115	15-SEP-12
WG1547057-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.3		%		85-115	15-SEP-12
WG1547057-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.9		%		85-115	15-SEP-12
ALK-COL-VA		Water						
Batch	R2437903							
WG1547884-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			98.6		%		85-115	17-SEP-12
WG1547884-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			105.3		%		85-115	17-SEP-12
WG1547884-8 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			101.6		%		85-115	17-SEP-12
WG1547884-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
ANIONS-BR-IC-VA		Water						
Batch	R2437293							
WG1547258-3 DUP		L1208786-1						
Bromide (Br)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	16-SEP-12
WG1547258-18 LCS								
Bromide (Br)			95.3		%		85-115	16-SEP-12
WG1547258-2 LCS								
Bromide (Br)			101.5		%		85-115	16-SEP-12
WG1547258-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-10 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-13 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-16 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
	Water							
Batch	R2437293							
WG1547258-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-11	MS	L1208799-3						
Bromide (Br)			95.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Bromide (Br)			94.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Bromide (Br)			93.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Bromide (Br)			91.6		%		75-125	16-SEP-12
ANIONS-CL-IC-VA								
	Water							
Batch	R2437293							
WG1547258-3	DUP	L1208786-1						
Chloride (Cl)		0.73	0.73		mg/L	0.1	20	16-SEP-12
WG1547258-18	LCS							
Chloride (Cl)			97.6		%		85-115	16-SEP-12
WG1547258-2	LCS							
Chloride (Cl)			97.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11	MS	L1208799-3						
Chloride (Cl)			100.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Chloride (Cl)			98.1		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Chloride (Cl)			97.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
	Water							
Batch	R2437293							
WG1547258-8	MS	L1208788-1						
Chloride (Cl)			97.4		%		75-125	16-SEP-12
ANIONS-F-IC-VA								
	Water							
Batch	R2437293							
WG1547258-3	DUP	L1208786-1						
Fluoride (F)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	16-SEP-12
WG1547258-18	LCS							
Fluoride (F)			103.0		%		85-115	16-SEP-12
WG1547258-2	LCS							
Fluoride (F)			101.8		%		85-115	16-SEP-12
WG1547258-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-11	MS	L1208799-3						
Fluoride (F)			106.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Fluoride (F)			103.5		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Fluoride (F)			103.0		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Fluoride (F)			103.2		%		75-125	16-SEP-12
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437293							
WG1547258-3	DUP	L1208786-1						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-SEP-12
WG1547258-18	LCS							
Nitrite (as N)			102.5		%		85-115	16-SEP-12
WG1547258-2	LCS							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437293							
WG1547258-2	LCS							
Nitrite (as N)			100.7		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-16	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrite (as N)			103.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrite (as N)			100.8		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Nitrite (as N)			100.6		%		75-125	16-SEP-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2437293							
WG1547258-3	DUP	L1208786-1						
Nitrate (as N)		0.155	0.155		mg/L	0.1	20	16-SEP-12
WG1547258-18	LCS							
Nitrate (as N)			102.8		%		85-115	16-SEP-12
WG1547258-2	LCS							
Nitrate (as N)			102.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-16	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
Water								
Batch	R2437293							
WG1547258-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrate (as N)			105.8		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrate (as N)			103.3		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrate (as N)			102.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Nitrate (as N)			103.0		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Nitrate (as N)			102.8		%		75-125	16-SEP-12
ANIONS-SO4-IC-VA								
Water								
Batch	R2437293							
WG1547258-3	DUP	L1208786-1						
Sulfate (SO4)		2.07	2.07		mg/L	0.2	20	16-SEP-12
WG1547258-18	LCS							
Sulfate (SO4)			100.3		%		85-115	16-SEP-12
WG1547258-2	LCS							
Sulfate (SO4)			100.1		%		85-115	16-SEP-12
WG1547258-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11	MS	L1208799-3						
Sulfate (SO4)			102.7		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-VA								
Batch	R2437293							
WG1547258-14	MS	L1209096-6						
Sulfate (SO4)			100.5		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Sulfate (SO4)			99.9		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Sulfate (SO4)			99.8		%		75-125	16-SEP-12
CARBONS-TOC-VA								
Batch	R2441049							
WG1551201-2	CRM	VA-TOC-C-CAFFEINE						
Total Organic Carbon			96.1		%		80-120	20-SEP-12
WG1551201-4	CRM	VA-TOC-C-CAFFEINE						
Total Organic Carbon			97.3		%		80-120	20-SEP-12
WG1551201-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	20-SEP-12
WG1551201-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	20-SEP-12
COLOUR-TRUE-VA								
Batch	R2436399							
WG1546362-2	CRM	VA-COL-C-25						
Colour, True			101.8		%		85-115	14-SEP-12
WG1546362-5	CRM	VA-COL-C-25						
Colour, True			98.9		%		85-115	14-SEP-12
WG1546362-8	CRM	VA-COL-C-25						
Colour, True			100.9		%		85-115	14-SEP-12
WG1546362-1	MB							
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-4	MB							
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-7	MB							
Colour, True			<5.0		CU		5	14-SEP-12
EC-PCT-VA								
Batch	R2437404							
WG1547057-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.9		%		90-110	15-SEP-12
WG1547057-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	15-SEP-12
WG1547057-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.2		%		90-110	15-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2437404							
WG1547057-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	15-SEP-12
WG1547057-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	15-SEP-12
WG1547057-1	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-2	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-3	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-4	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-5	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
EPH-SF-FID-VA		Water						
Batch	R2437870							
WG1547297-1	MB							
EPH10-19			<0.25		mg/L		0.25	18-SEP-12
EPH19-32			<0.25		mg/L		0.25	18-SEP-12
HG-DIS-LOW-CVAFS-VA		Water						
Batch	R2436265							
WG1546502-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Batch	R2437021							
WG1546502-10	LCS							
Mercury (Hg)-Dissolved			98.1		%		80-120	15-SEP-12
WG1546502-9	LCS							
Mercury (Hg)-Dissolved			97.7		%		80-120	15-SEP-12
HG-TOT-LOW-CVAFS-VA		Water						
Batch	R2437571							
WG1548226-4	LCS							
Mercury (Hg)-Total			97.0		%		80-120	17-SEP-12
WG1548226-5	LCS							
Mercury (Hg)-Total			96.2		%		80-120	17-SEP-12
WG1548226-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-2	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA								
	Water							
Batch	R2437571							
WG1548226-2 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-3 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-12 MS		L1208042-3						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-13 MS		L1206816-3						
Mercury (Hg)-Total			92.5		%		70-130	17-SEP-12
WG1548226-17 MS		L1209478-3						
Mercury (Hg)-Total			96.8		%		70-130	17-SEP-12
WG1548226-18 MS		L1209742-1						
Mercury (Hg)-Total			97.3		%		70-130	17-SEP-12
WG1548226-20 MS		L1208865-2						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-22 MS		L1207826-2						
Mercury (Hg)-Total			99.2		%		70-130	17-SEP-12
WG1548226-23 MS		L1208057-3						
Mercury (Hg)-Total			98.4		%		70-130	17-SEP-12
WG1548226-7 MS		L1206526-16						
Mercury (Hg)-Total			96.1		%		70-130	17-SEP-12
WG1548226-8 MS		L1206526-17						
Mercury (Hg)-Total			86.5		%		70-130	17-SEP-12
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2436431							
WG1546502-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch R2436431								
WG1546502-1 MB								
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	14-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Batch R2437379								
WG1546502-7 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	16-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Batch R2437868								
WG1546502-4 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			100.5		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			102.7		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			100.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			97.1		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA	Water							
Batch	R2437868							
WG1546502-4 CRM		VA-HIGH-WATRM						
Cadmium (Cd)-Dissolved			100.4		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.4		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			97.7		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			95.6		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			101.0		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			99.3		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.2		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			100.2		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			97.4		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			101.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.8		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			99.0		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			99.3		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.7		%		80-120	17-SEP-12
WG1546502-8 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			105.7		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			104.5		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			101.7		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			98.7		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			102.8		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			103.0		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			100.2		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			96.8		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			102.4		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			100.5		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.8		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			102.9		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			99.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			102.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			102.2		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			100.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			101.5		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA Water								
Batch R2437868								
WG1546502-8 CRM VA-HIGH-WATRM								
Uranium (U)-Dissolved			105.0		%		80-120	17-SEP-12
 MET-DIS-ICP-VA Water								
Batch R2436284								
WG1546502-4 CRM VA-HIGH-WATRM								
Barium (Ba)-Dissolved			97.2		%		80-120	14-SEP-12
Boron (B)-Dissolved			98.0		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			105.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			99.0		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			105.2		%		80-120	14-SEP-12
Potassium (K)-Dissolved			99.8		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			100.5		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			101.9		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.8		%		80-120	14-SEP-12
WG1546502-1 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Batch R2437244								
WG1546502-8 CRM VA-HIGH-WATRM								
Barium (Ba)-Dissolved			94.5		%		80-120	14-SEP-12
Boron (B)-Dissolved			97.8		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			100.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			96.3		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			101.1		%		80-120	14-SEP-12
Potassium (K)-Dissolved			97.7		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			96.8		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			100.2		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.5		%		80-120	14-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2437244							
WG1546502-7	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
WG1546502-5	MS	L1209006-9						
Boron (B)-Dissolved			94.5		%		70-130	14-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	14-SEP-12
Iron (Fe)-Dissolved			91.2		%		70-130	14-SEP-12
Magnesium (Mg)-Dissolved			94.4		%		70-130	14-SEP-12
Potassium (K)-Dissolved			102.1		%		70-130	14-SEP-12
Sodium (Na)-Dissolved			94.2		%		70-130	14-SEP-12
Titanium (Ti)-Dissolved			97.9		%		70-130	14-SEP-12
Zinc (Zn)-Dissolved			86.1		%		70-130	14-SEP-12
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546977-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			105.6		%		80-120	17-SEP-12
Antimony (Sb)-Total			103.2		%		80-120	17-SEP-12
Arsenic (As)-Total			103.8		%		80-120	17-SEP-12
Beryllium (Be)-Total			102.5		%		80-120	17-SEP-12
Cadmium (Cd)-Total			106.2		%		80-120	17-SEP-12
Chromium (Cr)-Total			104.8		%		80-120	17-SEP-12
Cobalt (Co)-Total			103.0		%		80-120	17-SEP-12
Copper (Cu)-Total			101.1		%		80-120	17-SEP-12
Lead (Pb)-Total			104.9		%		80-120	17-SEP-12
Lithium (Li)-Total			104.2		%		80-120	17-SEP-12
Manganese (Mn)-Total			106.0		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			105.7		%		80-120	17-SEP-12
Nickel (Ni)-Total			102.2		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546977-3	CRM	VA-HIGH-WATRM						
Selenium (Se)-Total			102.6		%		80-120	17-SEP-12
Silver (Ag)-Total			101.4		%		80-120	17-SEP-12
Thallium (Tl)-Total			105.2		%		80-120	17-SEP-12
Tin (Sn)-Total			103.0		%		80-120	17-SEP-12
Uranium (U)-Total			104.4		%		80-120	17-SEP-12
Vanadium (V)-Total			104.1		%		80-120	17-SEP-12
Batch	R2437965							
WG1546977-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	17-SEP-12
Batch	R2438609							
WG1546977-4	MS	L1208786-1						
Aluminum (Al)-Total			98.3		%		70-130	18-SEP-12
Antimony (Sb)-Total			97.6		%		70-130	18-SEP-12
Arsenic (As)-Total			105.0		%		70-130	18-SEP-12
Beryllium (Be)-Total			94.1		%		70-130	18-SEP-12
Cadmium (Cd)-Total			105.1		%		70-130	18-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2438609							
WG1546977-4 MS		L1208786-1						
Chromium (Cr)-Total			100.2		%		70-130	18-SEP-12
Cobalt (Co)-Total			103.8		%		70-130	18-SEP-12
Copper (Cu)-Total			107.3		%		70-130	18-SEP-12
Lead (Pb)-Total			105.7		%		70-130	18-SEP-12
Lithium (Li)-Total			94.3		%		70-130	18-SEP-12
Manganese (Mn)-Total			100.3		%		70-130	18-SEP-12
Molybdenum (Mo)-Total			101.2		%		70-130	18-SEP-12
Nickel (Ni)-Total			102.8		%		70-130	18-SEP-12
Selenium (Se)-Total			101.6		%		70-130	18-SEP-12
Silver (Ag)-Total			100.9		%		70-130	18-SEP-12
Thallium (Tl)-Total			101.8		%		70-130	18-SEP-12
Tin (Sn)-Total			96.8		%		70-130	18-SEP-12
Uranium (U)-Total			105.8		%		70-130	18-SEP-12
Vanadium (V)-Total			101.4		%		70-130	18-SEP-12
MET-TOT-ICP-VA								
	Water							
Batch	R2437444							
WG1546977-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			99.9		%		80-120	16-SEP-12
Boron (B)-Total			101.5		%		80-120	16-SEP-12
Calcium (Ca)-Total			102.1		%		80-120	16-SEP-12
Iron (Fe)-Total			100.3		%		80-120	16-SEP-12
Magnesium (Mg)-Total			105.1		%		80-120	16-SEP-12
Potassium (K)-Total			101.7		%		80-120	16-SEP-12
Sodium (Na)-Total			102.0		%		80-120	16-SEP-12
Titanium (Ti)-Total			103.8		%		80-120	16-SEP-12
Zinc (Zn)-Total			96.4		%		80-120	16-SEP-12
WG1546977-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	16-SEP-12
Boron (B)-Total			<0.10		mg/L		0.1	16-SEP-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-SEP-12
Iron (Fe)-Total			<0.030		mg/L		0.03	16-SEP-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	16-SEP-12
Potassium (K)-Total			<2.0		mg/L		2	16-SEP-12
Sodium (Na)-Total			<2.0		mg/L		2	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-ICP-VA								
	Water							
Batch	R2437444							
WG1546977-1	MB							
Titanium (Ti)-Total			<0.010		mg/L		0.01	16-SEP-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	16-SEP-12
Batch	R2440104							
WG1546977-4	MS	L1208786-1						
Boron (B)-Total			96.9		%		70-130	19-SEP-12
Calcium (Ca)-Total			96.3		%		70-130	19-SEP-12
Iron (Fe)-Total			92.8		%		70-130	19-SEP-12
Magnesium (Mg)-Total			100.6		%		70-130	19-SEP-12
Potassium (K)-Total			101.5		%		70-130	19-SEP-12
Sodium (Na)-Total			98.5		%		70-130	19-SEP-12
Titanium (Ti)-Total			102.5		%		70-130	19-SEP-12
Zinc (Zn)-Total			90.7		%		70-130	19-SEP-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2441057							
WG1551203-10	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			106.8		%		75-125	20-SEP-12
WG1551203-12	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			110.8		%		75-125	20-SEP-12
WG1551203-2	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			111.0		%		75-125	20-SEP-12
WG1551203-4	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			110.0		%		75-125	20-SEP-12
WG1551203-6	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			103.6		%		75-125	20-SEP-12
WG1551203-8	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			107.0		%		75-125	20-SEP-12
WG1551203-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1551203-11	MB							
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1551203-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1551203-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1551203-7	MB							
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1551203-9	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOT-COMBUST-VA								
Water								
Batch R2441057								
WG1551203-9 MB								
Total Nitrogen			<0.050		mg/L		0.05	20-SEP-12
NH3-F-VA								
Water								
Batch R2439281								
WG1549557-10 CRM		VA-NH3-F						
Ammonia, Total (as N)			94.8		%		85-115	19-SEP-12
WG1549557-2 CRM		VA-NH3-F						
Ammonia, Total (as N)			103.9		%		85-115	19-SEP-12
WG1549557-4 CRM		VA-NH3-F						
Ammonia, Total (as N)			92.1		%		85-115	19-SEP-12
WG1549557-6 CRM		VA-NH3-F						
Ammonia, Total (as N)			102.3		%		85-115	19-SEP-12
WG1549557-8 CRM		VA-NH3-F						
Ammonia, Total (as N)			95.2		%		85-115	19-SEP-12
WG1549557-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-5 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-7 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-9 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-12 MS		L1209564-12						
Ammonia, Total (as N)			110.2		%		75-125	19-SEP-12
P-T-COL-VA								
Water								
Batch R2437347								
WG1547628-10 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			94.7		%		80-120	17-SEP-12
WG1547628-14 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			91.3		%		80-120	17-SEP-12
WG1547628-16 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			97.0		%		80-120	17-SEP-12
WG1547628-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			95.4		%		80-120	17-SEP-12
WG1547628-20 CRM		VA-ERA-PO4						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA	Water							
Batch	R2437347							
WG1547628-20 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			94.9		%		80-120	17-SEP-12
WG1547628-26 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			98.1		%		80-120	17-SEP-12
WG1547628-29 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			94.4		%		80-120	17-SEP-12
WG1547628-33 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			93.3		%		80-120	17-SEP-12
WG1547628-37 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			92.4		%		80-120	17-SEP-12
WG1547628-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			95.0		%		80-120	17-SEP-12
WG1547628-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-13 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-15 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-19 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-25 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-28 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-32 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-36 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-12 MS		L1206732-16						
Phosphorus (P)-Total			84.8		%		70-130	17-SEP-12
WG1547628-18 MS		L1207273-11						
Phosphorus (P)-Total			85.1		%		70-130	17-SEP-12
WG1547628-22 MS		L1209258-1						
Phosphorus (P)-Total			88.7		%		70-130	17-SEP-12
WG1547628-24 MS		L1209478-2						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA								
	Water							
Batch	R2437347							
WG1547628-24 MS		L1209478-2						
Phosphorus (P)-Total			79.3		%		70-130	17-SEP-12
WG1547628-30 MS		L1209730-1						
Phosphorus (P)-Total			74.4		%		70-130	17-SEP-12
WG1547628-31 MS		L1207826-5						
Phosphorus (P)-Total			90.1		%		70-130	17-SEP-12
WG1547628-35 MS		L1208364-2						
Phosphorus (P)-Total			87.3		%		70-130	17-SEP-12
WG1547628-4 MS		L1205300-2						
Phosphorus (P)-Total			83.3		%		70-130	17-SEP-12
WG1547628-8 MS		L1209039-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	17-SEP-12
PAH-LL-SF-MS-VA								
	Water							
Batch	R2436250							
WG1547297-2 LCS								
Acenaphthene			86.7		%		60-130	19-SEP-12
Acenaphthylene			86.5		%		60-130	19-SEP-12
Acridine			87.0		%		60-130	19-SEP-12
Anthracene			90.5		%		60-130	19-SEP-12
Benz(a)anthracene			81.0		%		60-130	19-SEP-12
Benzo(a)pyrene			81.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			91.1		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			89.5		%		60-130	19-SEP-12
Benzo(k)fluoranthene			88.8		%		60-130	19-SEP-12
Chrysene			87.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			88.2		%		60-130	19-SEP-12
Fluoranthene			90.0		%		60-130	19-SEP-12
Fluorene			82.6		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.0		%		60-130	19-SEP-12
Naphthalene			83.7		%		50-130	19-SEP-12
Phenanthrene			90.6		%		60-130	19-SEP-12
Pyrene			88.0		%		60-130	19-SEP-12
Quinoline			84.3		%		60-130	19-SEP-12
WG1547297-1 MB								
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2436250							
WG1547297-1	MB							
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12
PH-PCT-VA		Water						
Batch	R2437404							
WG1547057-25	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	15-SEP-12
WG1547057-26	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	15-SEP-12
WG1547057-27	CRM	VA-PH7-BUF						
pH			6.98		pH		6.9-7.1	15-SEP-12
WG1547057-28	CRM	VA-PH7-BUF						
pH			6.97		pH		6.9-7.1	15-SEP-12
PO4-DO-COL-VA		Water						
Batch	R2436469							
WG1546613-17	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			106.3		%		80-120	14-SEP-12
WG1546613-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			103.9		%		80-120	14-SEP-12
WG1546613-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-16	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA								
	Water							
Batch	R2436469							
WG1546613-10 MS		L1203911-1						
Orthophosphate-Dissolved (as P)			99.5		%		70-130	14-SEP-12
WG1546613-12 MS		L1209096-1						
Orthophosphate-Dissolved (as P)			101.4		%		70-130	14-SEP-12
WG1546613-14 MS		L1209258-4						
Orthophosphate-Dissolved (as P)			103.3		%		70-130	14-SEP-12
WG1546613-4 MS		L1206909-1						
Orthophosphate-Dissolved (as P)			95.7		%		70-130	14-SEP-12
WG1546613-6 MS		L1208794-2						
Orthophosphate-Dissolved (as P)			96.7		%		70-130	14-SEP-12
WG1546613-8 MS		L1208799-1						
Orthophosphate-Dissolved (as P)			99.3		%		70-130	14-SEP-12
TDS-VA								
	Water							
Batch	R2439054							
WG1548056-11 LCS								
Total Dissolved Solids			100.4		%		85-115	17-SEP-12
WG1548056-2 LCS								
Total Dissolved Solids			99.6		%		85-115	17-SEP-12
WG1548056-5 LCS								
Total Dissolved Solids			96.4		%		85-115	17-SEP-12
WG1548056-8 LCS								
Total Dissolved Solids			99.2		%		85-115	17-SEP-12
WG1548056-1 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-10 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-4 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-7 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
TKN-F-VA								
	Water							
Batch	R2440039							
WG1547772-2 LCS								
Total Kjeldahl Nitrogen			103.8		%		75-125	20-SEP-12
WG1547772-5 LCS								
Total Kjeldahl Nitrogen			98.7		%		75-125	20-SEP-12
WG1547772-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-F-VA		Water						
Batch	R2440039							
WG1547772-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12
TSS-VA		Water						
Batch	R2438121							
WG1548060-11	LCS							
Total Suspended Solids			92.5		%		85-115	17-SEP-12
WG1548060-2	LCS							
Total Suspended Solids			91.9		%		85-115	17-SEP-12
WG1548060-5	LCS							
Total Suspended Solids			92.0		%		85-115	17-SEP-12
WG1548060-8	LCS							
Total Suspended Solids			92.9		%		85-115	17-SEP-12
WG1548060-1	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-10	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-4	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-7	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
TURBIDITY-VA		Water						
Batch	R2436466							
WG1546909-11	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-2	CRM	VA-TURB-SPK-8						
Turbidity			103.6		%		85-115	14-SEP-12
WG1546909-5	CRM	VA-TURB-SPK-8						
Turbidity			101.9		%		85-115	14-SEP-12
WG1546909-8	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-1	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-10	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-4	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-7	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-VA	Water							
Batch	R2436466							
WG1546909-7	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Colour (True) by Spectrometer	1	10-SEP-12 14:50	14-SEP-12 09:00	3	4	days	EHTL
Turbidity by Meter	1	10-SEP-12 14:50	14-SEP-12 16:59	3	4	days	EHTL
pH by Meter (Automated)	1	10-SEP-12 14:50	15-SEP-12 08:51	0.25	114	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour	1	10-SEP-12 14:50	14-SEP-12 17:16	3	4	days	EHTL
Nitrate in Water by Ion Chromatography	1	10-SEP-12 14:50	16-SEP-12 10:50	3	6	days	EHTL
Nitrite in Water by Ion Chromatography	1	10-SEP-12 14:50	16-SEP-12 10:50	3	6	days	EHTL
Total P in Water by Colour	1	10-SEP-12 14:50	14-SEP-12 10:45	3	4	days	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 L1208786 were received on 13-SEP-12 12:40.

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.

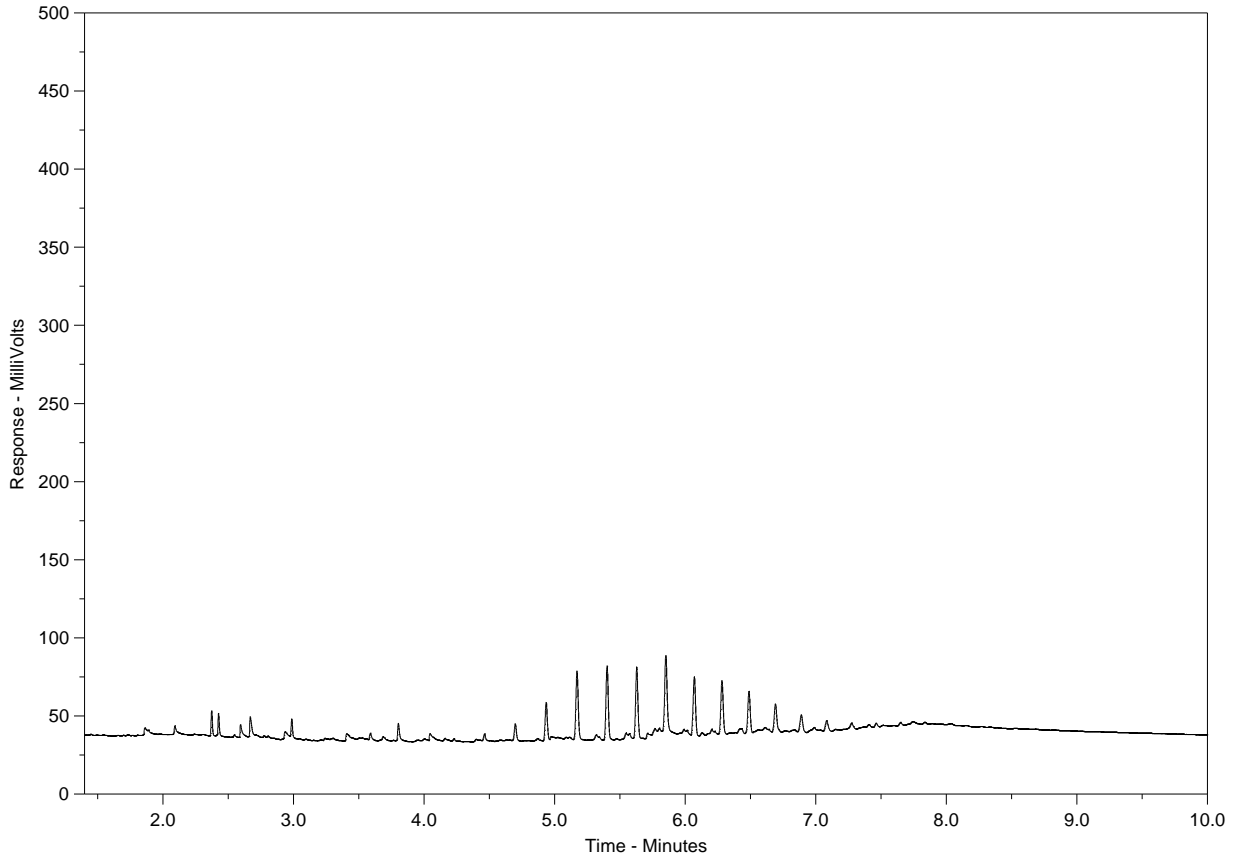
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1208786-1
Client Sample ID: MCF-5



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



L1208786-COFC

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To ALI CANNING	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: GOLDER ASS. Ltd.	Standard: <input checked="" type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: ALI CANNING	Select: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Drive Suite 300	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Burnaby BC V5C 6S2	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 604 296 4314 Fax: 604 298 5253		

Invoice To Same as Report? (circle) Yes or No (if No, provide details)	Client / Project Information BUENCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)							
Copy of Invoice with Report? (circle) Yes or No	Job #: 11-1A22-0046	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Company: Golder Ass.	PO / AFE:	GENERAL	Total Metals	Dis. Metals	PAH/CEHP/HEHP	Nutrients/TKN	TOC		
Contact: Rob Hogendorn	LSD:								
Address: 4321 Still Creek	Quote #:								
Phone: 604 296 6200 Fax: 604 298 5253									

Lab Work Order # (lab use only)	L1208786	ALS Contact: Amber Springer	Sampler: Ali Canning
--	----------	------------------------------------	-----------------------------

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	GENERAL	Total Metals	Dis. Metals	PAH/CEHP/HEHP	Nutrients/TKN	TOC								Number of Containers
	MCF-5	10-SEP-12	14:50	water	X	X	X	X	X	X								7

Short Holding Time
Rush Processing

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

+ Three unused sets of sample bottles, extra and used preservatives

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Ali Canning	Date: Sep. 13/12	Time: 9:45	Received by: Britt	Date: Sept. 13	Time: 12:40	Temperature: 9.4 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: ALI CANNING
500 - 4260 Still Creek Drive
Burnaby BC V5C6S6

Date Received: 13-SEP-12
Report Date: 02-MAY-14 09:33 (MT)
Version: FINAL REV. 4

Client Phone: --

Certificate of Analysis

Lab Work Order #: L1208788
Project P.O. #: NOT SUBMITTED
Job Reference: 11-1422-0046
C of C Numbers: 10-239466
Legal Site Desc:

Comments: 25-APR-2014 Additional Total and Dissolved Metals data is included.
2-MAY-2014: File re-issued.

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1208788-1 Water 10-SEP-12 16:50 FIELD BLANK	L1208788-2 Water 10-SEP-12 13:36 MCF-1	L1208788-3 Water 10-SEP-12 16:25 MCF-7	L1208788-4 Water 10-SEP-12 16:30 MCF-7 DUPLICATE
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0	7.5	6.2	6.2
	Conductivity (uS/cm)	<2.0	12.5	13.2	13.2
	Hardness (as CaCO3) (mg/L)	<0.50	3.80	3.86	3.73
	pH (pH)	6.13	6.71	6.56	6.59
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	<10	13	15	18
	Turbidity (NTU)	<0.10	0.42	0.34	0.28
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.3	3.6	3.3	3.2
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	<2.0	2.4	2.8
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	0.0062	<0.0050
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	0.60	0.65	0.64
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	<0.020
	Nitrate (as N) (mg/L)	<0.0050	0.511	0.480	0.482
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.089	0.078	0.064
	Total Nitrogen (mg/L)	<0.050	0.570	0.520	0.510
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020	0.0037	0.0034	0.0031
	Sulfate (SO4) (mg/L)	<0.50	0.89	0.99	0.99
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	2.31	2.00	1.99
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0050	0.0881	0.0704	0.0734
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Total (mg/L)	<0.000050	0.00246	0.00231	0.00234
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000017	0.000017	<0.000017	<0.000017
	Calcium (Ca)-Total (mg/L)	<0.020	1.31	1.33	1.38
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Total (mg/L)	<0.010	0.028	0.018	0.018
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	<0.0050	0.160	0.154	0.163

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1208788-1 Water 10-SEP-12 16:50 FIELD BLANK	L1208788-2 Water 10-SEP-12 13:36 MCF-1	L1208788-3 Water 10-SEP-12 16:25 MCF-7	L1208788-4 Water 10-SEP-12 16:30 MCF-7 DUPLICATE	
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	<0.00030	0.00234	0.00147	0.00155
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Total (mg/L)	<0.050	0.185	0.185	0.186
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)	<0.050	0.826	0.872	0.961
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	<0.00020	0.00024	<0.00020	0.00020
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	LAB	FIELD	LAB
	Aluminum (Al)-Dissolved (mg/L)	<0.0050	0.0658	0.0559	0.0565
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)	<0.000050	0.00211	0.00219	0.00213
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017	<0.000017	<0.000017	<0.000017
	Calcium (Ca)-Dissolved (mg/L)	<0.020	1.28	1.30	1.25
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	<0.0050	0.148	0.150	0.150
	Manganese (Mn)-Dissolved (mg/L)	<0.00030	0.00168	0.00129	0.00123
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Dissolved (mg/L)	<0.050	0.175	0.182	0.184
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1208788-1 Water 10-SEP-12 16:50 FIELD BLANK	L1208788-2 Water 10-SEP-12 13:36 MCF-1	L1208788-3 Water 10-SEP-12 16:25 MCF-7	L1208788-4 Water 10-SEP-12 16:30 MCF-7 DUPLICATE
Grouping	Analyte				
WATER					
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Dissolved (mg/L)	<0.050	0.799	0.850	0.835
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.00020	0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	0.0010
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25
	LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25
	HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(a)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(b)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Dibenz(a,h)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Phenanthrene (mg/L)	<0.000020	0.000038	0.000030	0.000021
	Pyrene (mg/L)	<0.000010	0.000013	<0.000010	0.000014
Quinoline (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Boron (B)-Dissolved	DLA	L1208788-1, -2, -3, -4
Duplicate	Titanium (Ti)-Dissolved	DLA	L1208788-1, -2, -3, -4
Duplicate	Bromide (Br)	DLM	L1208788-1, -2, -3, -4
Duplicate	Chloride (Cl)	DLM	L1208788-1, -2, -3, -4
Duplicate	Fluoride (F)	DLM	L1208788-1, -2, -3, -4
Duplicate	Nitrite (as N)	DLM	L1208788-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Phosphorus (P)-Total	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208788-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1208788-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric			

Reference Information

method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by Tumbler and GCFID BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Water by GC/FID", v2.1, July 1999. Whole water samples are extracted with DCM prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society

Reference Information

of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-239466

Reference Information

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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: L1208788

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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C6S6
 Contact: ALI CANNING

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2437404							
WG1547057-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.6		%		85-115	15-SEP-12
WG1547057-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.2		%		85-115	15-SEP-12
WG1547057-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.3		%		85-115	15-SEP-12
WG1547057-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.9		%		85-115	15-SEP-12
ALK-COL-VA		Water						
Batch	R2437903							
WG1547884-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			98.6		%		85-115	17-SEP-12
WG1547884-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			105.3		%		85-115	17-SEP-12
WG1547884-8 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			101.6		%		85-115	17-SEP-12
WG1547884-6 DUP		L1208788-4						
Alkalinity, Total (as CaCO3)		2.8	2.6		mg/L	4.5	20	17-SEP-12
WG1547884-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
ANIONS-BR-IC-VA		Water						
Batch	R2437293							
WG1547258-18 LCS								
Bromide (Br)			95.3		%		85-115	16-SEP-12
WG1547258-2 LCS								
Bromide (Br)			101.5		%		85-115	16-SEP-12
WG1547258-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-10 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-13 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-16 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
	Water							
Batch	R2437293							
WG1547258-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-11	MS	L1208799-3						
Bromide (Br)			95.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Bromide (Br)			94.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Bromide (Br)			93.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Bromide (Br)			91.6		%		75-125	16-SEP-12
ANIONS-CL-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Chloride (Cl)			97.6		%		85-115	16-SEP-12
WG1547258-2	LCS							
Chloride (Cl)			97.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11	MS	L1208799-3						
Chloride (Cl)			100.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Chloride (Cl)			98.1		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Chloride (Cl)			97.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Chloride (Cl)			97.4		%		75-125	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-VA								
Water								
Batch	R2437293							
WG1547258-18	LCS							
Fluoride (F)			103.0		%		85-115	16-SEP-12
WG1547258-2	LCS							
Fluoride (F)			101.8		%		85-115	16-SEP-12
WG1547258-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-11	MS	L1208799-3						
Fluoride (F)			106.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Fluoride (F)			103.5		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Fluoride (F)			103.0		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Fluoride (F)			103.2		%		75-125	16-SEP-12
ANIONS-NO2-IC-VA								
Water								
Batch	R2437293							
WG1547258-18	LCS							
Nitrite (as N)			102.5		%		85-115	16-SEP-12
WG1547258-2	LCS							
Nitrite (as N)			100.7		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-16	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-4	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437293							
WG1547258-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrite (as N)			103.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrite (as N)			100.8		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Nitrite (as N)			100.6		%		75-125	16-SEP-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Nitrate (as N)			102.8		%		85-115	16-SEP-12
WG1547258-2	LCS							
Nitrate (as N)			102.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrate (as N)			105.8		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrate (as N)			103.3		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrate (as N)			102.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
	Water							
Batch	R2437293							
WG1547258-5	MS	L1209264-2						
Nitrate (as N)			103.0		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Nitrate (as N)			102.8		%		75-125	16-SEP-12
ANIONS-SO4-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Sulfate (SO4)			100.3		%		85-115	16-SEP-12
WG1547258-2	LCS							
Sulfate (SO4)			100.1		%		85-115	16-SEP-12
WG1547258-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11	MS	L1208799-3						
Sulfate (SO4)			102.7		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Sulfate (SO4)			100.5		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Sulfate (SO4)			99.9		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Sulfate (SO4)			99.8		%		75-125	16-SEP-12
CARBONS-TOC-VA								
	Water							
Batch	R2437774							
WG1548364-10	CRM	VA-TOC-C-CAFFEINE						
Total Organic Carbon			95.7		%		80-120	17-SEP-12
WG1548364-2	CRM	VA-TOC-C-CAFFEINE						
Total Organic Carbon			97.8		%		80-120	17-SEP-12
WG1548364-4	CRM	VA-TOC-C-CAFFEINE						
Total Organic Carbon			98.6		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA		Water						
Batch	R2437774							
WG1548364-6 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			98.9		%		80-120	17-SEP-12
WG1548364-8 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			96.3		%		80-120	17-SEP-12
WG1548364-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-3 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-5 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-7 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-9 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
Batch	R2442076							
WG1552663-2 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			98.0		%		80-120	24-SEP-12
WG1552663-3 DUP		L1208788-1						
Total Organic Carbon		<0.50	<0.50	RPD-NA	mg/L	N/A	20	24-SEP-12
WG1552663-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	24-SEP-12
COLOUR-TRUE-VA		Water						
Batch	R2436399							
WG1546362-2 CRM		VA-COL-C-25						
Colour, True			101.8		%		85-115	14-SEP-12
WG1546362-5 CRM		VA-COL-C-25						
Colour, True			98.9		%		85-115	14-SEP-12
WG1546362-8 CRM		VA-COL-C-25						
Colour, True			100.9		%		85-115	14-SEP-12
WG1546362-1 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-4 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-7 MB								
Colour, True			<5.0		CU		5	14-SEP-12
EC-PCT-VA	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2437404							
WG1547057-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.9		%		90-110	15-SEP-12
WG1547057-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	15-SEP-12
WG1547057-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.2		%		90-110	15-SEP-12
WG1547057-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	15-SEP-12
WG1547057-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	15-SEP-12
WG1547057-1	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-2	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-3	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-4	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-5	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
EPH-SF-FID-VA		Water						
Batch	R2437870							
WG1547297-1	MB							
EPH10-19			<0.25		mg/L		0.25	18-SEP-12
EPH19-32			<0.25		mg/L		0.25	18-SEP-12
Batch	R2438397							
WG1547880-1	MB							
EPH10-19			<0.25		mg/L		0.25	19-SEP-12
EPH19-32			<0.25		mg/L		0.25	19-SEP-12
WG1547880-3	MB							
EPH10-19			<0.25		mg/L		0.25	19-SEP-12
EPH19-32			<0.25		mg/L		0.25	19-SEP-12
HG-DIS-LOW-CVAFS-VA		Water						
Batch	R2436265							
WG1546502-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA Water								
Batch	R2437021							
WG1546097-3	LCS							
Mercury (Hg)-Dissolved			97.4		%		80-120	15-SEP-12
WG1546502-10	LCS							
Mercury (Hg)-Dissolved			98.1		%		80-120	15-SEP-12
WG1546502-9	LCS							
Mercury (Hg)-Dissolved			97.7		%		80-120	15-SEP-12
WG1546097-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	15-SEP-12
Batch	R2438081							
WG1546097-23	MS	L1209720-10						
Mercury (Hg)-Dissolved			84.2		%		70-130	18-SEP-12
Batch	R2440016							
WG1546097-13	MS	L1208788-1						
Mercury (Hg)-Dissolved			91.5		%		70-130	20-SEP-12
Batch	R2442023							
WG1546097-15	MS	L1208246-7						
Mercury (Hg)-Dissolved			90.1		%		70-130	24-SEP-12
Batch	R2443000							
WG1546097-27	MS	L1208697-3						
Mercury (Hg)-Dissolved			88.5		%		70-130	25-SEP-12
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2437571							
WG1548226-4	LCS							
Mercury (Hg)-Total			97.0		%		80-120	17-SEP-12
WG1548226-5	LCS							
Mercury (Hg)-Total			96.2		%		80-120	17-SEP-12
WG1548226-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-2	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-3	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-12	MS	L1208042-3						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-13		L1206816-3						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA								
	Water							
Batch	R2437571							
WG1548226-13	MS	L1206816-3						
Mercury (Hg)-Total			92.5		%		70-130	17-SEP-12
WG1548226-17	MS	L1209478-3						
Mercury (Hg)-Total			96.8		%		70-130	17-SEP-12
WG1548226-18	MS	L1209742-1						
Mercury (Hg)-Total			97.3		%		70-130	17-SEP-12
WG1548226-20	MS	L1208865-2						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-22	MS	L1207826-2						
Mercury (Hg)-Total			99.2		%		70-130	17-SEP-12
WG1548226-23	MS	L1208057-3						
Mercury (Hg)-Total			98.4		%		70-130	17-SEP-12
WG1548226-7	MS	L1206526-16						
Mercury (Hg)-Total			96.1		%		70-130	17-SEP-12
WG1548226-8	MS	L1206526-17						
Mercury (Hg)-Total			86.5		%		70-130	17-SEP-12
Batch	R2439159							
WG1549684-2	LCS							
Mercury (Hg)-Total			95.8		%		80-120	19-SEP-12
WG1549684-5	LCS							
Mercury (Hg)-Total			96.6		%		80-120	19-SEP-12
WG1549684-6	LCS							
Mercury (Hg)-Total			98.3		%		80-120	19-SEP-12
WG1549684-7	LCS							
Mercury (Hg)-Total			96.2		%		80-120	19-SEP-12
WG1549684-8	LCS							
Mercury (Hg)-Total			98.3		%		80-120	19-SEP-12
WG1549684-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-3	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-4	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-15	MS	L1209823-17						
Mercury (Hg)-Total			91.7		%		70-130	19-SEP-12
WG1549684-24	MS	L1208795-5						
Mercury (Hg)-Total			92.0		%		70-130	19-SEP-12
WG1549684-25	MS	L1206767-3						
Mercury (Hg)-Total			94.8		%		70-130	19-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2439159							
WG1549684-26 MS		L1206276-14						
Mercury (Hg)-Total			89.7		%		70-130	19-SEP-12
MET-D-CCMS-VA Water								
Batch	R2437276							
WG1546097-1 MB								
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-SEP-12
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-SEP-12
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	17-SEP-12
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	17-SEP-12
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	17-SEP-12
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-SEP-12
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-SEP-12
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
WG1546097-25 MS		L1207132-4						
Barium (Ba)-Dissolved			N/A	MS-B	%		-	17-SEP-12
Boron (B)-Dissolved			101.3		%		70-130	17-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	17-SEP-12
Iron (Fe)-Dissolved			97.1		%		70-130	17-SEP-12
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	17-SEP-12
Potassium (K)-Dissolved			101.9		%		70-130	17-SEP-12
Sodium (Na)-Dissolved			N/A	MS-B	%		-	17-SEP-12
Titanium (Ti)-Dissolved			99.9		%		70-130	17-SEP-12
Zinc (Zn)-Dissolved			92.7		%		70-130	17-SEP-12
Batch R2437868								
WG1546097-2 CRM		VA-HIGH-WATRM						
Barium (Ba)-Dissolved			96.1		%		80-120	17-SEP-12
Boron (B)-Dissolved			89.4		%		80-120	17-SEP-12
Calcium (Ca)-Dissolved			96.5		%		80-120	17-SEP-12
Iron (Fe)-Dissolved			95.6		%		80-120	17-SEP-12
Magnesium (Mg)-Dissolved			97.5		%		80-120	17-SEP-12
Potassium (K)-Dissolved			92.6		%		80-120	17-SEP-12
Sodium (Na)-Dissolved			100.0		%		80-120	17-SEP-12
Titanium (Ti)-Dissolved			97.2		%		80-120	17-SEP-12
Zinc (Zn)-Dissolved			87.6		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
	Water							
Batch	R2444031							
WG1546097-27 MS		L1208697-3						
Barium (Ba)-Dissolved			126.5		%		70-130	22-SEP-12
Boron (B)-Dissolved			126.1		%		70-130	22-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	22-SEP-12
Iron (Fe)-Dissolved			120.3		%		70-130	22-SEP-12
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	22-SEP-12
Potassium (K)-Dissolved			128.3		%		70-130	22-SEP-12
Sodium (Na)-Dissolved			129.4		%		70-130	22-SEP-12
Zinc (Zn)-Dissolved			125.4		%		70-130	22-SEP-12
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2436431							
WG1546502-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	14-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Batch	R2437276							
WG1546097-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2437276							
WG1546097-1	MB							
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	17-SEP-12
Batch	R2437379							
WG1546502-7	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch	R2437379							
WG1546502-7	MB							
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Batch	R2437868							
WG1546097-2	CRM							
	VA-HIGH-WATRM							
Aluminum (Al)-Dissolved			99.2		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			101.8		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			98.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			95.6		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			98.9		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.5		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			96.1		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			93.7		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			100.8		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			97.4		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			98.9		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			99.5		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			94.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			97.1		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			99.5		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.7		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			97.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			98.9		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.9		%		80-120	17-SEP-12
WG1546502-4	CRM							
	VA-HIGH-WATRM							
Aluminum (Al)-Dissolved			100.5		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			102.7		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			100.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			97.1		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			100.4		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.4		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			97.7		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			95.6		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			101.0		%		80-120	17-SEP-12



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MET-DIS-CCME-MS-VA		Water						
Batch	R2437868							
WG1546502-4	CRM	VA-HIGH-WATRM						
Lithium (Li)-Dissolved			99.3		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.2		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			100.2		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			97.4		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			101.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.8		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			99.0		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			99.3		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.7		%		80-120	17-SEP-12
WG1546502-8	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			105.7		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			104.5		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			101.7		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			98.7		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			102.8		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			103.0		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			100.2		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			96.8		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			102.4		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			100.5		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.8		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			102.9		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			99.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			102.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			102.2		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			100.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			101.5		%		80-120	17-SEP-12
Uranium (U)-Dissolved			105.0		%		80-120	17-SEP-12
MET-T-CCMS-VA		Water						
Batch	R2437276							
WG1546100-1	MB							
Barium (Ba)-Total			<0.000050		mg/L		0.00005	17-SEP-12



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MET-T-CCMS-VA								
	Water							
Batch	R2437276							
WG1546100-1	MB							
Boron (B)-Total			<0.010		mg/L		0.01	17-SEP-12
Calcium (Ca)-Total			<0.020		mg/L		0.02	17-SEP-12
Iron (Fe)-Total			<0.010		mg/L		0.01	17-SEP-12
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	17-SEP-12
Potassium (K)-Total			<0.050		mg/L		0.05	17-SEP-12
Sodium (Na)-Total			<0.050		mg/L		0.05	17-SEP-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	17-SEP-12
Zinc (Zn)-Total			<0.0030		mg/L		0.003	17-SEP-12
Batch	R2437868							
WG1546100-2	CRM	VA-HIGH-WATRM						
Barium (Ba)-Total			102.9		%		80-120	17-SEP-12
Boron (B)-Total			94.4		%		80-120	17-SEP-12
Calcium (Ca)-Total			99.7		%		80-120	17-SEP-12
Iron (Fe)-Total			99.0		%		80-120	17-SEP-12
Magnesium (Mg)-Total			100.7		%		80-120	17-SEP-12
Potassium (K)-Total			96.3		%		80-120	17-SEP-12
Sodium (Na)-Total			104.1		%		80-120	17-SEP-12
Titanium (Ti)-Total			99.2		%		80-120	17-SEP-12
Zinc (Zn)-Total			91.5		%		80-120	17-SEP-12
Batch	R2443662							
WG1546100-5	MS	L1209377-1						
Barium (Ba)-Total			104.2		%		70-130	25-SEP-12
Boron (B)-Total			99.2		%		70-130	25-SEP-12
Calcium (Ca)-Total			99.1		%		70-130	25-SEP-12
Iron (Fe)-Total			92.9		%		70-130	25-SEP-12
Magnesium (Mg)-Total			98.2		%		70-130	25-SEP-12
Potassium (K)-Total			98.7		%		70-130	25-SEP-12
Sodium (Na)-Total			105.6		%		70-130	25-SEP-12
Titanium (Ti)-Total			94.6		%		70-130	25-SEP-12
Zinc (Zn)-Total			102.8		%		70-130	25-SEP-12
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546100-2	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			103.0		%		80-120	17-SEP-12
Antimony (Sb)-Total			105.6		%		80-120	17-SEP-12



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MET-TOT-CCME-MS-VA	Water							
Batch	R2437868							
WG1546100-2 CRM		VA-HIGH-WATRM						
Arsenic (As)-Total			103.1		%		80-120	17-SEP-12
Beryllium (Be)-Total			100.4		%		80-120	17-SEP-12
Cadmium (Cd)-Total			102.6		%		80-120	17-SEP-12
Chromium (Cr)-Total			104.4		%		80-120	17-SEP-12
Cobalt (Co)-Total			101.3		%		80-120	17-SEP-12
Copper (Cu)-Total			98.0		%		80-120	17-SEP-12
Lead (Pb)-Total			101.6		%		80-120	17-SEP-12
Lithium (Li)-Total			102.0		%		80-120	17-SEP-12
Manganese (Mn)-Total			102.5		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			103.3		%		80-120	17-SEP-12
Nickel (Ni)-Total			100.6		%		80-120	17-SEP-12
Selenium (Se)-Total			101.5		%		80-120	17-SEP-12
Silver (Ag)-Total			103.1		%		80-120	17-SEP-12
Thallium (Tl)-Total			102.0		%		80-120	17-SEP-12
Tin (Sn)-Total			101.2		%		80-120	17-SEP-12
Uranium (U)-Total			101.4		%		80-120	17-SEP-12
Vanadium (V)-Total			101.9		%		80-120	17-SEP-12
WG1546977-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			105.6		%		80-120	17-SEP-12
Antimony (Sb)-Total			103.2		%		80-120	17-SEP-12
Arsenic (As)-Total			103.8		%		80-120	17-SEP-12
Beryllium (Be)-Total			102.5		%		80-120	17-SEP-12
Cadmium (Cd)-Total			106.2		%		80-120	17-SEP-12
Chromium (Cr)-Total			104.8		%		80-120	17-SEP-12
Cobalt (Co)-Total			103.0		%		80-120	17-SEP-12
Copper (Cu)-Total			101.1		%		80-120	17-SEP-12
Lead (Pb)-Total			104.9		%		80-120	17-SEP-12
Lithium (Li)-Total			104.2		%		80-120	17-SEP-12
Manganese (Mn)-Total			106.0		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			105.7		%		80-120	17-SEP-12
Nickel (Ni)-Total			102.2		%		80-120	17-SEP-12
Selenium (Se)-Total			102.6		%		80-120	17-SEP-12
Silver (Ag)-Total			101.4		%		80-120	17-SEP-12
Thallium (Tl)-Total			105.2		%		80-120	17-SEP-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546977-3	CRM	VA-HIGH-WATRM						
Tin (Sn)-Total			103.0		%		80-120	17-SEP-12
Uranium (U)-Total			104.4		%		80-120	17-SEP-12
Vanadium (V)-Total			104.1		%		80-120	17-SEP-12
Batch	R2437965							
WG1546100-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	17-SEP-12
WG1546977-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	17-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA Water								
Batch R2437965								
WG1546977-1 MB								
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	17-SEP-12
Batch R2438609								
WG1546977-4 MS L1208786-1								
Aluminum (Al)-Total			98.3		%		70-130	18-SEP-12
Antimony (Sb)-Total			97.6		%		70-130	18-SEP-12
Arsenic (As)-Total			105.0		%		70-130	18-SEP-12
Beryllium (Be)-Total			94.1		%		70-130	18-SEP-12
Cadmium (Cd)-Total			105.1		%		70-130	18-SEP-12
Chromium (Cr)-Total			100.2		%		70-130	18-SEP-12
Cobalt (Co)-Total			103.8		%		70-130	18-SEP-12
Copper (Cu)-Total			107.3		%		70-130	18-SEP-12
Lead (Pb)-Total			105.7		%		70-130	18-SEP-12
Lithium (Li)-Total			94.3		%		70-130	18-SEP-12
Manganese (Mn)-Total			100.3		%		70-130	18-SEP-12
Molybdenum (Mo)-Total			101.2		%		70-130	18-SEP-12
Nickel (Ni)-Total			102.8		%		70-130	18-SEP-12
Selenium (Se)-Total			101.6		%		70-130	18-SEP-12
Silver (Ag)-Total			100.9		%		70-130	18-SEP-12
Thallium (Tl)-Total			101.8		%		70-130	18-SEP-12
Tin (Sn)-Total			96.8		%		70-130	18-SEP-12
Uranium (U)-Total			105.8		%		70-130	18-SEP-12
Vanadium (V)-Total			101.4		%		70-130	18-SEP-12
Batch R2440086								
WG1546100-3 MS L1208794-1								
Aluminum (Al)-Total			109.5		%		70-130	20-SEP-12
Antimony (Sb)-Total			89.7		%		70-130	20-SEP-12



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MET-TOT-CCME-MS-VA									
	Water								
Batch	R2440086								
WG1546100-3	MS	L1208794-1							
Arsenic (As)-Total			119.2		%		70-130	20-SEP-12	
Beryllium (Be)-Total			92.3		%		70-130	20-SEP-12	
Cadmium (Cd)-Total			109.6		%		70-130	20-SEP-12	
Chromium (Cr)-Total			107.5		%		70-130	20-SEP-12	
Cobalt (Co)-Total			110.4		%		70-130	20-SEP-12	
Copper (Cu)-Total			111.5		%		70-130	20-SEP-12	
Lead (Pb)-Total			93.9		%		70-130	20-SEP-12	
Lithium (Li)-Total			94.1		%		70-130	20-SEP-12	
Manganese (Mn)-Total			108.0		%		70-130	20-SEP-12	
Molybdenum (Mo)-Total			90.2		%		70-130	20-SEP-12	
Nickel (Ni)-Total			109.5		%		70-130	20-SEP-12	
Selenium (Se)-Total			106.8		%		70-130	20-SEP-12	
Silver (Ag)-Total			92.0		%		70-130	20-SEP-12	
Thallium (Tl)-Total			93.5		%		70-130	20-SEP-12	
Tin (Sn)-Total			92.2		%		70-130	20-SEP-12	
Uranium (U)-Total			90.7		%		70-130	20-SEP-12	
Vanadium (V)-Total			108.1		%		70-130	20-SEP-12	
N-TOT-COMBUST-VA									
	Water								
Batch	R2437759								
WG1548447-2	CRM	VA-TN-C-CAFFEINE							
Total Nitrogen			104.6		%		75-125	17-SEP-12	
WG1548447-1	MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12	
WG1548447-3	MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12	
WG1548447-5	MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12	
WG1548447-7	MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12	
WG1548447-9	MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12	
Batch	R2442077								
WG1552665-2	CRM	VA-TN-C-CAFFEINE							
Total Nitrogen			100.8		%		75-125	24-SEP-12	
WG1552665-3	DUP	L1208788-1							
Total Nitrogen			<0.050	<0.050	RPD-NA	mg/L	N/A	20	24-SEP-12

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N-TOT-COMBUST-VA Water								
Batch R2442077								
WG1552665-1 MB								
Total Nitrogen								
			<0.050		mg/L		0.05	24-SEP-12
NH3-F-VA Water								
Batch R2439281								
WG1549557-10 CRM VA-NH3-F								
Ammonia, Total (as N)								
			94.8		%		85-115	19-SEP-12
WG1549557-2 CRM VA-NH3-F								
Ammonia, Total (as N)								
			103.9		%		85-115	19-SEP-12
WG1549557-4 CRM VA-NH3-F								
Ammonia, Total (as N)								
			92.1		%		85-115	19-SEP-12
WG1549557-6 CRM VA-NH3-F								
Ammonia, Total (as N)								
			102.3		%		85-115	19-SEP-12
WG1549557-8 CRM VA-NH3-F								
Ammonia, Total (as N)								
			95.2		%		85-115	19-SEP-12
WG1549557-1 MB								
Ammonia, Total (as N)								
			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-3 MB								
Ammonia, Total (as N)								
			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-5 MB								
Ammonia, Total (as N)								
			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-7 MB								
Ammonia, Total (as N)								
			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-9 MB								
Ammonia, Total (as N)								
			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-12 MS L1209564-12								
Ammonia, Total (as N)								
			110.2		%		75-125	19-SEP-12
P-T-COL-VA Water								
Batch R2437347								
WG1547628-10 CRM VA-ERA-PO4								
Phosphorus (P)-Total								
			94.7		%		80-120	17-SEP-12
WG1547628-14 CRM VA-ERA-PO4								
Phosphorus (P)-Total								
			91.3		%		80-120	17-SEP-12
WG1547628-16 CRM VA-ERA-PO4								
Phosphorus (P)-Total								
			97.0		%		80-120	17-SEP-12
WG1547628-2 CRM VA-ERA-PO4								
Phosphorus (P)-Total								
			95.4		%		80-120	17-SEP-12
WG1547628-20 CRM VA-ERA-PO4								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA	Water							
Batch	R2437347							
WG1547628-20 CRM Phosphorus (P)-Total		VA-ERA-PO4	94.9		%		80-120	17-SEP-12
WG1547628-26 CRM Phosphorus (P)-Total		VA-ERA-PO4	98.1		%		80-120	17-SEP-12
WG1547628-29 CRM Phosphorus (P)-Total		VA-ERA-PO4	94.4		%		80-120	17-SEP-12
WG1547628-33 CRM Phosphorus (P)-Total		VA-ERA-PO4	93.3		%		80-120	17-SEP-12
WG1547628-37 CRM Phosphorus (P)-Total		VA-ERA-PO4	92.4		%		80-120	17-SEP-12
WG1547628-6 CRM Phosphorus (P)-Total		VA-ERA-PO4	95.0		%		80-120	17-SEP-12
WG1547628-1 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-13 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-15 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-19 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-25 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-28 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-32 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-36 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-5 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-9 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-12 MS Phosphorus (P)-Total		L1206732-16	84.8		%		70-130	17-SEP-12
WG1547628-18 MS Phosphorus (P)-Total		L1207273-11	85.1		%		70-130	17-SEP-12
WG1547628-22 MS Phosphorus (P)-Total		L1209258-1	88.7		%		70-130	17-SEP-12
WG1547628-24 MS		L1209478-2						

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P-T-COL-VA								
	Water							
Batch	R2437347							
WG1547628-24 MS		L1209478-2						
Phosphorus (P)-Total			79.3		%		70-130	17-SEP-12
WG1547628-30 MS		L1209730-1						
Phosphorus (P)-Total			74.4		%		70-130	17-SEP-12
WG1547628-31 MS		L1207826-5						
Phosphorus (P)-Total			90.1		%		70-130	17-SEP-12
WG1547628-35 MS		L1208364-2						
Phosphorus (P)-Total			87.3		%		70-130	17-SEP-12
WG1547628-4 MS		L1205300-2						
Phosphorus (P)-Total			83.3		%		70-130	17-SEP-12
WG1547628-8 MS		L1209039-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	17-SEP-12
PAH-LL-SF-MS-VA								
	Water							
Batch	R2436250							
WG1547297-2 LCS								
Acenaphthene			86.7		%		60-130	19-SEP-12
Acenaphthylene			86.5		%		60-130	19-SEP-12
Acridine			87.0		%		60-130	19-SEP-12
Anthracene			90.5		%		60-130	19-SEP-12
Benz(a)anthracene			81.0		%		60-130	19-SEP-12
Benzo(a)pyrene			81.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			91.1		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			89.5		%		60-130	19-SEP-12
Benzo(k)fluoranthene			88.8		%		60-130	19-SEP-12
Chrysene			87.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			88.2		%		60-130	19-SEP-12
Fluoranthene			90.0		%		60-130	19-SEP-12
Fluorene			82.6		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.0		%		60-130	19-SEP-12
Naphthalene			83.7		%		50-130	19-SEP-12
Phenanthrene			90.6		%		60-130	19-SEP-12
Pyrene			88.0		%		60-130	19-SEP-12
Quinoline			84.3		%		60-130	19-SEP-12
WG1547297-1 MB								
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12

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PAH-LL-SF-MS-VA		Water						
Batch	R2436250							
WG1547297-1	MB							
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12
Batch	R2437445							
WG1547880-2	LCS							
Acenaphthene			99.5		%		60-130	19-SEP-12
Acenaphthylene			97.6		%		60-130	19-SEP-12
Acridine			95.8		%		60-130	19-SEP-12
Anthracene			100.5		%		60-130	19-SEP-12
Benz(a)anthracene			78.7		%		60-130	19-SEP-12
Benzo(a)pyrene			92.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			90.6		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			91.8		%		60-130	19-SEP-12
Benzo(k)fluoranthene			108.3		%		60-130	19-SEP-12
Chrysene			92.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			94.2		%		60-130	19-SEP-12
Fluoranthene			98.5		%		60-130	19-SEP-12
Fluorene			95.4		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.2		%		60-130	19-SEP-12
Naphthalene			96.5		%		50-130	19-SEP-12
Phenanthrene			101.1		%		60-130	19-SEP-12



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PAH-LL-SF-MS-VA		Water						
Batch	R2437445							
WG1547880-2	LCS							
Pyrene			99.95		%		60-130	19-SEP-12
Quinoline			95.1		%		60-130	19-SEP-12
WG1547880-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12
WG1547880-3	MB							
Acenaphthene			<0.000010		mg/L		0.00001	20-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	20-SEP-12
Acridine			<0.000010		mg/L		0.00001	20-SEP-12
Anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Chrysene			<0.000010		mg/L		0.00001	20-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Fluorene			<0.000010		mg/L		0.00001	20-SEP-12

Quality Control Report

Workorder: L1208788

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2437445							
WG1547880-3	MB							
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	20-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	20-SEP-12
Pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Quinoline			<0.000010		mg/L		0.00001	20-SEP-12
PH-MAN-VA		Water						
Batch	R2437520							
WG1548147-1	CRM	VA-PH7-BUF						
pH			7.05		pH		6.9-7.1	17-SEP-12
PH-PCT-VA		Water						
Batch	R2437404							
WG1547057-25	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	15-SEP-12
WG1547057-26	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	15-SEP-12
WG1547057-27	CRM	VA-PH7-BUF						
pH			6.98		pH		6.9-7.1	15-SEP-12
WG1547057-28	CRM	VA-PH7-BUF						
pH			6.97		pH		6.9-7.1	15-SEP-12
PO4-DO-COL-VA		Water						
Batch	R2436469							
WG1546613-17	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			106.3		%		80-120	14-SEP-12
WG1546613-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			103.9		%		80-120	14-SEP-12
WG1546613-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-16	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-10	MS	L1203911-1						
Orthophosphate-Dissolved (as P)			99.5		%		70-130	14-SEP-12
WG1546613-12	MS	L1209096-1						
Orthophosphate-Dissolved (as P)			101.4		%		70-130	14-SEP-12
WG1546613-14	MS	L1209258-4						
Orthophosphate-Dissolved (as P)			103.3		%		70-130	14-SEP-12
WG1546613-4	MS	L1206909-1						

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA								
	Water							
Batch	R2436469							
WG1546613-4	MS	L1206909-1						
	Orthophosphate-Dissolved (as P)		95.7		%		70-130	14-SEP-12
WG1546613-6	MS	L1208794-2						
	Orthophosphate-Dissolved (as P)		96.7		%		70-130	14-SEP-12
WG1546613-8	MS	L1208799-1						
	Orthophosphate-Dissolved (as P)		99.3		%		70-130	14-SEP-12
TDS-VA								
	Water							
Batch	R2439054							
WG1548056-11	LCS							
	Total Dissolved Solids		100.4		%		85-115	17-SEP-12
WG1548056-2	LCS							
	Total Dissolved Solids		99.6		%		85-115	17-SEP-12
WG1548056-5	LCS							
	Total Dissolved Solids		96.4		%		85-115	17-SEP-12
WG1548056-8	LCS							
	Total Dissolved Solids		99.2		%		85-115	17-SEP-12
WG1548056-1	MB							
	Total Dissolved Solids		<10		mg/L		10	17-SEP-12
WG1548056-10	MB							
	Total Dissolved Solids		<10		mg/L		10	17-SEP-12
WG1548056-4	MB							
	Total Dissolved Solids		<10		mg/L		10	17-SEP-12
WG1548056-7	MB							
	Total Dissolved Solids		<10		mg/L		10	17-SEP-12
TKN-F-VA								
	Water							
Batch	R2440039							
WG1547772-6	DUP	L1208788-2						
	Total Kjeldahl Nitrogen	0.089	0.091		mg/L	1.4	20	20-SEP-12
WG1547772-2	LCS							
	Total Kjeldahl Nitrogen		103.8		%		75-125	20-SEP-12
WG1547772-5	LCS							
	Total Kjeldahl Nitrogen		98.7		%		75-125	20-SEP-12
WG1547772-1	MB							
	Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	20-SEP-12
WG1547772-4	MB							
	Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	20-SEP-12
TSS-VA								
	Water							

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-VA		Water						
Batch	R2438121							
WG1548060-11	LCS							
Total Suspended Solids			92.5		%		85-115	17-SEP-12
WG1548060-2	LCS							
Total Suspended Solids			91.9		%		85-115	17-SEP-12
WG1548060-5	LCS							
Total Suspended Solids			92.0		%		85-115	17-SEP-12
WG1548060-8	LCS							
Total Suspended Solids			92.9		%		85-115	17-SEP-12
WG1548060-1	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-10	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-4	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-7	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
TURBIDITY-VA		Water						
Batch	R2436466							
WG1546909-11	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-2	CRM	VA-TURB-SPK-8						
Turbidity			103.6		%		85-115	14-SEP-12
WG1546909-5	CRM	VA-TURB-SPK-8						
Turbidity			101.9		%		85-115	14-SEP-12
WG1546909-8	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-1	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-10	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-4	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-7	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12

Quality Control Report

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
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

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Colour (True) by Spectrometer							
	1	10-SEP-12 16:50	14-SEP-12 09:00	3	4	days	EHTL
	2	10-SEP-12 13:36	14-SEP-12 09:00	3	4	days	EHTL
	3	10-SEP-12 16:25	14-SEP-12 09:00	3	4	days	EHTL
	4	10-SEP-12 16:30	14-SEP-12 09:00	3	4	days	EHTL
Turbidity by Meter							
	1	10-SEP-12 16:50	14-SEP-12 16:59	3	4	days	EHTL
	2	10-SEP-12 13:36	14-SEP-12 16:59	3	4	days	EHTL
	3	10-SEP-12 16:25	14-SEP-12 16:59	3	4	days	EHTL
	4	10-SEP-12 16:30	14-SEP-12 16:59	3	4	days	EHTL
pH by Manual Meter							
	2	10-SEP-12 13:36	17-SEP-12 23:25	0.25	178	hours	EHTR-FM
	3	10-SEP-12 16:25	17-SEP-12 23:25	0.25	175	hours	EHTR-FM
	4	10-SEP-12 16:30	17-SEP-12 23:25	0.25	175	hours	EHTR-FM
pH by Meter (Automated)							
	1	10-SEP-12 16:50	15-SEP-12 08:51	0.25	112	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	10-SEP-12 16:50	14-SEP-12 17:16	3	4	days	EHTL
	2	10-SEP-12 13:36	14-SEP-12 17:16	3	4	days	EHTL
	3	10-SEP-12 16:25	14-SEP-12 17:17	3	4	days	EHTL
	4	10-SEP-12 16:30	14-SEP-12 17:17	3	4	days	EHTL
Nitrate in Water by Ion Chromatography							
	1	10-SEP-12 16:50	16-SEP-12 10:50	3	6	days	EHTL
	2	10-SEP-12 13:36	16-SEP-12 10:50	3	6	days	EHTL
	3	10-SEP-12 16:25	16-SEP-12 10:50	3	6	days	EHTL
	4	10-SEP-12 16:30	16-SEP-12 10:50	3	6	days	EHTL
Nitrite in Water by Ion Chromatography							
	1	10-SEP-12 16:50	16-SEP-12 10:50	3	6	days	EHTL
	2	10-SEP-12 13:36	16-SEP-12 10:50	3	6	days	EHTL
	3	10-SEP-12 16:25	16-SEP-12 10:50	3	6	days	EHTL
	4	10-SEP-12 16:30	16-SEP-12 10:50	3	6	days	EHTL
Total P in Water by Colour							
	1	10-SEP-12 16:50	14-SEP-12 10:45	3	4	days	EHTL
	2	10-SEP-12 13:36	14-SEP-12 10:45	3	4	days	EHTL
	3	10-SEP-12 16:25	14-SEP-12 10:45	3	4	days	EHTL
	4	10-SEP-12 16:30	14-SEP-12 10:45	3	4	days	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 L1208788 were received on 13-SEP-12 12:40.

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.

Quality Control Report

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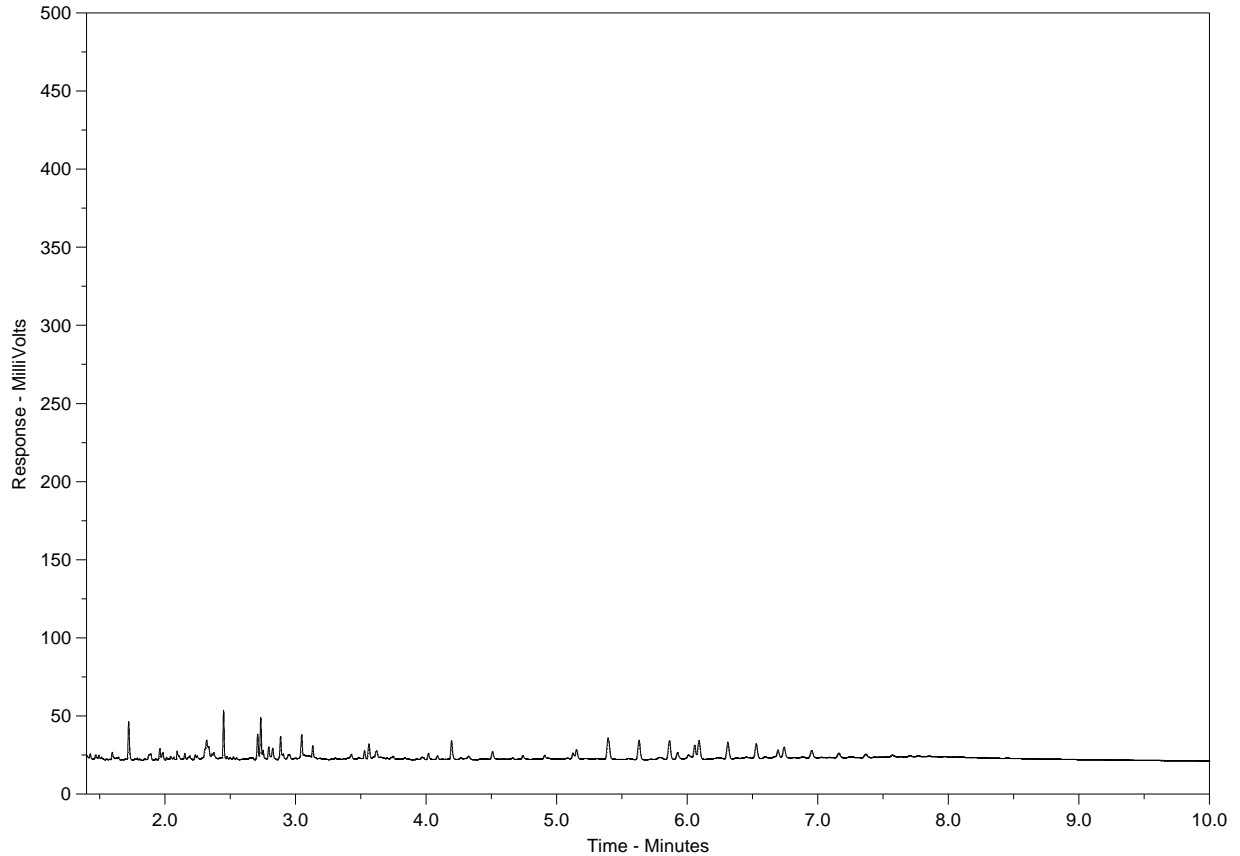
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1208788-1
Client Sample ID: FIELD BLANK



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

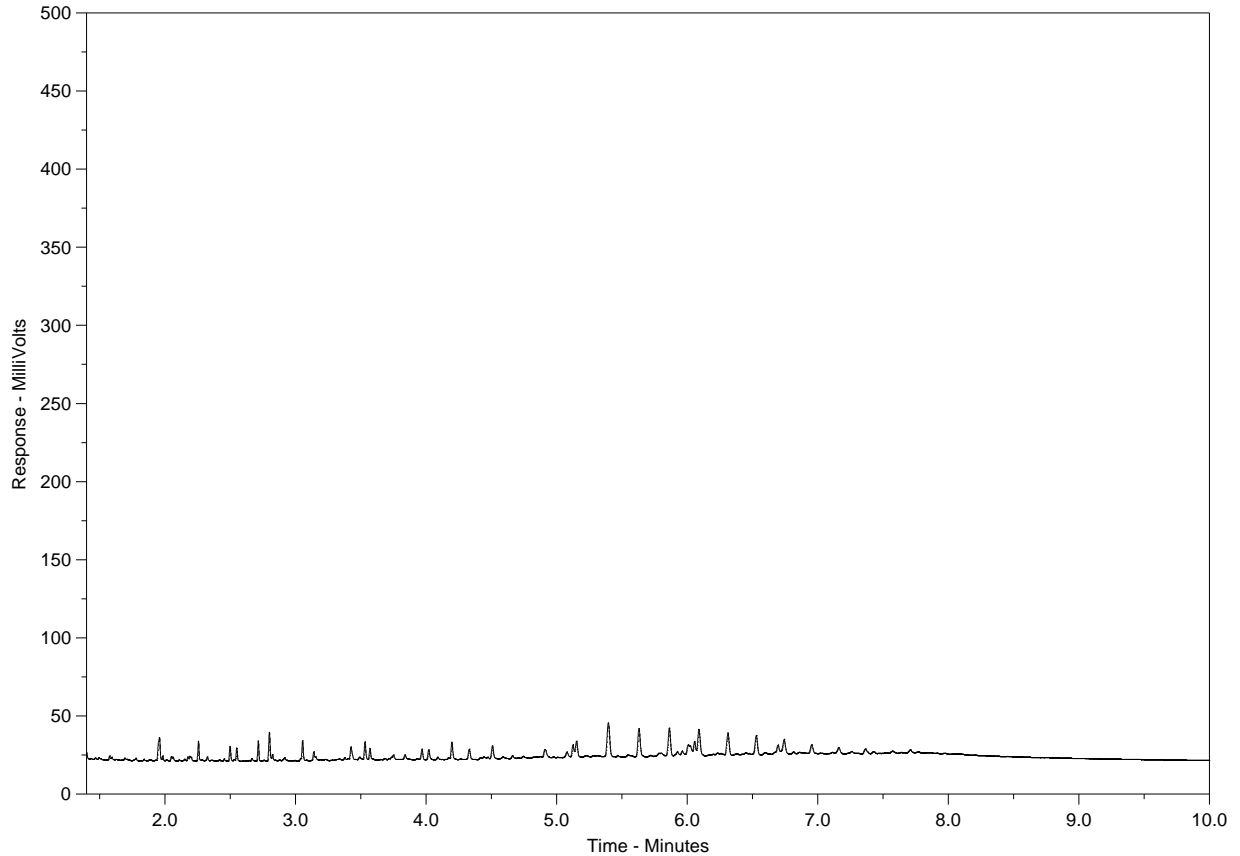
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208788-2
Client Sample ID: MCF-1



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

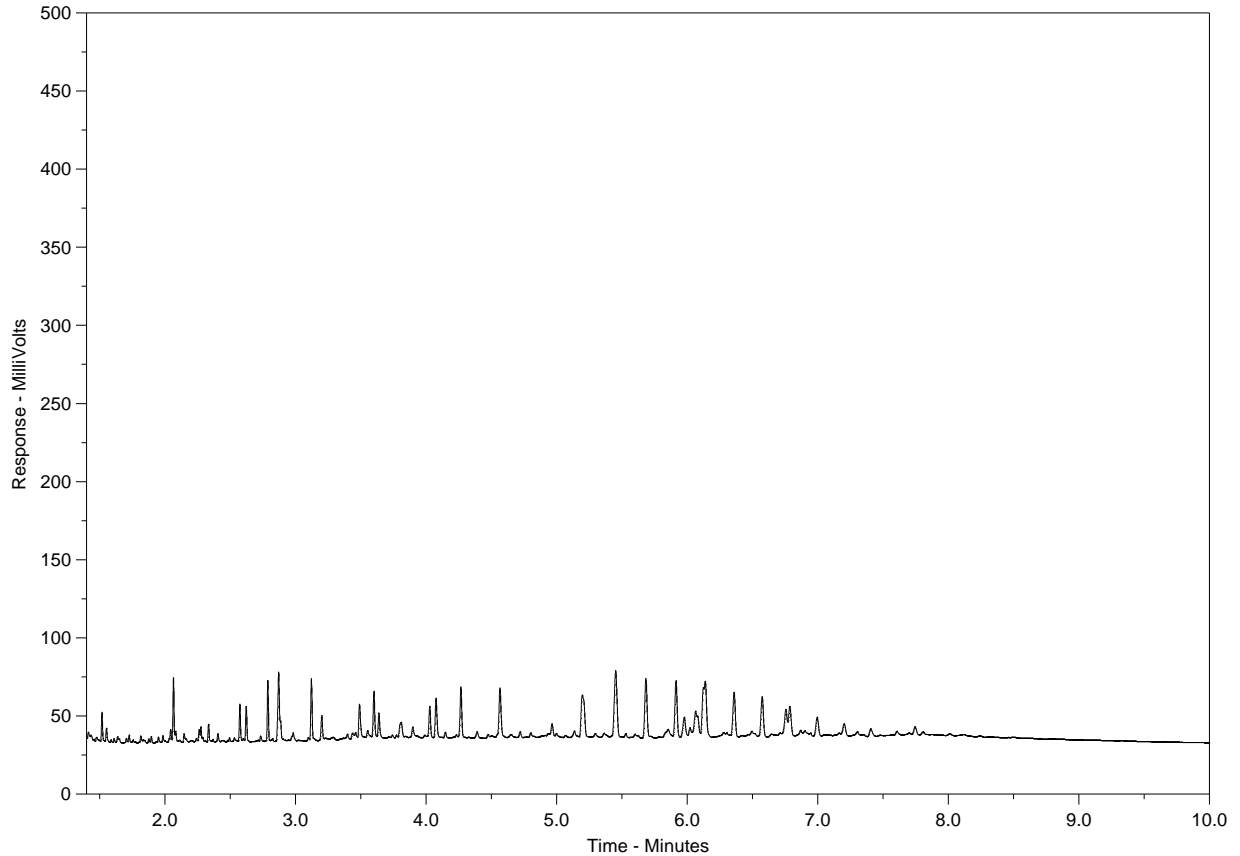
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208788-3
Client Sample ID: MCF-7



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

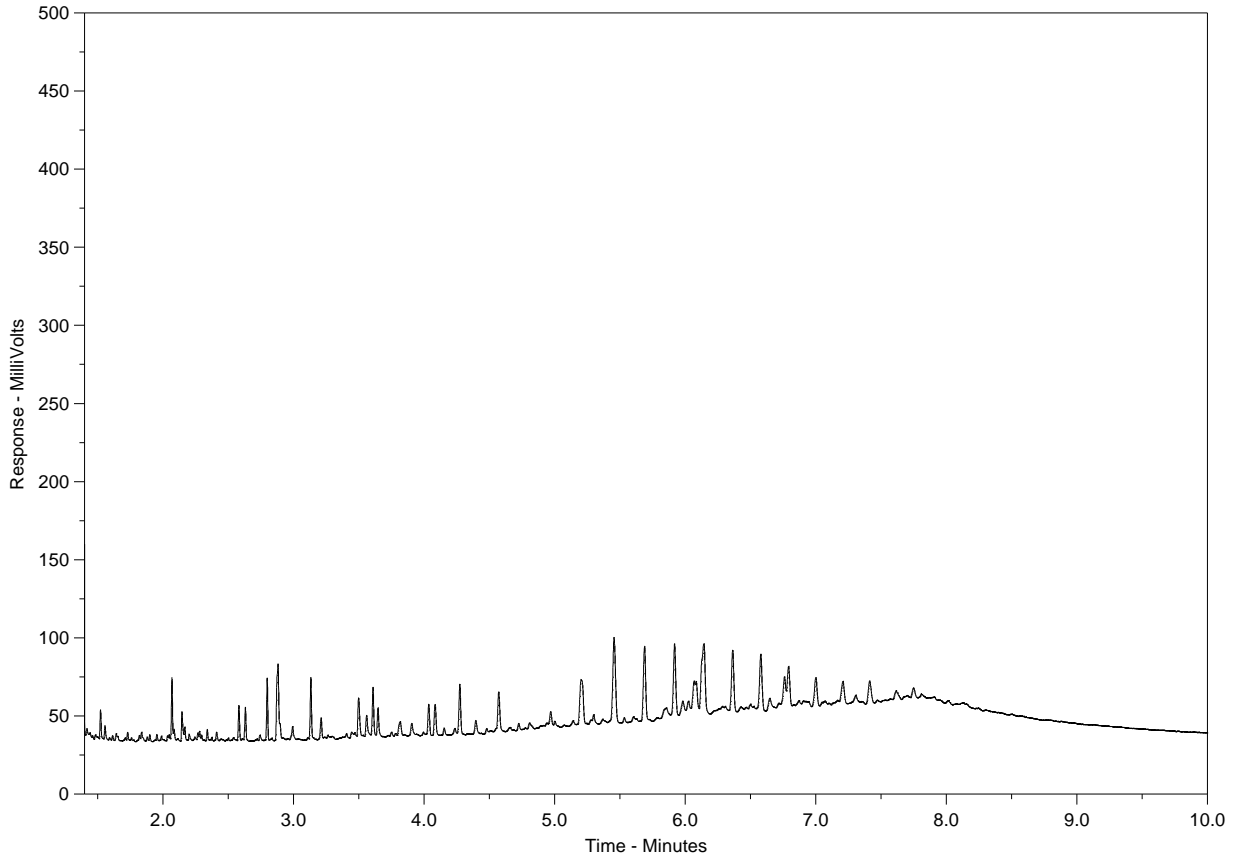
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208788-4
 Client Sample ID: MCF-7 DUPLICATE



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



L1208788-COFC



Report To ALI CANNING	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: GOLDER ASS. LTD.	Standard: X Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: ALI CANNING	Select: PDF Excl Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Drive Suite 300 Burnaby BC V5C 6S6	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 604 296 4314 Fax: 604 298 5253	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information BUENCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)																		
Copy of Invoice with Report? (circle) Yes or No	Job #: 11-1422-0046																			
Company: Golder Associates Ltd.	PO / AFE:																			
Contact: Rob Hoogendorn	LSD:																			
Address: Suite 3 - 4321 Still Creek Drive Burnaby V5C 6S6	Quote #:																			
Phone: 604 296 4314 Fax: 1 604 298 5253																				

Lab Work Order # (lab use only) L1208788	ALS Amber Contact: Springer	Sampler: Ali Canning
---	------------------------------------	-----------------------------

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dis. Metals	PAH/LEHP/AEHP	Nutrients/TCN	TOC										Number of Containers
	Field Blank	10-SEP-12	16:50	water	X	X	X	X	X	X										7
	MCF-7	10-SEP-12	13:36	"	X	X	X	X	X	X										7
	MCF-7	10-SEP-12	16:25	"	X	X	X	X	X	X										7
	MCF-7 - Duplicate	10-SEP-12	16:30	"	X	X	X	X	X	X										7

Short Holding Time
Rush Processing

Special Instructions / Regulation 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Ali Canning	Date: Sep. 13/12	Time: 9:45	Received by: Britt	Date: Sept. 13	Time: 12:40	Temperature: 9.4 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: Ali Canning
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 13-SEP-12
Report Date: 24-SEP-12 12:44 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1208794
Project P.O. #: NOT SUBMITTED
Job Reference: 11-1422-0046 PH4500
C of C Numbers: 10-274141
Legal Site Desc:

Amber Springer
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1208794-1	L1208794-2	L1208794-3	L1208794-4
		Description	Water	Water	Water	Water
		Sampled Date	11-SEP-12	11-SEP-12	11-SEP-12	11-SEP-12
		Sampled Time		15:00	13:50	14:00
		Client ID	TRAVEL BLANK	MCF-11	MCF-8	MCF-9
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	39.7	10.7	8.4	
	Conductivity (uS/cm)	<2.0	23.7	23.7	23.1	
	Hardness (as CaCO3) (mg/L)	<0.50	5.79	7.07	6.87	
	pH (pH)	5.78	7.06	7.32	7.36	
	Total Suspended Solids (mg/L)	<3.0	419	23.8	4.2	
	Total Dissolved Solids (mg/L)	<10	28	32	30	
	Turbidity (NTU)	<0.10	51.9	9.95	2.69	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.3	4.5	3.6	3.5	
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	7.1	7.8	7.5	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0167	0.0079	<0.0050	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	<0.50	1.95	0.86	0.79	
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	<0.020	
	Nitrate (as N) (mg/L)	<0.0050	0.0103	<0.0050	0.0118	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	1.06	0.136	0.099	
	Total Nitrogen (mg/L)	<0.050	<0.050	0.090	<0.050	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0018	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	<0.0020	0.300	0.0315	0.0095	
	Sulfate (SO4) (mg/L)	<0.50	1.34	2.29	2.23	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	<0.50	2.40	1.84	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0050	2.79	0.659	0.149	
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Total (mg/L)	<0.00050	0.00407	0.00069	<0.00050	
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Total (mg/L)	<0.000017	0.000236	0.000075	0.000063	
	Calcium (Ca)-Total (mg/L)	<0.10	2.24	2.56	2.44	
	Chromium (Cr)-Total (mg/L)	<0.0010	0.0024	<0.0010	<0.0010	
	Cobalt (Co)-Total (mg/L)	<0.00030	0.00723	0.00077	0.00097	
	Copper (Cu)-Total (mg/L)	<0.0010	0.0071	0.0013	<0.0010	
	Iron (Fe)-Total (mg/L)	<0.030	10.3	0.735	0.552	
	Lead (Pb)-Total (mg/L)	<0.00050	0.00428	0.00066	<0.00050	
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Total (mg/L)	<0.10	1.06	0.40	0.30	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1208794-1	L1208794-2	L1208794-3	L1208794-4
		Description	Water	Water	Water	Water
		Sampled Date	11-SEP-12	11-SEP-12	11-SEP-12	11-SEP-12
		Sampled Time		15:00	13:50	14:00
		Client ID	TRAVEL BLANK	MCF-11	MCF-8	MCF-9
Grouping	Analyte					
WATER						
Total Metals	Manganese (Mn)-Total (mg/L)		<0.00030	0.239	0.0225	0.0231
	Mercury (Hg)-Total (mg/L)		<0.000010	0.000011	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		<0.0010	0.0012	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)		<0.0010	0.0037	<0.0010	<0.0010
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Total (mg/L)		<0.000020	0.000045	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)		<2.0	2.7	2.1	<2.0
	Thallium (Tl)-Total (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)		<0.010	0.077	0.018	<0.010
	Uranium (U)-Total (mg/L)		<0.00020	0.00066	<0.00020	<0.00020
	Vanadium (V)-Total (mg/L)		<0.0010	0.0079	0.0014	<0.0010
	Zinc (Zn)-Total (mg/L)		<0.0050	0.0275	0.0078	0.0062
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)		<0.0050	0.0430	0.0278	0.0217
	Antimony (Sb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)		<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)		<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)		<0.000017	0.000027	<0.000017	0.000040
	Calcium (Ca)-Dissolved (mg/L)		<0.10	1.45	2.36	2.30
	Chromium (Cr)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	0.00058
	Copper (Cu)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)		<0.030	0.620	0.077	0.066
	Lead (Pb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)		<0.10	0.53	0.29	0.27
	Manganese (Mn)-Dissolved (mg/L)		<0.00030	0.00457	0.00770	0.0158
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Dissolved (mg/L)		<0.000020	<0.000020	<0.000020	<0.000020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1208794-1 Water 11-SEP-12 TRAVEL BLANK	L1208794-2 Water 11-SEP-12 15:00 MCF-11	L1208794-3 Water 11-SEP-12 13:50 MCF-8	L1208794-4 Water 11-SEP-12 14:00 MCF-9	
Grouping	Analyte				
WATER					
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0	2.3	<2.0	<2.0
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	0.0050
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25
	LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25
	HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(a)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(b)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Dibenz(a,h)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Phenanthrene (mg/L)	<0.000020	0.000024	0.000030	0.000030
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Quinoline (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Surrogate: Acenaphthene d10 (%)	112.6	84.0	91.9	91.3
	Surrogate: Acridine d9 (%)	93.5	96.9	103.6	101.1
	Surrogate: Chrysene d12 (%)	90.4	84.4	90.3	88.2
	Surrogate: Naphthalene d8 (%)	81.7	85.9	91.7	92.4
	Surrogate: Phenanthrene d10 (%)	96.4	90.9	97.3	95.9

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bromide (Br)	DLM	L1208794-1, -2, -3, -4
Duplicate	Chloride (Cl)	DLM	L1208794-1, -2, -3, -4
Duplicate	Fluoride (F)	DLM	L1208794-1, -2, -3, -4
Duplicate	Nitrite (as N)	DLM	L1208794-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208794-2, -3, -4
Matrix Spike	Phosphorus (P)-Total	MS-B	L1208794-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208794-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208794-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EPH-SF-FID-VA	Water	EPH in Water by GCFID	BCMOE EPH GCFID

Reference Information

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

Reference Information

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PAH-SURR-MS-VA Water PAH Surrogates for Waters EPA 3510, 8270

Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-274141

Reference Information

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.



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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C 6C6
 Contact: Ali Canning

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2437404							
WG1547057-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.6		%		85-115	15-SEP-12
WG1547057-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.2		%		85-115	15-SEP-12
WG1547057-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.3		%		85-115	15-SEP-12
WG1547057-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.9		%		85-115	15-SEP-12
ALK-COL-VA		Water						
Batch	R2437903							
WG1547884-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			98.6		%		85-115	17-SEP-12
WG1547884-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			105.3		%		85-115	17-SEP-12
WG1547884-8 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			101.6		%		85-115	17-SEP-12
WG1547884-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
ANIONS-BR-IC-VA		Water						
Batch	R2437293							
WG1547258-18 LCS								
Bromide (Br)			95.3		%		85-115	16-SEP-12
WG1547258-2 LCS								
Bromide (Br)			101.5		%		85-115	16-SEP-12
WG1547258-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-10 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-13 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-16 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-4 MB								
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
	Water							
Batch	R2437293							
WG1547258-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	16-SEP-12
WG1547258-11	MS	L1208799-3						
Bromide (Br)			95.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Bromide (Br)			94.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Bromide (Br)			93.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Bromide (Br)			91.6		%		75-125	16-SEP-12
ANIONS-CL-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Chloride (Cl)			97.6		%		85-115	16-SEP-12
WG1547258-2	LCS							
Chloride (Cl)			97.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11	MS	L1208799-3						
Chloride (Cl)			100.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Chloride (Cl)			98.1		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Chloride (Cl)			97.5		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Chloride (Cl)			97.4		%		75-125	16-SEP-12
ANIONS-F-IC-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Fluoride (F)			103.0		%		85-115	16-SEP-12
WG1547258-2	LCS							
Fluoride (F)			101.8		%		85-115	16-SEP-12
WG1547258-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-12
WG1547258-11	MS	L1208799-3						
Fluoride (F)			106.2		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Fluoride (F)			103.5		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Fluoride (F)			103.0		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Fluoride (F)			103.2		%		75-125	16-SEP-12
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Nitrite (as N)			102.5		%		85-115	16-SEP-12
WG1547258-2	LCS							
Nitrite (as N)			100.7		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-16	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-4	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437293							
WG1547258-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrite (as N)			103.5		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrite (as N)			100.8		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						
Nitrite (as N)			100.4		%		75-125	16-SEP-12
WG1547258-8	MS	L1208788-1						
Nitrite (as N)			100.6		%		75-125	16-SEP-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2437293							
WG1547258-18	LCS							
Nitrate (as N)			102.8		%		85-115	16-SEP-12
WG1547258-2	LCS							
Nitrate (as N)			102.5		%		85-115	16-SEP-12
WG1547258-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-12
WG1547258-11	MS	L1208799-3						
Nitrate (as N)			105.8		%		75-125	16-SEP-12
WG1547258-14	MS	L1209096-6						
Nitrate (as N)			103.3		%		75-125	16-SEP-12
WG1547258-17	MS	L1209098-11						
Nitrate (as N)			102.3		%		75-125	16-SEP-12
WG1547258-5	MS	L1209264-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
Batch	R2437293							
WG1547258-5 MS		L1209264-2						
Nitrate (as N)			103.0		%		75-125	16-SEP-12
WG1547258-8 MS		L1208788-1						
Nitrate (as N)			102.8		%		75-125	16-SEP-12
ANIONS-SO4-IC-VA								
Batch	R2437293							
WG1547258-18 LCS								
Sulfate (SO4)			100.3		%		85-115	16-SEP-12
WG1547258-2 LCS								
Sulfate (SO4)			100.1		%		85-115	16-SEP-12
WG1547258-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-10 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-13 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-16 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-4 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-7 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-12
WG1547258-11 MS		L1208799-3						
Sulfate (SO4)			102.7		%		75-125	16-SEP-12
WG1547258-14 MS		L1209096-6						
Sulfate (SO4)			100.5		%		75-125	16-SEP-12
WG1547258-5 MS		L1209264-2						
Sulfate (SO4)			99.9		%		75-125	16-SEP-12
WG1547258-8 MS		L1208788-1						
Sulfate (SO4)			99.8		%		75-125	16-SEP-12
CARBONS-TOC-VA								
Batch	R2437774							
WG1548364-10 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			95.7		%		80-120	17-SEP-12
WG1548364-2 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			97.8		%		80-120	17-SEP-12
WG1548364-4 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			98.6		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
	Water							
Batch	R2437774							
WG1548364-6 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			98.9		%		80-120	17-SEP-12
WG1548364-8 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			96.3		%		80-120	17-SEP-12
WG1548364-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-3 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-5 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-7 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
WG1548364-9 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
COLOUR-TRUE-VA								
	Water							
Batch	R2436399							
WG1546362-2 CRM		VA-COL-C-25						
Colour, True			101.8		%		85-115	14-SEP-12
WG1546362-5 CRM		VA-COL-C-25						
Colour, True			98.9		%		85-115	14-SEP-12
WG1546362-8 CRM		VA-COL-C-25						
Colour, True			100.9		%		85-115	14-SEP-12
WG1546362-1 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-4 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-7 MB								
Colour, True			<5.0		CU		5	14-SEP-12
EC-PCT-VA								
	Water							
Batch	R2437404							
WG1547057-17 CRM		VA-EC-PCT-CONTROL						
Conductivity			99.9		%		90-110	15-SEP-12
WG1547057-18 CRM		VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	15-SEP-12
WG1547057-19 CRM		VA-EC-PCT-CONTROL						
Conductivity			98.2		%		90-110	15-SEP-12
WG1547057-20 CRM		VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	15-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2437404							
WG1547057-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	15-SEP-12
WG1547057-1	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-2	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-3	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-4	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-5	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
EPH-SF-FID-VA		Water						
Batch	R2437870							
WG1547297-1	MB							
EPH10-19			<0.25		mg/L		0.25	18-SEP-12
EPH19-32			<0.25		mg/L		0.25	18-SEP-12
Batch	R2438397							
WG1547880-1	MB							
EPH10-19			<0.25		mg/L		0.25	19-SEP-12
EPH19-32			<0.25		mg/L		0.25	19-SEP-12
WG1547880-3	MB							
EPH10-19			<0.25		mg/L		0.25	19-SEP-12
EPH19-32			<0.25		mg/L		0.25	19-SEP-12
HG-DIS-LOW-CVAFS-VA		Water						
Batch	R2436265							
WG1546502-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Batch	R2437021							
WG1546097-3	LCS							
Mercury (Hg)-Dissolved			97.4		%		80-120	15-SEP-12
WG1546502-10	LCS							
Mercury (Hg)-Dissolved			98.1		%		80-120	15-SEP-12
WG1546502-9	LCS							
Mercury (Hg)-Dissolved			97.7		%		80-120	15-SEP-12
WG1546097-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	15-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA								
Water								
Batch	R2438081							
WG1546097-23 MS		L1209720-10						
Mercury (Hg)-Dissolved			84.2		%		70-130	18-SEP-12
Batch	R2440016							
WG1546097-13 MS		L1208788-1						
Mercury (Hg)-Dissolved			91.5		%		70-130	20-SEP-12
HG-TOT-LOW-CVAFS-VA								
Water								
Batch	R2437571							
WG1548226-4 LCS								
Mercury (Hg)-Total			97.0		%		80-120	17-SEP-12
WG1548226-5 LCS								
Mercury (Hg)-Total			96.2		%		80-120	17-SEP-12
WG1548226-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-2 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-3 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-SEP-12
WG1548226-12 MS		L1208042-3						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-13 MS		L1206816-3						
Mercury (Hg)-Total			92.5		%		70-130	17-SEP-12
WG1548226-17 MS		L1209478-3						
Mercury (Hg)-Total			96.8		%		70-130	17-SEP-12
WG1548226-18 MS		L1209742-1						
Mercury (Hg)-Total			97.3		%		70-130	17-SEP-12
WG1548226-20 MS		L1208865-2						
Mercury (Hg)-Total			97.1		%		70-130	17-SEP-12
WG1548226-22 MS		L1207826-2						
Mercury (Hg)-Total			99.2		%		70-130	17-SEP-12
WG1548226-23 MS		L1208057-3						
Mercury (Hg)-Total			98.4		%		70-130	17-SEP-12
WG1548226-7 MS		L1206526-16						
Mercury (Hg)-Total			96.1		%		70-130	17-SEP-12
WG1548226-8 MS		L1206526-17						
Mercury (Hg)-Total			86.5		%		70-130	17-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA								
	Water							
Batch	R2440016							
WG1550562-2	LCS							
Mercury (Hg)-Total			92.5		%		80-120	20-SEP-12
WG1550562-3	LCS							
Mercury (Hg)-Total			89.5		%		80-120	20-SEP-12
WG1550562-4	LCS							
Mercury (Hg)-Total			90.6		%		80-120	20-SEP-12
WG1550562-5	LCS							
Mercury (Hg)-Total			89.5		%		80-120	20-SEP-12
WG1550562-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	20-SEP-12
WG1550562-10	MS	L1208794-2						
Mercury (Hg)-Total			89.9		%		70-130	20-SEP-12
WG1550562-11	MS	L1208794-1						
Mercury (Hg)-Total			86.8		%		70-130	20-SEP-12
WG1550562-12	MS	L1209793-2						
Mercury (Hg)-Total			91.3		%		70-130	20-SEP-12
WG1550562-20	MS	L1211732-1						
Mercury (Hg)-Total			91.4		%		70-130	20-SEP-12
WG1550562-21	MS	L1211732-7						
Mercury (Hg)-Total			87.9		%		70-130	20-SEP-12
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2436431							
WG1546502-1	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch R2436431								
WG1546502-1 MB								
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	14-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Batch R2437276								
WG1546097-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	17-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	17-SEP-12
Batch R2437379								
WG1546502-7 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch	R2437379							
WG1546502-7	MB							
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	16-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Batch	R2437868							
WG1546097-2	CRM							
		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			99.2		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			101.8		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			98.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			95.6		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			98.9		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.5		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			96.1		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			93.7		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			100.8		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			97.4		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			98.9		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			99.5		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			94.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			97.1		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			99.5		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.7		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			97.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			98.9		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.9		%		80-120	17-SEP-12
WG1546502-4		VA-HIGH-WATRM						



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MET-DIS-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546502-4	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			100.5		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			102.7		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			100.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			97.1		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			100.4		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.4		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			97.7		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			95.6		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			101.0		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			99.3		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.2		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			100.2		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			97.4		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			101.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.8		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			99.0		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			99.3		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.7		%		80-120	17-SEP-12
WG1546502-8	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			105.7		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			104.5		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			101.7		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			98.7		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			102.8		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			103.0		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			100.2		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			96.8		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			102.4		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			100.5		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.8		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			102.9		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			99.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12

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MET-DIS-CCME-MS-VA		Water						
Batch	R2437868							
WG1546502-8	CRM	VA-HIGH-WATRM						
Silver (Ag)-Dissolved			102.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			102.2		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			100.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			101.5		%		80-120	17-SEP-12
Uranium (U)-Dissolved			105.0		%		80-120	17-SEP-12
MET-DIS-ICP-VA		Water						
Batch	R2436284							
WG1546502-4	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			97.2		%		80-120	14-SEP-12
Boron (B)-Dissolved			98.0		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			105.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			99.0		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			105.2		%		80-120	14-SEP-12
Potassium (K)-Dissolved			99.8		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			100.5		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			101.9		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.8		%		80-120	14-SEP-12
WG1546502-1	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Batch	R2437201							
WG1546097-2	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			93.3		%		80-120	15-SEP-12
Boron (B)-Dissolved			97.1		%		80-120	15-SEP-12
Calcium (Ca)-Dissolved			107.0		%		80-120	15-SEP-12
Iron (Fe)-Dissolved			97.6		%		80-120	15-SEP-12
Magnesium (Mg)-Dissolved			99.3		%		80-120	15-SEP-12
Potassium (K)-Dissolved			99.5		%		80-120	15-SEP-12

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MET-DIS-ICP-VA								
	Water							
Batch	R2437201							
WG1546097-2	CRM	VA-HIGH-WATRM						
Sodium (Na)-Dissolved			93.0		%		80-120	15-SEP-12
Titanium (Ti)-Dissolved			97.3		%		80-120	15-SEP-12
Zinc (Zn)-Dissolved			96.9		%		80-120	15-SEP-12
WG1546097-1	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	15-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	15-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	15-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	15-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	15-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	15-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	15-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	15-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	15-SEP-12
Batch	R2437244							
WG1546502-8	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			94.5		%		80-120	14-SEP-12
Boron (B)-Dissolved			97.8		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			100.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			96.3		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			101.1		%		80-120	14-SEP-12
Potassium (K)-Dissolved			97.7		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			96.8		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			100.2		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.5		%		80-120	14-SEP-12
WG1546502-7	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
WG1546502-5	MS	L1209006-9						

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MET-DIS-ICP-VA								
	Water							
Batch	R2437244							
WG1546502-5 MS		L1209006-9						
Boron (B)-Dissolved			94.5		%		70-130	14-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	14-SEP-12
Iron (Fe)-Dissolved			91.2		%		70-130	14-SEP-12
Magnesium (Mg)-Dissolved			94.4		%		70-130	14-SEP-12
Potassium (K)-Dissolved			102.1		%		70-130	14-SEP-12
Sodium (Na)-Dissolved			94.2		%		70-130	14-SEP-12
Titanium (Ti)-Dissolved			97.9		%		70-130	14-SEP-12
Zinc (Zn)-Dissolved			86.1		%		70-130	14-SEP-12
Batch	R2437444							
WG1546097-25 MS		L1207132-4						
Boron (B)-Dissolved			103.6		%		70-130	16-SEP-12
Calcium (Ca)-Dissolved			101.6		%		70-130	16-SEP-12
Iron (Fe)-Dissolved			101.6		%		70-130	16-SEP-12
Magnesium (Mg)-Dissolved			109.3		%		70-130	16-SEP-12
Potassium (K)-Dissolved			110.9		%		70-130	16-SEP-12
Sodium (Na)-Dissolved			106.2		%		70-130	16-SEP-12
Titanium (Ti)-Dissolved			113.6		%		70-130	16-SEP-12
Zinc (Zn)-Dissolved			98.6		%		70-130	16-SEP-12
Batch	R2438884							
WG1546097-16 MS		L1205343-5						
Boron (B)-Dissolved			100.8		%		70-130	17-SEP-12
Calcium (Ca)-Dissolved			97.9		%		70-130	17-SEP-12
Iron (Fe)-Dissolved			96.8		%		70-130	17-SEP-12
Magnesium (Mg)-Dissolved			100.4		%		70-130	17-SEP-12
Potassium (K)-Dissolved			105.4		%		70-130	17-SEP-12
Sodium (Na)-Dissolved			97.1		%		70-130	17-SEP-12
Titanium (Ti)-Dissolved			100.9		%		70-130	17-SEP-12
Zinc (Zn)-Dissolved			98.1		%		70-130	17-SEP-12
Batch	R2439894							
WG1546097-10 MS		L1209020-6						
Boron (B)-Dissolved			99.2		%		70-130	19-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	19-SEP-12
Iron (Fe)-Dissolved			91.1		%		70-130	19-SEP-12
Magnesium (Mg)-Dissolved			100.7		%		70-130	19-SEP-12
Potassium (K)-Dissolved			105.8		%		70-130	19-SEP-12



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MET-DIS-ICP-VA								
	Water							
Batch	R2439894							
WG1546097-10 MS		L1209020-6						
Sodium (Na)-Dissolved			103.2		%		70-130	19-SEP-12
Titanium (Ti)-Dissolved			108.6		%		70-130	19-SEP-12
Zinc (Zn)-Dissolved			94.6		%		70-130	19-SEP-12
Batch	R2441032							
WG1546097-23 MS		L1209720-10						
Boron (B)-Dissolved			103.7		%		70-130	20-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	20-SEP-12
Iron (Fe)-Dissolved			95.5		%		70-130	20-SEP-12
Magnesium (Mg)-Dissolved			104.6		%		70-130	20-SEP-12
Potassium (K)-Dissolved			116.2		%		70-130	20-SEP-12
Sodium (Na)-Dissolved			107.0		%		70-130	20-SEP-12
Titanium (Ti)-Dissolved			109.8		%		70-130	20-SEP-12
Zinc (Zn)-Dissolved			91.4		%		70-130	20-SEP-12
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546100-2 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			103.0		%		80-120	17-SEP-12
Antimony (Sb)-Total			105.6		%		80-120	17-SEP-12
Arsenic (As)-Total			103.1		%		80-120	17-SEP-12
Beryllium (Be)-Total			100.4		%		80-120	17-SEP-12
Cadmium (Cd)-Total			102.6		%		80-120	17-SEP-12
Chromium (Cr)-Total			104.4		%		80-120	17-SEP-12
Cobalt (Co)-Total			101.3		%		80-120	17-SEP-12
Copper (Cu)-Total			98.0		%		80-120	17-SEP-12
Lead (Pb)-Total			101.6		%		80-120	17-SEP-12
Lithium (Li)-Total			102.0		%		80-120	17-SEP-12
Manganese (Mn)-Total			102.5		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			103.3		%		80-120	17-SEP-12
Nickel (Ni)-Total			100.6		%		80-120	17-SEP-12
Selenium (Se)-Total			101.5		%		80-120	17-SEP-12
Silver (Ag)-Total			103.1		%		80-120	17-SEP-12
Thallium (Tl)-Total			102.0		%		80-120	17-SEP-12
Tin (Sn)-Total			101.2		%		80-120	17-SEP-12
Uranium (U)-Total			101.4		%		80-120	17-SEP-12



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MET-TOT-CCME-MS-VA		Water						
Batch	R2437868							
WG1546100-2	CRM	VA-HIGH-WATRM						
Vanadium (V)-Total			101.9		%		80-120	17-SEP-12
WG1546977-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			105.6		%		80-120	17-SEP-12
Antimony (Sb)-Total			103.2		%		80-120	17-SEP-12
Arsenic (As)-Total			103.8		%		80-120	17-SEP-12
Beryllium (Be)-Total			102.5		%		80-120	17-SEP-12
Cadmium (Cd)-Total			106.2		%		80-120	17-SEP-12
Chromium (Cr)-Total			104.8		%		80-120	17-SEP-12
Cobalt (Co)-Total			103.0		%		80-120	17-SEP-12
Copper (Cu)-Total			101.1		%		80-120	17-SEP-12
Lead (Pb)-Total			104.9		%		80-120	17-SEP-12
Lithium (Li)-Total			104.2		%		80-120	17-SEP-12
Manganese (Mn)-Total			106.0		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			105.7		%		80-120	17-SEP-12
Nickel (Ni)-Total			102.2		%		80-120	17-SEP-12
Selenium (Se)-Total			102.6		%		80-120	17-SEP-12
Silver (Ag)-Total			101.4		%		80-120	17-SEP-12
Thallium (Tl)-Total			105.2		%		80-120	17-SEP-12
Tin (Sn)-Total			103.0		%		80-120	17-SEP-12
Uranium (U)-Total			104.4		%		80-120	17-SEP-12
Vanadium (V)-Total			104.1		%		80-120	17-SEP-12
Batch	R2437965							
WG1546100-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	17-SEP-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437965							
WG1546100-1	MB							
Nickel (Ni)-Total			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	17-SEP-12
WG1546977-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	17-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	17-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	17-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	17-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	17-SEP-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	17-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	17-SEP-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	17-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	17-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	17-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	17-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	17-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	17-SEP-12
Batch	R2438609							
WG1546977-4	MS	L1208786-1						
Aluminum (Al)-Total			98.3		%		70-130	18-SEP-12
Antimony (Sb)-Total			97.6		%		70-130	18-SEP-12
Arsenic (As)-Total			105.0		%		70-130	18-SEP-12
Beryllium (Be)-Total			94.1		%		70-130	18-SEP-12
Cadmium (Cd)-Total			105.1		%		70-130	18-SEP-12
Chromium (Cr)-Total			100.2		%		70-130	18-SEP-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2438609							
WG1546977-4 MS		L1208786-1						
Cobalt (Co)-Total			103.8		%		70-130	18-SEP-12
Copper (Cu)-Total			107.3		%		70-130	18-SEP-12
Lead (Pb)-Total			105.7		%		70-130	18-SEP-12
Lithium (Li)-Total			94.3		%		70-130	18-SEP-12
Manganese (Mn)-Total			100.3		%		70-130	18-SEP-12
Molybdenum (Mo)-Total			101.2		%		70-130	18-SEP-12
Nickel (Ni)-Total			102.8		%		70-130	18-SEP-12
Selenium (Se)-Total			101.6		%		70-130	18-SEP-12
Silver (Ag)-Total			100.9		%		70-130	18-SEP-12
Thallium (Tl)-Total			101.8		%		70-130	18-SEP-12
Tin (Sn)-Total			96.8		%		70-130	18-SEP-12
Uranium (U)-Total			105.8		%		70-130	18-SEP-12
Vanadium (V)-Total			101.4		%		70-130	18-SEP-12
Batch	R2440086							
WG1546100-3 MS		L1208794-1						
Aluminum (Al)-Total			109.5		%		70-130	20-SEP-12
Antimony (Sb)-Total			89.7		%		70-130	20-SEP-12
Arsenic (As)-Total			119.2		%		70-130	20-SEP-12
Beryllium (Be)-Total			92.3		%		70-130	20-SEP-12
Cadmium (Cd)-Total			109.6		%		70-130	20-SEP-12
Chromium (Cr)-Total			107.5		%		70-130	20-SEP-12
Cobalt (Co)-Total			110.4		%		70-130	20-SEP-12
Copper (Cu)-Total			111.5		%		70-130	20-SEP-12
Lead (Pb)-Total			93.9		%		70-130	20-SEP-12
Lithium (Li)-Total			94.1		%		70-130	20-SEP-12
Manganese (Mn)-Total			108.0		%		70-130	20-SEP-12
Molybdenum (Mo)-Total			90.2		%		70-130	20-SEP-12
Nickel (Ni)-Total			109.5		%		70-130	20-SEP-12
Selenium (Se)-Total			106.8		%		70-130	20-SEP-12
Silver (Ag)-Total			92.0		%		70-130	20-SEP-12
Thallium (Tl)-Total			93.5		%		70-130	20-SEP-12
Tin (Sn)-Total			92.2		%		70-130	20-SEP-12
Uranium (U)-Total			90.7		%		70-130	20-SEP-12
Vanadium (V)-Total			108.1		%		70-130	20-SEP-12



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MET-TOT-ICP-VA		Water						
Batch	R2437201							
WG1546100-2 CRM	VA-HIGH-WATRM							
Barium (Ba)-Total			93.3		%		80-120	15-SEP-12
Boron (B)-Total			97.0		%		80-120	15-SEP-12
Calcium (Ca)-Total			107.2		%		80-120	15-SEP-12
Iron (Fe)-Total			98.0		%		80-120	15-SEP-12
Magnesium (Mg)-Total			99.0		%		80-120	15-SEP-12
Potassium (K)-Total			99.3		%		80-120	15-SEP-12
Sodium (Na)-Total			92.7		%		80-120	15-SEP-12
Titanium (Ti)-Total			97.4		%		80-120	15-SEP-12
Zinc (Zn)-Total			96.6		%		80-120	15-SEP-12
WG1546100-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	15-SEP-12
Boron (B)-Total			<0.10		mg/L		0.1	15-SEP-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	15-SEP-12
Iron (Fe)-Total			<0.030		mg/L		0.03	15-SEP-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	15-SEP-12
Potassium (K)-Total			<2.0		mg/L		2	15-SEP-12
Sodium (Na)-Total			<2.0		mg/L		2	15-SEP-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	15-SEP-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	15-SEP-12
Batch	R2437444							
WG1546977-3 CRM	VA-HIGH-WATRM							
Barium (Ba)-Total			99.9		%		80-120	16-SEP-12
Boron (B)-Total			101.5		%		80-120	16-SEP-12
Calcium (Ca)-Total			102.1		%		80-120	16-SEP-12
Iron (Fe)-Total			100.3		%		80-120	16-SEP-12
Magnesium (Mg)-Total			105.1		%		80-120	16-SEP-12
Potassium (K)-Total			101.7		%		80-120	16-SEP-12
Sodium (Na)-Total			102.0		%		80-120	16-SEP-12
Titanium (Ti)-Total			103.8		%		80-120	16-SEP-12
Zinc (Zn)-Total			96.4		%		80-120	16-SEP-12
WG1546977-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	16-SEP-12
Boron (B)-Total			<0.10		mg/L		0.1	16-SEP-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-SEP-12
Iron (Fe)-Total			<0.030		mg/L		0.03	16-SEP-12



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MET-TOT-ICP-VA								
	Water							
Batch	R2437444							
WG1546977-1	MB							
Magnesium (Mg)-Total			<0.10		mg/L		0.1	16-SEP-12
Potassium (K)-Total			<2.0		mg/L		2	16-SEP-12
Sodium (Na)-Total			<2.0		mg/L		2	16-SEP-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	16-SEP-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	16-SEP-12
Batch	R2440104							
WG1546100-3	MS	L1208794-1						
Boron (B)-Total			98.0		%		70-130	19-SEP-12
Calcium (Ca)-Total			99.0		%		70-130	19-SEP-12
Iron (Fe)-Total			95.9		%		70-130	19-SEP-12
Magnesium (Mg)-Total			101.4		%		70-130	19-SEP-12
Potassium (K)-Total			104.0		%		70-130	19-SEP-12
Sodium (Na)-Total			98.6		%		70-130	19-SEP-12
Titanium (Ti)-Total			105.4		%		70-130	19-SEP-12
Zinc (Zn)-Total			93.9		%		70-130	19-SEP-12
WG1546977-4	MS	L1208786-1						
Boron (B)-Total			96.9		%		70-130	19-SEP-12
Calcium (Ca)-Total			96.3		%		70-130	19-SEP-12
Iron (Fe)-Total			92.8		%		70-130	19-SEP-12
Magnesium (Mg)-Total			100.6		%		70-130	19-SEP-12
Potassium (K)-Total			101.5		%		70-130	19-SEP-12
Sodium (Na)-Total			98.5		%		70-130	19-SEP-12
Titanium (Ti)-Total			102.5		%		70-130	19-SEP-12
Zinc (Zn)-Total			90.7		%		70-130	19-SEP-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2437759							
WG1548447-2	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			104.6		%		75-125	17-SEP-12
WG1548447-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-7	MB							

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N-TOT-COMBUST-VA								
Batch R2437759								
WG1548447-7 MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-9 MB								
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
NH3-F-VA								
Batch R2439281								
WG1549557-10 CRM		VA-NH3-F						
Ammonia, Total (as N)			94.8		%		85-115	19-SEP-12
WG1549557-2 CRM		VA-NH3-F						
Ammonia, Total (as N)			103.9		%		85-115	19-SEP-12
WG1549557-4 CRM		VA-NH3-F						
Ammonia, Total (as N)			92.1		%		85-115	19-SEP-12
WG1549557-6 CRM		VA-NH3-F						
Ammonia, Total (as N)			102.3		%		85-115	19-SEP-12
WG1549557-8 CRM		VA-NH3-F						
Ammonia, Total (as N)			95.2		%		85-115	19-SEP-12
WG1549557-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-5 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-7 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-9 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-12 MS		L1209564-12						
Ammonia, Total (as N)			110.2		%		75-125	19-SEP-12
P-T-COL-VA								
Batch R2437347								
WG1547628-10 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			94.7		%		80-120	17-SEP-12
WG1547628-14 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			91.3		%		80-120	17-SEP-12
WG1547628-16 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			97.0		%		80-120	17-SEP-12
WG1547628-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			95.4		%		80-120	17-SEP-12

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P-T-COL-VA	Water							
Batch	R2437347							
WG1547628-20 CRM Phosphorus (P)-Total		VA-ERA-PO4	94.9		%		80-120	17-SEP-12
WG1547628-26 CRM Phosphorus (P)-Total		VA-ERA-PO4	98.1		%		80-120	17-SEP-12
WG1547628-29 CRM Phosphorus (P)-Total		VA-ERA-PO4	94.4		%		80-120	17-SEP-12
WG1547628-33 CRM Phosphorus (P)-Total		VA-ERA-PO4	93.3		%		80-120	17-SEP-12
WG1547628-37 CRM Phosphorus (P)-Total		VA-ERA-PO4	92.4		%		80-120	17-SEP-12
WG1547628-6 CRM Phosphorus (P)-Total		VA-ERA-PO4	95.0		%		80-120	17-SEP-12
WG1547628-1 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-13 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-15 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-19 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-25 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-28 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-32 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-36 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-5 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-9 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-12 MS Phosphorus (P)-Total		L1206732-16	84.8		%		70-130	17-SEP-12
WG1547628-18 MS Phosphorus (P)-Total		L1207273-11	85.1		%		70-130	17-SEP-12
WG1547628-22 MS Phosphorus (P)-Total		L1209258-1	88.7		%		70-130	17-SEP-12
WG1547628-24 MS		L1209478-2						

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P-T-COL-VA								
	Water							
Batch	R2437347							
WG1547628-24 MS		L1209478-2						
Phosphorus (P)-Total			79.3		%		70-130	17-SEP-12
WG1547628-30 MS		L1209730-1						
Phosphorus (P)-Total			74.4		%		70-130	17-SEP-12
WG1547628-31 MS		L1207826-5						
Phosphorus (P)-Total			90.1		%		70-130	17-SEP-12
WG1547628-35 MS		L1208364-2						
Phosphorus (P)-Total			87.3		%		70-130	17-SEP-12
WG1547628-4 MS		L1205300-2						
Phosphorus (P)-Total			83.3		%		70-130	17-SEP-12
WG1547628-8 MS		L1209039-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	17-SEP-12
PAH-LL-SF-MS-VA								
	Water							
Batch	R2436250							
WG1547297-2 LCS								
Acenaphthene			86.7		%		60-130	19-SEP-12
Acenaphthylene			86.5		%		60-130	19-SEP-12
Acridine			87.0		%		60-130	19-SEP-12
Anthracene			90.5		%		60-130	19-SEP-12
Benz(a)anthracene			81.0		%		60-130	19-SEP-12
Benzo(a)pyrene			81.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			91.1		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			89.5		%		60-130	19-SEP-12
Benzo(k)fluoranthene			88.8		%		60-130	19-SEP-12
Chrysene			87.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			88.2		%		60-130	19-SEP-12
Fluoranthene			90.0		%		60-130	19-SEP-12
Fluorene			82.6		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.0		%		60-130	19-SEP-12
Naphthalene			83.7		%		50-130	19-SEP-12
Phenanthrene			90.6		%		60-130	19-SEP-12
Pyrene			88.0		%		60-130	19-SEP-12
Quinoline			84.3		%		60-130	19-SEP-12
WG1547297-1 MB								
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12

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PAH-LL-SF-MS-VA		Water						
Batch	R2436250							
WG1547297-1	MB							
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12
Batch	R2437445							
WG1547880-2	LCS							
Acenaphthene			99.5		%		60-130	19-SEP-12
Acenaphthylene			97.6		%		60-130	19-SEP-12
Acridine			95.8		%		60-130	19-SEP-12
Anthracene			100.5		%		60-130	19-SEP-12
Benz(a)anthracene			78.7		%		60-130	19-SEP-12
Benzo(a)pyrene			92.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			90.6		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			91.8		%		60-130	19-SEP-12
Benzo(k)fluoranthene			108.3		%		60-130	19-SEP-12
Chrysene			92.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			94.2		%		60-130	19-SEP-12
Fluoranthene			98.5		%		60-130	19-SEP-12
Fluorene			95.4		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.2		%		60-130	19-SEP-12
Naphthalene			96.5		%		50-130	19-SEP-12
Phenanthrene			101.1		%		60-130	19-SEP-12

Quality Control Report

Workorder: L1208794

Report Date: 24-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2437445							
WG1547880-2	LCS							
Pyrene			99.95		%		60-130	19-SEP-12
Quinoline			95.1		%		60-130	19-SEP-12
WG1547880-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12
WG1547880-3	MB							
Acenaphthene			<0.000010		mg/L		0.00001	20-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	20-SEP-12
Acridine			<0.000010		mg/L		0.00001	20-SEP-12
Anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	20-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Chrysene			<0.000010		mg/L		0.00001	20-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	20-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	20-SEP-12
Fluorene			<0.000010		mg/L		0.00001	20-SEP-12

Quality Control Report

Workorder: L1208794

Report Date: 24-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2437445							
WG1547880-3 MB								
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	20-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	20-SEP-12
Pyrene			<0.000010		mg/L		0.00001	20-SEP-12
Quinoline			<0.000010		mg/L		0.00001	20-SEP-12
PH-MAN-VA		Water						
Batch	R2437520							
WG1548147-1 CRM		VA-PH7-BUF						
pH			7.05		pH		6.9-7.1	17-SEP-12
PH-PCT-VA		Water						
Batch	R2437404							
WG1547057-25 CRM		VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	15-SEP-12
WG1547057-26 CRM		VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	15-SEP-12
WG1547057-27 CRM		VA-PH7-BUF						
pH			6.98		pH		6.9-7.1	15-SEP-12
WG1547057-28 CRM		VA-PH7-BUF						
pH			6.97		pH		6.9-7.1	15-SEP-12
PO4-DO-COL-VA		Water						
Batch	R2436469							
WG1546613-17 CRM		VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			106.3		%		80-120	14-SEP-12
WG1546613-2 CRM		VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			103.9		%		80-120	14-SEP-12
WG1546613-5 DUP		L1208794-2						
Orthophosphate-Dissolved (as P)		0.0018	0.0017		mg/L	7.4	20	14-SEP-12
WG1546613-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-16 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-10 MS		L1203911-1						
Orthophosphate-Dissolved (as P)			99.5		%		70-130	14-SEP-12
WG1546613-12 MS		L1209096-1						
Orthophosphate-Dissolved (as P)			101.4		%		70-130	14-SEP-12
WG1546613-14 MS		L1209258-4						

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA		Water						
Batch	R2439054							
WG1548056-4 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-7 MB								
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
TKN-F-VA		Water						
Batch	R2440039							
WG1547772-2 LCS								
Total Kjeldahl Nitrogen			103.8		%		75-125	20-SEP-12
WG1547772-5 LCS								
Total Kjeldahl Nitrogen			98.7		%		75-125	20-SEP-12
WG1547772-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1547772-4 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12
Batch	R2440985							
WG1551297-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	21-SEP-12
TSS-VA		Water						
Batch	R2438121							
WG1548060-11 LCS								
Total Suspended Solids			92.5		%		85-115	17-SEP-12
WG1548060-2 LCS								
Total Suspended Solids			91.9		%		85-115	17-SEP-12
WG1548060-5 LCS								
Total Suspended Solids			92.0		%		85-115	17-SEP-12
WG1548060-8 LCS								
Total Suspended Solids			92.9		%		85-115	17-SEP-12
WG1548060-1 MB								
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-10 MB								
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-4 MB								
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-7 MB								
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
TURBIDITY-VA		Water						



Quality Control Report

Workorder: L1208794

Report Date: 24-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-VA		Water						
Batch	R2436466							
WG1546909-11	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-2	CRM	VA-TURB-SPK-8						
Turbidity			103.6		%		85-115	14-SEP-12
WG1546909-5	CRM	VA-TURB-SPK-8						
Turbidity			101.9		%		85-115	14-SEP-12
WG1546909-8	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-6	DUP	L1208794-3						
Turbidity		9.95	9.96		NTU	0.1	15	14-SEP-12
WG1546909-1	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-10	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-4	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-7	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12

Quality Control Report

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
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

Workorder: L1208794

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Manual Meter	1	11-SEP-12	17-SEP-12 23:25	0.25	156	hours	EHTR-FM
pH by Meter (Automated)	2	11-SEP-12 15:00	15-SEP-12 08:51	0.25	90	hours	EHTR-FM
	3	11-SEP-12 13:50	15-SEP-12 08:51	0.25	91	hours	EHTR-FM
	4	11-SEP-12 14:00	15-SEP-12 08:51	0.25	91	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour	1	11-SEP-12	17-SEP-12 16:00	3	6	days	EHTL
Nitrate in Water by Ion Chromatography	1	11-SEP-12	16-SEP-12 10:50	3	5	days	EHTL
	2	11-SEP-12 15:00	16-SEP-12 10:50	3	5	days	EHT
	3	11-SEP-12 13:50	16-SEP-12 10:50	3	5	days	EHT
	4	11-SEP-12 14:00	16-SEP-12 10:50	3	5	days	EHT
Nitrite in Water by Ion Chromatography	1	11-SEP-12	16-SEP-12 10:50	3	5	days	EHTL
	2	11-SEP-12 15:00	16-SEP-12 10:50	3	5	days	EHT
	3	11-SEP-12 13:50	16-SEP-12 10:50	3	5	days	EHT
	4	11-SEP-12 14:00	16-SEP-12 10:50	3	5	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 L1208794 were received on 13-SEP-12 12:40.

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.

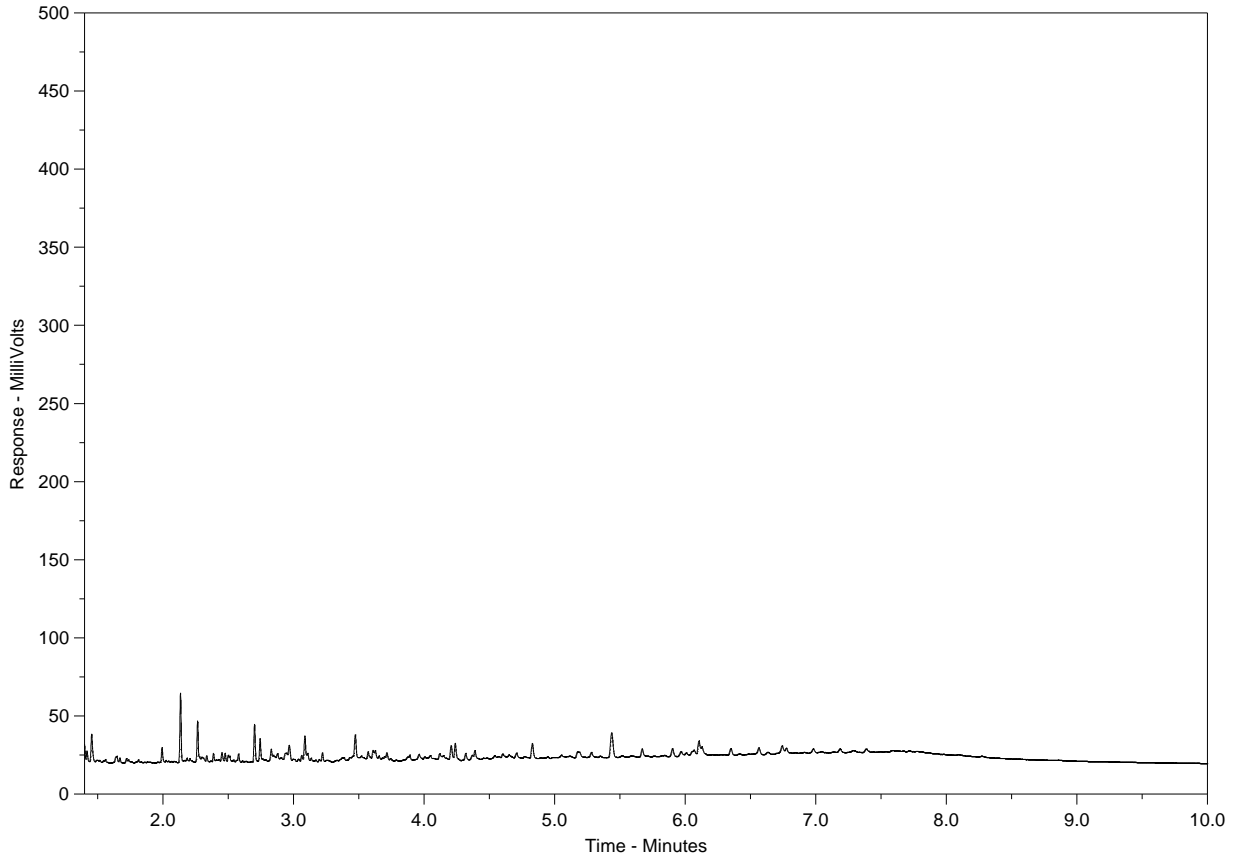
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1208794-1
Client Sample ID: TRAVEL BLANK



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

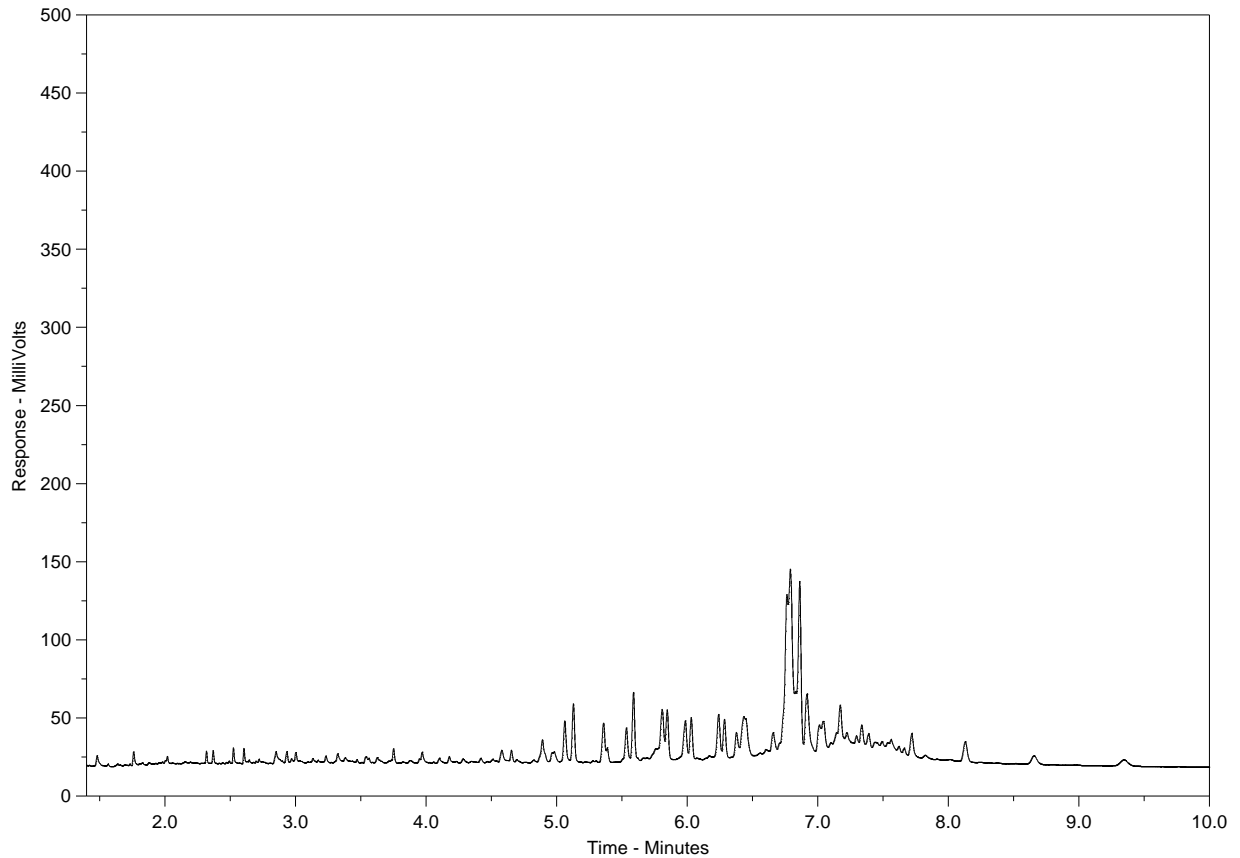
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208794-2
Client Sample ID: MCF-11



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

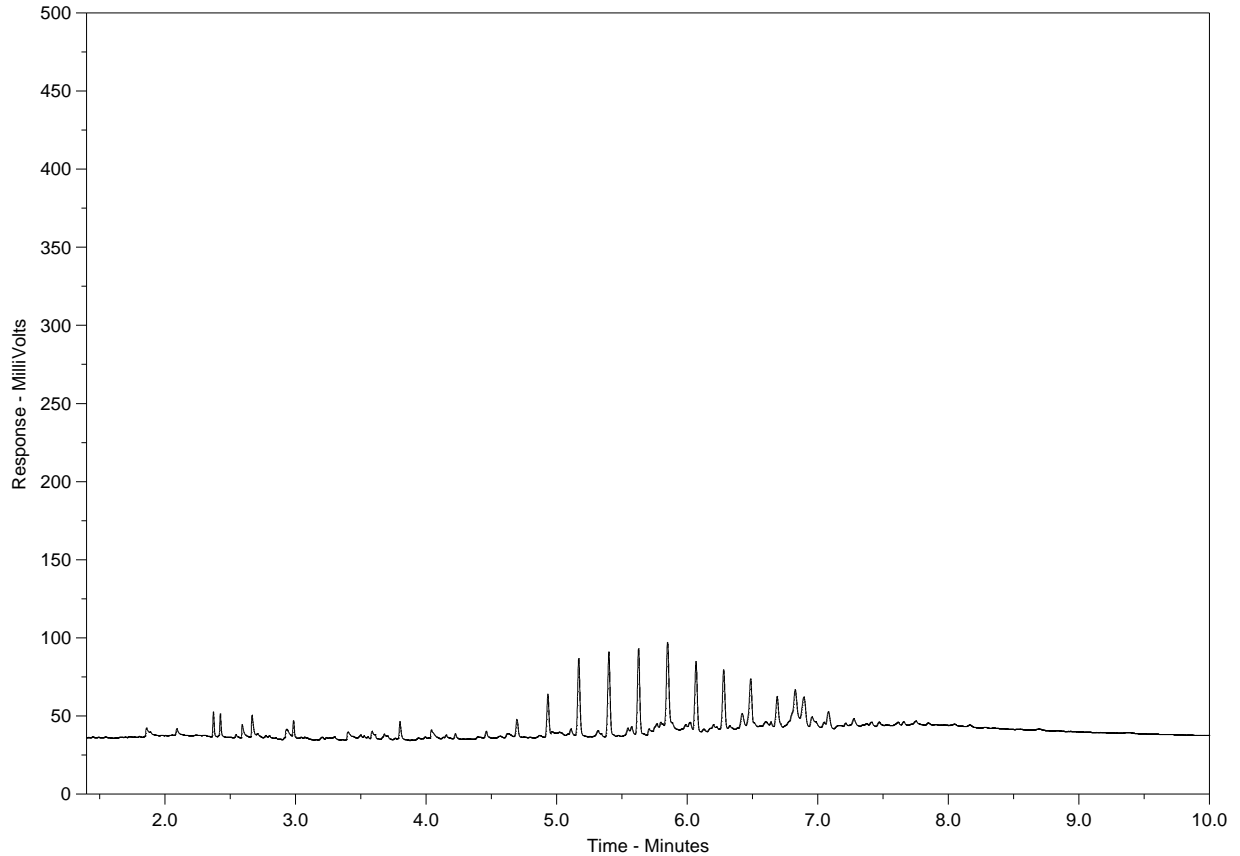
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208794-3
Client Sample ID: MCF-8



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

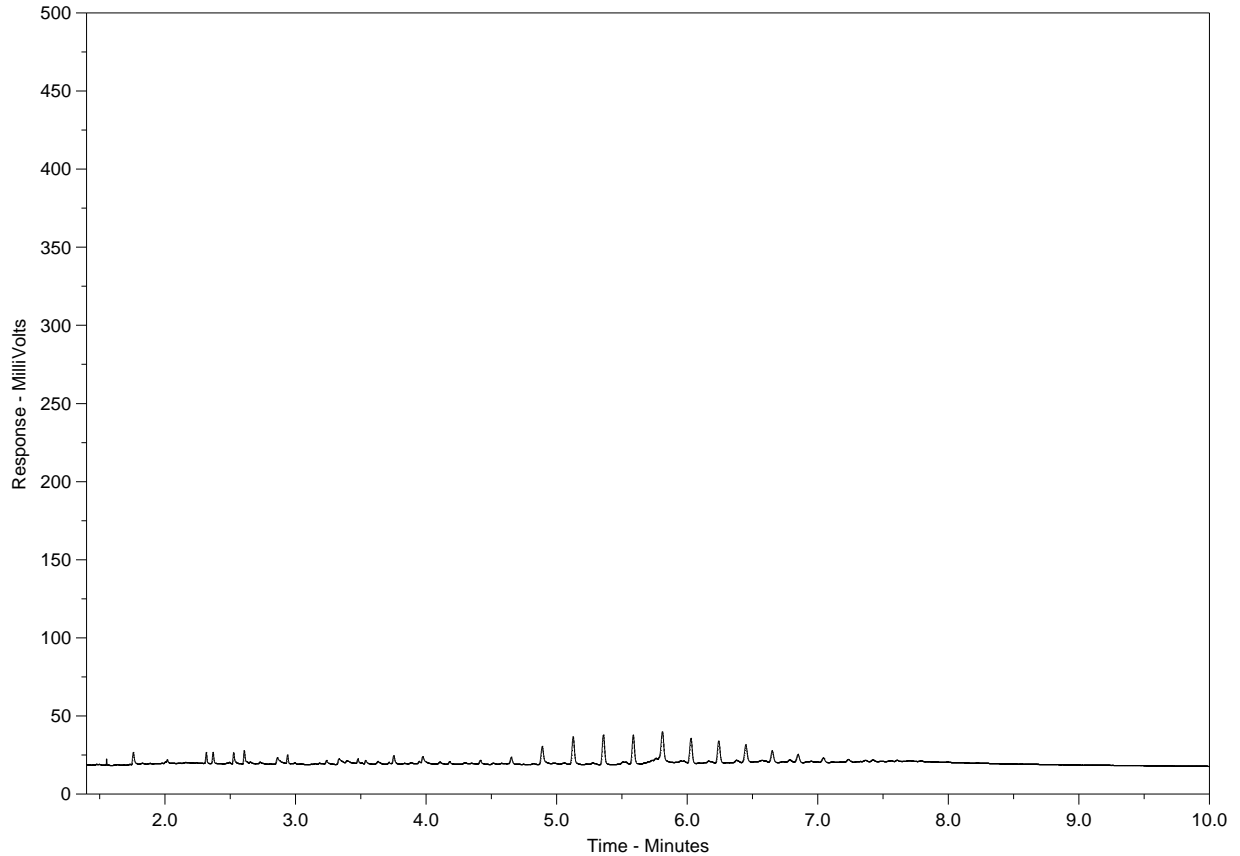
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208794-4
Client Sample ID: MCF-9



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



Chain of Custody / Ana
Canada Toll-Free:
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L1208794-COFC

to availability - Contact ALS to confirm TAT)

Report To ALI CANNING	Report Format / Distribution	
Company: GOLDER ASS. LTD.	Standard: X Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: ALI CANNING	Select: (PDF) (Excel) Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Dr. Suite 300 Burnaby BC V5G 6S6	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 604 296 4314 Fax: 604 298 5253	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle) Yes or No (if No, provide details)	Client / Project Information BURNCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)												
Copy of Invoice with Report? (circle) Yes or No	Job #: 11-1422-0046 ph. 4500													
Company: Golder Ass Ltd.	PO / AFE:	General	Total Metals	Dis. Metals	PAH/LEHP/HEHP	Nutrients/TAN	TOC							
Contact: Rob. Henderson	LSD:													
Address: 4321 Still Creek	Quote #:													
Phone: 604 296 4300 Fax: 604 298 5253	ALS Contact: Amber Springer	Sampler: Ali Canning												

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dis. Metals	PAH/LEHP/HEHP	Nutrients/TAN	TOC								Number of Containers
	Travel Blank	11-SEP-12	-	Water	X	X	X	X	X	X								7
	MCF-11	"	15:00	"	X	X	X	X	X	X								7
	MCF-8	"	13:50	"	X	X	X	X	X	X								7
	MCF-9	"	14:00	"	X	X	X	X	X	X								7
<p>Short Holding Time Rush Processing</p>																		

Special Instructions / Regulation 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Ali Canning	Date: Sep 13/12	Time: 9:45	Received by: Britt	Date: Sept. 13	Time: 12:40	Temperature: 9.4 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: ALI CANNING
500 - 4260 Still Creek Drive
Burnaby BC V5C6S6

Date Received: 13-SEP-12
Report Date: 21-DEC-12 13:09 (MT)
Version: FINAL REV. 2

Client Phone: --

Certificate of Analysis

Lab Work Order #: L1208795
Project P.O. #: NOT SUBMITTED
Job Reference: 11-1422-0046 PH4500
C of C Numbers: 10-274139
Legal Site Desc:

Amber Springer
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1208795-1	L1208795-2		
		Description	Tissue	Tissue		
		Sampled Date	12-SEP-12	12-SEP-12		
		Sampled Time				
		Client ID	BMREF1-T	BMREF2-T		
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)		83.8	92.6		
Metals	Aluminum (Al)-Total (mg/kg wwt)		185	84.0		
	Antimony (Sb)-Total (mg/kg wwt)		<0.010	<0.010		
	Arsenic (As)-Total (mg/kg wwt)		1.09	1.25		
	Barium (Ba)-Total (mg/kg wwt)		1.35	0.948		
	Beryllium (Be)-Total (mg/kg wwt)		<0.10	<0.10		
	Bismuth (Bi)-Total (mg/kg wwt)		<0.030	<0.030		
	Cadmium (Cd)-Total (mg/kg wwt)		0.502	0.538		
	Calcium (Ca)-Total (mg/kg wwt)		550	3040		
	Chromium (Cr)-Total (mg/kg wwt)		0.22	0.11		
	Cobalt (Co)-Total (mg/kg wwt)		0.136	0.083		
	Copper (Cu)-Total (mg/kg wwt)		1.04	0.819		
	Lead (Pb)-Total (mg/kg wwt)		0.046	0.026		
	Lithium (Li)-Total (mg/kg wwt)		0.22	0.10		
	Magnesium (Mg)-Total (mg/kg wwt)		438	435		
	Manganese (Mn)-Total (mg/kg wwt)		6.33	3.67		
	Mercury (Hg)-Total (mg/kg wwt)		0.0056	0.0060		
	Molybdenum (Mo)-Total (mg/kg wwt)		0.106	0.036		
	Nickel (Ni)-Total (mg/kg wwt)		0.23	0.15		
	Selenium (Se)-Total (mg/kg wwt)		0.22	0.24		
	Strontium (Sr)-Total (mg/kg wwt)		5.37	25.9		
	Thallium (Tl)-Total (mg/kg wwt)		<0.010	<0.010		
	Tin (Sn)-Total (mg/kg wwt)		<0.050	<0.050		
	Uranium (U)-Total (mg/kg wwt)		0.0765	0.0211		
	Vanadium (V)-Total (mg/kg wwt)		0.66	0.27		
	Zinc (Zn)-Total (mg/kg wwt)		8.07	8.01		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg wwt)		<0.010	<0.010		
	Acenaphthylene (mg/kg wwt)		<0.010	<0.010		
	Anthracene (mg/kg wwt)		<0.010	<0.010		
	Benz(a)anthracene (mg/kg wwt)		<0.010	<0.010		
	Benzo(a)pyrene (mg/kg wwt)		<0.010	<0.010		
	Benzo(b)fluoranthene (mg/kg wwt)		<0.010	<0.010		
	Benzo(g,h,i)perylene (mg/kg wwt)		<0.010	<0.010		
	Benzo(k)fluoranthene (mg/kg wwt)		<0.010	<0.010		
	Chrysene (mg/kg wwt)		<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg wwt)		<0.010	<0.010		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1208795-1 Tissue 12-SEP-12 BMREF1-T	L1208795-2 Tissue 12-SEP-12 BMREF2-T		
Grouping	Analyte				
TISSUE					
Polycyclic Aromatic Hydrocarbons	Fluoranthene (mg/kg wwt)	<0.010	<0.010		
	Fluorene (mg/kg wwt)	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg wwt)	<0.010	<0.010		
	2-methylnaphthalene (mg/kg wwt)	<0.010	<0.010		
	Naphthalene (mg/kg wwt)	<0.010	<0.010		
	Phenanthrene (mg/kg wwt)	<0.010	<0.010		
	Pyrene (mg/kg wwt)	<0.010	<0.030 ^{DLM}		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1208795-3 Water 12-SEP-12 14:55 MCF-6	L1208795-4 Water 12-SEP-12 16:30 MCF-12	L1208795-5 Water 11-SEP-12 15:05 MCF-10	
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	
	Conductivity (uS/cm)	20.0	20100	39.4	
	Hardness (as CaCO3) (mg/L)	6.36	2180	9.73	
	pH (pH)	7.13	7.71	7.72	
	Total Suspended Solids (mg/L)	<3.0	18.1	<3.0	
	Total Dissolved Solids (mg/L)	16	14100	35	
	Turbidity (NTU)	1.10	5.45	0.32	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	4.0	6.9	3.1	
	Alkalinity, Total (as CaCO3) (mg/L)	6.0	44.0	9.1	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0155	<0.0050	
	Bromide (Br) (mg/L)	<0.050	26.7	<0.050	
	Chloride (Cl) (mg/L)	0.79	7360	0.71	
	Fluoride (F) (mg/L)	<0.020	0.395	0.027	
	Nitrate (as N) (mg/L)	0.120	<0.50 ^{DLM}	0.0563	
	Nitrite (as N) (mg/L)	<0.0010	<0.10 ^{DLM}	<0.0010	
	Total Kjeldahl Nitrogen (mg/L)	0.056	0.441	<0.050	
	Total Nitrogen (mg/L)	0.160	0.180	0.060	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0159	0.0061	
	Phosphorus (P)-Total (mg/L)	0.0053	0.0478	0.0066	
	Sulfate (SO4) (mg/L)	1.83	1030	5.36	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	0.98	2.34	<0.50	
Total Metals	Aluminum (Al)-Total (mg/L)	0.234	1.60 ^{DLA}	0.0239	
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Arsenic (As)-Total (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Barium (Ba)-Total (mg/L)	<0.020	<0.10 ^{DLA}	<0.020	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Boron (B)-Total (mg/L)	<0.10	1.53 ^{DLA}	<0.10	
	Cadmium (Cd)-Total (mg/L)	<0.000017	<0.00085 ^{DLA}	0.000124	
	Calcium (Ca)-Total (mg/L)	2.15	146 ^{DLA}	3.23	
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.015 ^{DLA}	<0.00030	
	Copper (Cu)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Iron (Fe)-Total (mg/L)	0.114	1.90 ^{DLA}	<0.030	
	Lead (Pb)-Total (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Lithium (Li)-Total (mg/L)	<0.0050	<0.25 ^{DLA}	<0.0050	
	Magnesium (Mg)-Total (mg/L)	0.26	430	0.42	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1208795-3 Water 12-SEP-12 14:55 MCF-6	L1208795-4 Water 12-SEP-12 16:30 MCF-12	L1208795-5 Water 11-SEP-12 15:05 MCF-10		
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	0.00741	0.042	0.00057	
	Mercury (Hg)-Total (mg/L)	<0.000010	0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Potassium (K)-Total (mg/L)	<2.0	134	<2.0	
	Selenium (Se)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Silver (Ag)-Total (mg/L)	<0.000020	<0.0010 ^{DLA}	<0.000020	
	Sodium (Na)-Total (mg/L)	<2.0	3680	2.8	
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.010 ^{DLA}	<0.00020	
	Tin (Sn)-Total (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Titanium (Ti)-Total (mg/L)	<0.010	0.088	<0.010	
	Uranium (U)-Total (mg/L)	<0.00020	<0.010 ^{DLA}	<0.00020	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.025	0.0146	
Dissolved Metals	Dissolved Metals Filtration Location	LAB	LAB	LAB	
	Aluminum (Al)-Dissolved (mg/L)	0.0103	<0.25 ^{DLA}	<0.0050	
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.10	<0.020	
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Boron (B)-Dissolved (mg/L)	<0.10	1.56	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017	<0.00085 ^{DLA}	0.000124	
	Calcium (Ca)-Dissolved (mg/L)	2.16	149	3.24	
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.015 ^{DLA}	<0.00030	
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.15	<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050	
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.25 ^{DLA}	<0.0050	
	Magnesium (Mg)-Dissolved (mg/L)	0.24	440	0.39	
	Manganese (Mn)-Dissolved (mg/L)	0.00693	<0.015 ^{DLA}	0.00031	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010 ^{DLA}	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Potassium (K)-Dissolved (mg/L)	<2.0	139	<2.0	
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010	
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.0010 ^{DLA}	<0.000020	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1208795-3 Water 12-SEP-12 14:55 MCF-6	L1208795-4 Water 12-SEP-12 16:30 MCF-12	L1208795-5 Water 11-SEP-12 15:05 MCF-10			
Grouping	Analyte					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0	3840	2.5		
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.010 ^{DLA}	<0.00020		
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.025 ^{DLA}	<0.00050		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 ^{DLA}	<0.010		
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.010 ^{DLA}	<0.00020		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.050 ^{DLA}	<0.0010		
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.025	0.0129		
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25		
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25		
	LEPH (mg/L)	<0.25	<0.25	<0.25		
	HEPH (mg/L)	<0.25	<0.25	<0.25		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010		
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010		
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(a)pyrene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(b)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010		
	Dibenz(a,h)anthracene (mg/L)	<0.000010	<0.000010	<0.000010		
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010		
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010		
	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050		
	Phenanthrene (mg/L)	0.000038	<0.000020	<0.000020		
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010		
	Quinoline (mg/L)	<0.000010	<0.000010	<0.000010		
	Surrogate: Acenaphthene d10 (%)	89.8	89.3	110.3		
	Surrogate: Acridine d9 (%)	101.2	88.6	104.3		
Surrogate: Chrysene d12 (%)	86.8	93.9	98.0			
Surrogate: Naphthalene d8 (%)	90.2	87.6	106.2			
Surrogate: Phenanthrene d10 (%)	95.8	91.2	118.1			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Nitrate (as N)	DLM	L1208795-4
Duplicate	Barium (Ba)-Total	DUP-H	L1208795-1, -2
Duplicate	Calcium (Ca)-Total	DUP-H	L1208795-1, -2
Duplicate	Molybdenum (Mo)-Total	DUP-H	L1208795-1, -2
Duplicate	Strontium (Sr)-Total	DUP-H	L1208795-1, -2
Duplicate	Uranium (U)-Total	DUP-H	L1208795-1, -2
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1208795-3, -4, -5
Matrix Spike	Phosphorus (P)-Total	MS-B	L1208795-3, -4, -5

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.	
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
		This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.	
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by GCFID BCMOE EPH GCFID

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

F-SIE-VA Water Fluoride by SIE APHA 4500-F "Fluoride"

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al³⁺ is present in the sample at a concentration greater than 2.5 mg/L.

F-SIE-VA Water Fluoride by SIE APHA 4500-F Fluoride

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al³⁺ is present in the sample at a concentration greater than 2.5 mg/L.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-WET-CVAFS-VA Tissue Mercury in Tissue by CVAFS (WET) EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the

Reference Information

American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-WET-MS-VA Tissue Metals in Tissue by ICPMS (WET) EPA 200.3, EPA 6020A

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Mass Spectrometry, adapted from US EPA Method 6020A. This digestion procedure was implemented on October 5, 2009

MOISTURE-TISS-VA Tissue % Moisture in Tissues ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PAH-SURR-MS-VA Water PAH Surrogates for Waters EPA 3510, 8270

Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.

PAH-T-WET-SOX-MS-VA Tissue PAHs in Tissue - wet weight basis EPA METHODS 3540, 3600 & 8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3540, 3600 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure involves a dichloromethane Soxhlet extraction of a subsample of the homogenized tissue which has been dried with anhydrous sodium sulphate. The extract then undergoes a reverse phase C18 clean-up to remove fats and oils. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Reference Information

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"
 This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity
 This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-274139

GLOSSARY OF REPORT TERMS

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

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 of sample.
mg/L - milligrams per litre.
 < - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
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.



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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C6S6
 Contact: ALI CANNING

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2437404							
WG1547057-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.6		%		85-115	15-SEP-12
WG1547057-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.2		%		85-115	15-SEP-12
WG1547057-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.3		%		85-115	15-SEP-12
WG1547057-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.9		%		85-115	15-SEP-12
WG1547057-34 DUP		L1208795-4						
Acidity (as CaCO3)		6.9	6.2		mg/L	11	20	15-SEP-12
ALK-COL-VA		Water						
Batch	R2437903							
WG1547884-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			98.6		%		85-115	17-SEP-12
WG1547884-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			105.3		%		85-115	17-SEP-12
WG1547884-8 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			101.6		%		85-115	17-SEP-12
WG1547884-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
WG1547884-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	17-SEP-12
ANIONS-BR-IC-VA		Water						
Batch	R2437849							
WG1547488-15 LCS								
Bromide (Br)			93.8		%		85-115	17-SEP-12
WG1547488-2 LCS								
Bromide (Br)			98.5		%		85-115	17-SEP-12
WG1547488-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-SEP-12
WG1547488-10 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-SEP-12
WG1547488-13 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-SEP-12
WG1547488-4 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
Batch R2437849								
WG1547488-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	17-SEP-12
Batch R2438620								
WG1549051-2	LCS							
Bromide (Br)			102.3		%		85-115	18-SEP-12
WG1549051-6	LCS							
Bromide (Br)			100.3		%		85-115	18-SEP-12
WG1549051-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	18-SEP-12
WG1549051-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	18-SEP-12
ANIONS-CL-IC-VA								
Batch R2437849								
WG1547488-15	LCS							
Chloride (Cl)			97.8		%		85-115	17-SEP-12
WG1547488-2	LCS							
Chloride (Cl)			97.7		%		85-115	17-SEP-12
WG1547488-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	17-SEP-12
WG1547488-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	17-SEP-12
WG1547488-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	17-SEP-12
WG1547488-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	17-SEP-12
WG1547488-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	17-SEP-12
Batch R2438620								
WG1549051-2	LCS							
Chloride (Cl)			98.5		%		85-115	18-SEP-12
WG1549051-6	LCS							
Chloride (Cl)			97.8		%		85-115	18-SEP-12
WG1549051-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	18-SEP-12
WG1549051-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	18-SEP-12
WG1549051-5	MS	L1206709-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
	Water							
Batch	R2438620							
WG1549051-5	MS	L1206709-2						
Chloride (Cl)			101.1		%		75-125	18-SEP-12
ANIONS-F-IC-VA								
	Water							
Batch	R2438620							
WG1549051-2	LCS							
Fluoride (F)			104.4		%		85-115	18-SEP-12
WG1549051-6	LCS							
Fluoride (F)			104.2		%		85-115	18-SEP-12
WG1549051-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	18-SEP-12
WG1549051-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	18-SEP-12
WG1549051-5	MS	L1206709-2						
Fluoride (F)			107.2		%		75-125	18-SEP-12
ANIONS-NO2-IC-VA								
	Water							
Batch	R2437849							
WG1547488-15	LCS							
Nitrite (as N)			98.6		%		85-115	17-SEP-12
WG1547488-2	LCS							
Nitrite (as N)			101.9		%		85-115	17-SEP-12
WG1547488-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	17-SEP-12
WG1547488-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	17-SEP-12
WG1547488-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	17-SEP-12
WG1547488-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	17-SEP-12
WG1547488-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	17-SEP-12
Batch	R2438620							
WG1549051-2	LCS							
Nitrite (as N)			94.2		%		85-115	18-SEP-12
WG1549051-6	LCS							
Nitrite (as N)			93.1		%		85-115	18-SEP-12
WG1549051-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	18-SEP-12



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ANIONS-NO2-IC-VA		Water						
Batch	R2438620							
WG1549051-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	18-SEP-12
ANIONS-NO3-IC-VA		Water						
Batch	R2437849							
WG1547488-15	LCS							
Nitrate (as N)			101.0		%		85-115	17-SEP-12
WG1547488-2	LCS							
Nitrate (as N)			100.5		%		85-115	17-SEP-12
WG1547488-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	17-SEP-12
WG1547488-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	17-SEP-12
WG1547488-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	17-SEP-12
WG1547488-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	17-SEP-12
WG1547488-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	17-SEP-12
Batch	R2438620							
WG1549051-2	LCS							
Nitrate (as N)			97.3		%		85-115	18-SEP-12
WG1549051-6	LCS							
Nitrate (as N)			96.9		%		85-115	18-SEP-12
WG1549051-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	18-SEP-12
WG1549051-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	18-SEP-12
ANIONS-SO4-IC-VA		Water						
Batch	R2437849							
WG1547488-15	LCS							
Sulfate (SO4)			100.8		%		85-115	17-SEP-12
WG1547488-2	LCS							
Sulfate (SO4)			100.8		%		85-115	17-SEP-12
WG1547488-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	17-SEP-12
WG1547488-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
	Water							
Batch	R2437774							
WG1548364-9 MB								
Total Organic Carbon			<0.50		mg/L		0.5	17-SEP-12
Batch	R2439119							
WG1549311-2 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			101.2		%		80-120	18-SEP-12
WG1549311-4 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			97.8		%		80-120	18-SEP-12
WG1549311-6 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			102.3		%		80-120	18-SEP-12
WG1549311-8 CRM		VA-TOC-C-CAFFEINE						
Total Organic Carbon			100.4		%		80-120	18-SEP-12
WG1549311-11 DUP		L1208795-4						
Total Organic Carbon		2.34	2.19		mg/L	6.6	20	18-SEP-12
WG1549311-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	18-SEP-12
WG1549311-3 MB								
Total Organic Carbon			<0.50		mg/L		0.5	18-SEP-12
WG1549311-5 MB								
Total Organic Carbon			<0.50		mg/L		0.5	18-SEP-12
WG1549311-7 MB								
Total Organic Carbon			<0.50		mg/L		0.5	18-SEP-12
COLOUR-TRUE-VA								
	Water							
Batch	R2436399							
WG1546362-2 CRM		VA-COL-C-25						
Colour, True			101.8		%		85-115	14-SEP-12
WG1546362-5 CRM		VA-COL-C-25						
Colour, True			98.9		%		85-115	14-SEP-12
WG1546362-8 CRM		VA-COL-C-25						
Colour, True			100.9		%		85-115	14-SEP-12
WG1546362-1 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-4 MB								
Colour, True			<5.0		CU		5	14-SEP-12
WG1546362-7 MB								
Colour, True			<5.0		CU		5	14-SEP-12
EC-PCT-VA	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2437404							
WG1547057-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.9		%		90-110	15-SEP-12
WG1547057-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	15-SEP-12
WG1547057-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.2		%		90-110	15-SEP-12
WG1547057-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	15-SEP-12
WG1547057-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	15-SEP-12
WG1547057-34	DUP	L1208795-4						
Conductivity		20100	20000		uS/cm	0.5	10	15-SEP-12
WG1547057-1	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-2	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-3	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-4	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
WG1547057-5	MB							
Conductivity			<2.0		uS/cm		2	15-SEP-12
EPH-SF-FID-VA		Water						
Batch	R2437870							
WG1547297-1	MB							
EPH10-19			<0.25		mg/L		0.25	18-SEP-12
EPH19-32			<0.25		mg/L		0.25	18-SEP-12
F-SIE-VA		Water						
Batch	R2439160							
WG1549769-2	CRM	VA-F-SIE-2.0						
Fluoride (F)			99.0		%		85-115	19-SEP-12
WG1549769-6	CRM	VA-F-SIE-2.0						
Fluoride (F)			99.0		%		85-115	19-SEP-12
WG1549769-1	MB							
Fluoride (F)			<0.030		mg/L		0.03	19-SEP-12
WG1549769-5	MB							
Fluoride (F)			<0.030		mg/L		0.03	19-SEP-12
WG1549769-4	MS	L1208795-4						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-SIE-VA Water								
Batch	R2439160							
WG1549769-4	MS	L1208795-4						
Fluoride (F)			100.0		%		80-120	19-SEP-12
HG-DIS-LOW-CVAFS-VA Water								
Batch	R2436265							
WG1546502-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Batch	R2437021							
WG1546502-10	LCS							
Mercury (Hg)-Dissolved			98.1		%		80-120	15-SEP-12
WG1546502-9	LCS							
Mercury (Hg)-Dissolved			97.7		%		80-120	15-SEP-12
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2439159							
WG1549684-2	LCS							
Mercury (Hg)-Total			95.8		%		80-120	19-SEP-12
WG1549684-5	LCS							
Mercury (Hg)-Total			96.6		%		80-120	19-SEP-12
WG1549684-6	LCS							
Mercury (Hg)-Total			98.3		%		80-120	19-SEP-12
WG1549684-7	LCS							
Mercury (Hg)-Total			96.2		%		80-120	19-SEP-12
WG1549684-8	LCS							
Mercury (Hg)-Total			98.3		%		80-120	19-SEP-12
WG1549684-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-3	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-4	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-SEP-12
WG1549684-15	MS	L1209823-17						
Mercury (Hg)-Total			91.7		%		70-130	19-SEP-12
WG1549684-24	MS	L1208795-5						
Mercury (Hg)-Total			92.0		%		70-130	19-SEP-12
WG1549684-25	MS	L1206767-3						
Mercury (Hg)-Total			94.8		%		70-130	19-SEP-12
WG1549684-26	MS	L1206276-14						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2439159							
WG1549684-26 MS		L1206276-14						
Mercury (Hg)-Total			89.7		%		70-130	19-SEP-12
MET-DIS-CCME-MS-VA Water								
Batch	R2436431							
WG1546502-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	14-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	14-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	14-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	14-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	14-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	14-SEP-12
Batch	R2437379							
WG1546502-7 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-SEP-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2437379							
WG1546502-7	MB							
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	16-SEP-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	16-SEP-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	16-SEP-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	16-SEP-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	16-SEP-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	16-SEP-12
Batch	R2437868							
WG1546502-4	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			100.5		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			102.7		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			100.2		%		80-120	17-SEP-12
Beryllium (Be)-Dissolved			97.1		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			100.4		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			99.4		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			97.7		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			95.6		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			101.0		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			99.3		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.2		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			100.2		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			97.4		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			101.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			100.8		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			99.0		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			99.3		%		80-120	17-SEP-12
Uranium (U)-Dissolved			101.7		%		80-120	17-SEP-12
WG1546502-8	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			105.7		%		80-120	17-SEP-12
Antimony (Sb)-Dissolved			104.5		%		80-120	17-SEP-12
Arsenic (As)-Dissolved			101.7		%		80-120	17-SEP-12

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MET-DIS-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546502-8	CRM	VA-HIGH-WATRM						
Beryllium (Be)-Dissolved			98.7		%		80-120	17-SEP-12
Cadmium (Cd)-Dissolved			102.8		%		80-120	17-SEP-12
Chromium (Cr)-Dissolved			103.0		%		80-120	17-SEP-12
Cobalt (Co)-Dissolved			100.2		%		80-120	17-SEP-12
Copper (Cu)-Dissolved			96.8		%		80-120	17-SEP-12
Lead (Pb)-Dissolved			102.4		%		80-120	17-SEP-12
Lithium (Li)-Dissolved			100.5		%		80-120	17-SEP-12
Manganese (Mn)-Dissolved			100.8		%		80-120	17-SEP-12
Molybdenum (Mo)-Dissolved			102.9		%		80-120	17-SEP-12
Nickel (Ni)-Dissolved			99.9		%		80-120	17-SEP-12
Selenium (Se)-Dissolved			99.6		%		80-120	17-SEP-12
Silver (Ag)-Dissolved			102.6		%		80-120	17-SEP-12
Thallium (Tl)-Dissolved			102.2		%		80-120	17-SEP-12
Tin (Sn)-Dissolved			100.6		%		80-120	17-SEP-12
Vanadium (V)-Dissolved			101.5		%		80-120	17-SEP-12
Uranium (U)-Dissolved			105.0		%		80-120	17-SEP-12
MET-DIS-ICP-VA								
	Water							
Batch	R2436284							
WG1546502-4	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			97.2		%		80-120	14-SEP-12
Boron (B)-Dissolved			98.0		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			105.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			99.0		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			105.2		%		80-120	14-SEP-12
Potassium (K)-Dissolved			99.8		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			100.5		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			101.9		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.8		%		80-120	14-SEP-12
WG1546502-1	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12



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MET-DIS-ICP-VA								
	Water							
Batch	R2436284							
WG1546502-1	MB							
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
Batch	R2437244							
WG1546502-8	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			94.5		%		80-120	14-SEP-12
Boron (B)-Dissolved			97.8		%		80-120	14-SEP-12
Calcium (Ca)-Dissolved			100.4		%		80-120	14-SEP-12
Iron (Fe)-Dissolved			96.3		%		80-120	14-SEP-12
Magnesium (Mg)-Dissolved			101.1		%		80-120	14-SEP-12
Potassium (K)-Dissolved			97.7		%		80-120	14-SEP-12
Sodium (Na)-Dissolved			96.8		%		80-120	14-SEP-12
Titanium (Ti)-Dissolved			100.2		%		80-120	14-SEP-12
Zinc (Zn)-Dissolved			94.5		%		80-120	14-SEP-12
WG1546502-7	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	14-SEP-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	14-SEP-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	14-SEP-12
Potassium (K)-Dissolved			<2.0		mg/L		2	14-SEP-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	14-SEP-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	14-SEP-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	14-SEP-12
WG1546502-5	MS	L1209006-9						
Boron (B)-Dissolved			94.5		%		70-130	14-SEP-12
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	14-SEP-12
Iron (Fe)-Dissolved			91.2		%		70-130	14-SEP-12
Magnesium (Mg)-Dissolved			94.4		%		70-130	14-SEP-12
Potassium (K)-Dissolved			102.1		%		70-130	14-SEP-12
Sodium (Na)-Dissolved			94.2		%		70-130	14-SEP-12
Titanium (Ti)-Dissolved			97.9		%		70-130	14-SEP-12
Zinc (Zn)-Dissolved			86.1		%		70-130	14-SEP-12

MET-TOT-CCME-MS-VA **Water**



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437424							
WG1546923-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	15-SEP-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	15-SEP-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	15-SEP-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	15-SEP-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	15-SEP-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	15-SEP-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	15-SEP-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	15-SEP-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	15-SEP-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	15-SEP-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	15-SEP-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	15-SEP-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	15-SEP-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	15-SEP-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	15-SEP-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	15-SEP-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	15-SEP-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	15-SEP-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	15-SEP-12
Batch	R2437868							
WG1546923-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			103.3		%		80-120	17-SEP-12
Antimony (Sb)-Total			101.9		%		80-120	17-SEP-12
Arsenic (As)-Total			101.4		%		80-120	17-SEP-12
Beryllium (Be)-Total			99.1		%		80-120	17-SEP-12
Cadmium (Cd)-Total			100.9		%		80-120	17-SEP-12
Chromium (Cr)-Total			101.0		%		80-120	17-SEP-12
Cobalt (Co)-Total			100.4		%		80-120	17-SEP-12
Copper (Cu)-Total			97.0		%		80-120	17-SEP-12
Lead (Pb)-Total			101.6		%		80-120	17-SEP-12
Lithium (Li)-Total			100.2		%		80-120	17-SEP-12
Manganese (Mn)-Total			102.4		%		80-120	17-SEP-12
Molybdenum (Mo)-Total			101.6		%		80-120	17-SEP-12
Nickel (Ni)-Total			98.8		%		80-120	17-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2437868							
WG1546923-3 CRM		VA-HIGH-WATRM						
Selenium (Se)-Total			99.2		%		80-120	17-SEP-12
Silver (Ag)-Total			100.7		%		80-120	17-SEP-12
Thallium (Tl)-Total			101.4		%		80-120	17-SEP-12
Tin (Sn)-Total			99.5		%		80-120	17-SEP-12
Uranium (U)-Total			102.8		%		80-120	17-SEP-12
Vanadium (V)-Total			102.0		%		80-120	17-SEP-12
Batch	R2440086							
WG1546923-4 MS		L1208795-5						
Aluminum (Al)-Total			118.9		%		70-130	20-SEP-12
Antimony (Sb)-Total			113.8		%		70-130	20-SEP-12
Arsenic (As)-Total			114.1		%		70-130	18-SEP-12
Beryllium (Be)-Total			110.5		%		70-130	20-SEP-12
Cadmium (Cd)-Total			125.6		%		70-130	20-SEP-12
Chromium (Cr)-Total			125.6		%		70-130	20-SEP-12
Cobalt (Co)-Total			127.3		%		70-130	20-SEP-12
Copper (Cu)-Total			107.4		%		70-130	18-SEP-12
Lead (Pb)-Total			118.6		%		70-130	20-SEP-12
Lithium (Li)-Total			114.1		%		70-130	20-SEP-12
Manganese (Mn)-Total			124.6		%		70-130	20-SEP-12
Molybdenum (Mo)-Total			119.8		%		70-130	20-SEP-12
Nickel (Ni)-Total			128.4		%		70-130	20-SEP-12
Selenium (Se)-Total			125.4		%		70-130	20-SEP-12
Silver (Ag)-Total			119.1		%		70-130	20-SEP-12
Thallium (Tl)-Total			114.4		%		70-130	20-SEP-12
Tin (Sn)-Total			116.3		%		70-130	20-SEP-12
Uranium (U)-Total			112.7		%		70-130	20-SEP-12
Vanadium (V)-Total			125.8		%		70-130	20-SEP-12
MET-TOT-ICP-VA								
	Water							
Batch	R2437201							
WG1546923-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			94.7		%		80-120	15-SEP-12
Boron (B)-Total			97.4		%		80-120	15-SEP-12
Calcium (Ca)-Total			107.1		%		80-120	15-SEP-12
Iron (Fe)-Total			98.1		%		80-120	15-SEP-12



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MET-TOT-ICP-VA								
	Water							
Batch	R2437201							
WG1546923-3	CRM	VA-HIGH-WATRM						
Magnesium (Mg)-Total			99.1		%		80-120	15-SEP-12
Potassium (K)-Total			101.6		%		80-120	15-SEP-12
Sodium (Na)-Total			95.1		%		80-120	15-SEP-12
Titanium (Ti)-Total			98.5		%		80-120	15-SEP-12
Zinc (Zn)-Total			95.8		%		80-120	15-SEP-12
WG1546923-1	MB							
Barium (Ba)-Total			<0.010		mg/L		0.01	15-SEP-12
Boron (B)-Total			<0.10		mg/L		0.1	15-SEP-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	15-SEP-12
Iron (Fe)-Total			<0.030		mg/L		0.03	15-SEP-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	15-SEP-12
Potassium (K)-Total			<2.0		mg/L		2	15-SEP-12
Sodium (Na)-Total			<2.0		mg/L		2	15-SEP-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	15-SEP-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	15-SEP-12
Batch	R2440177							
WG1546923-4	MS	L1208795-5						
Boron (B)-Total			101.1		%		70-130	20-SEP-12
Calcium (Ca)-Total			101.5		%		70-130	20-SEP-12
Iron (Fe)-Total			95.8		%		70-130	20-SEP-12
Magnesium (Mg)-Total			100.7		%		70-130	20-SEP-12
Potassium (K)-Total			103.9		%		70-130	20-SEP-12
Sodium (Na)-Total			98.2		%		70-130	20-SEP-12
Titanium (Ti)-Total			105.8		%		70-130	20-SEP-12
Zinc (Zn)-Total			93.9		%		70-130	20-SEP-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2437759							
WG1548447-2	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			104.6		%		75-125	17-SEP-12
WG1548447-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12

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N-TOT-COMBUST-VA								
Water								
Batch	R2437759							
WG1548447-7	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
WG1548447-9	MB							
Total Nitrogen			<0.050		mg/L		0.05	17-SEP-12
Batch	R2439152							
WG1549314-2	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			96.6		%		75-125	18-SEP-12
WG1549314-4	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			88.6		%		75-125	18-SEP-12
WG1549314-6	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			96.6		%		75-125	18-SEP-12
WG1549314-8	CRM	VA-TN-C-CAFFEINE						
Total Nitrogen			111.4		%		75-125	18-SEP-12
WG1549314-11	DUP	L1208795-4						
Total Nitrogen		0.180	0.140	J	mg/L	0.040	0.1	18-SEP-12
WG1549314-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	18-SEP-12
WG1549314-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	18-SEP-12
WG1549314-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	18-SEP-12
WG1549314-7	MB							
Total Nitrogen			<0.050		mg/L		0.05	18-SEP-12
NH3-F-VA								
Water								
Batch	R2439281							
WG1549557-10	CRM	VA-NH3-F						
Ammonia, Total (as N)			94.8		%		85-115	19-SEP-12
WG1549557-2	CRM	VA-NH3-F						
Ammonia, Total (as N)			103.9		%		85-115	19-SEP-12
WG1549557-4	CRM	VA-NH3-F						
Ammonia, Total (as N)			92.1		%		85-115	19-SEP-12
WG1549557-6	CRM	VA-NH3-F						
Ammonia, Total (as N)			102.3		%		85-115	19-SEP-12
WG1549557-8	CRM	VA-NH3-F						
Ammonia, Total (as N)			95.2		%		85-115	19-SEP-12
WG1549557-1	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-SEP-12
WG1549557-3	MB							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA								
Water								
Batch	R2437347							
WG1547628-19 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-25 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-28 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-32 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-36 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	17-SEP-12
WG1547628-12 MS		L1206732-16						
Phosphorus (P)-Total			84.8		%		70-130	17-SEP-12
WG1547628-18 MS		L1207273-11						
Phosphorus (P)-Total			85.1		%		70-130	17-SEP-12
WG1547628-22 MS		L1209258-1						
Phosphorus (P)-Total			88.7		%		70-130	17-SEP-12
WG1547628-24 MS		L1209478-2						
Phosphorus (P)-Total			79.3		%		70-130	17-SEP-12
WG1547628-30 MS		L1209730-1						
Phosphorus (P)-Total			74.4		%		70-130	17-SEP-12
WG1547628-31 MS		L1207826-5						
Phosphorus (P)-Total			90.1		%		70-130	17-SEP-12
WG1547628-35 MS		L1208364-2						
Phosphorus (P)-Total			87.3		%		70-130	17-SEP-12
WG1547628-4 MS		L1205300-2						
Phosphorus (P)-Total			83.3		%		70-130	17-SEP-12
WG1547628-8 MS		L1209039-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	17-SEP-12
PAH-LL-SF-MS-VA								
Water								
Batch	R2436250							
WG1547297-2 LCS								
Acenaphthene			86.7		%		60-130	19-SEP-12
Acenaphthylene			86.5		%		60-130	19-SEP-12
Acridine			87.0		%		60-130	19-SEP-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2436250							
WG1547297-2	LCS							
Anthracene			90.5		%		60-130	19-SEP-12
Benz(a)anthracene			81.0		%		60-130	19-SEP-12
Benzo(a)pyrene			81.6		%		60-130	19-SEP-12
Benzo(b)fluoranthene			91.1		%		60-130	19-SEP-12
Benzo(g,h,i)perylene			89.5		%		60-130	19-SEP-12
Benzo(k)fluoranthene			88.8		%		60-130	19-SEP-12
Chrysene			87.3		%		60-130	19-SEP-12
Dibenz(a,h)anthracene			88.2		%		60-130	19-SEP-12
Fluoranthene			90.0		%		60-130	19-SEP-12
Fluorene			82.6		%		60-130	19-SEP-12
Indeno(1,2,3-c,d)pyrene			89.0		%		60-130	19-SEP-12
Naphthalene			83.7		%		50-130	19-SEP-12
Phenanthrene			90.6		%		60-130	19-SEP-12
Pyrene			88.0		%		60-130	19-SEP-12
Quinoline			84.3		%		60-130	19-SEP-12
WG1547297-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	19-SEP-12
Acenaphthylene			<0.000010		mg/L		0.00001	19-SEP-12
Acridine			<0.000010		mg/L		0.00001	19-SEP-12
Anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	19-SEP-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Chrysene			<0.000010		mg/L		0.00001	19-SEP-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	19-SEP-12
Fluoranthene			<0.000010		mg/L		0.00001	19-SEP-12
Fluorene			<0.000010		mg/L		0.00001	19-SEP-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Naphthalene			<0.000050		mg/L		0.00005	19-SEP-12
Phenanthrene			<0.000020		mg/L		0.00002	19-SEP-12
Pyrene			<0.000010		mg/L		0.00001	19-SEP-12
Quinoline			<0.000010		mg/L		0.00001	19-SEP-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA		Water						
Batch	R2437404							
WG1547057-25	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	15-SEP-12
WG1547057-26	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	15-SEP-12
WG1547057-27	CRM	VA-PH7-BUF						
pH			6.98		pH		6.9-7.1	15-SEP-12
WG1547057-28	CRM	VA-PH7-BUF						
pH			6.97		pH		6.9-7.1	15-SEP-12
WG1547057-34	DUP	L1208795-4						
pH		7.71	7.76	J	pH	0.05	0.2	15-SEP-12
PO4-DO-COL-VA		Water						
Batch	R2436469							
WG1546613-17	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			106.3		%		80-120	14-SEP-12
WG1546613-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			103.9		%		80-120	14-SEP-12
WG1546613-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-16	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-12
WG1546613-10	MS	L1203911-1						
Orthophosphate-Dissolved (as P)			99.5		%		70-130	14-SEP-12
WG1546613-12	MS	L1209096-1						
Orthophosphate-Dissolved (as P)			101.4		%		70-130	14-SEP-12
WG1546613-14	MS	L1209258-4						
Orthophosphate-Dissolved (as P)			103.3		%		70-130	14-SEP-12
WG1546613-4	MS	L1206909-1						
Orthophosphate-Dissolved (as P)			95.7		%		70-130	14-SEP-12
WG1546613-6	MS	L1208794-2						
Orthophosphate-Dissolved (as P)			96.7		%		70-130	14-SEP-12
WG1546613-8	MS	L1208799-1						
Orthophosphate-Dissolved (as P)			99.3		%		70-130	14-SEP-12
TDS-VA		Water						
Batch	R2439054							
WG1548056-11	LCS							
Total Dissolved Solids			100.4		%		85-115	17-SEP-12
WG1548056-2	LCS							
Total Dissolved Solids			99.6		%		85-115	17-SEP-12

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TDS-VA		Water						
Batch	R2439054							
WG1548056-5	LCS							
Total Dissolved Solids			96.4		%		85-115	17-SEP-12
WG1548056-8	LCS							
Total Dissolved Solids			99.2		%		85-115	17-SEP-12
WG1548056-1	MB							
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-10	MB							
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-4	MB							
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
WG1548056-7	MB							
Total Dissolved Solids			<10		mg/L		10	17-SEP-12
TKN-F-VA		Water						
Batch	R2440039							
WG1547772-2	LCS							
Total Kjeldahl Nitrogen			103.8		%		75-125	20-SEP-12
WG1547772-5	LCS							
Total Kjeldahl Nitrogen			98.7		%		75-125	20-SEP-12
WG1547772-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12
WG1547772-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	20-SEP-12
Batch	R2440985							
WG1551297-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	21-SEP-12
Batch	R2442202							
WG1551297-2	LCS							
Total Kjeldahl Nitrogen			110.9		%		75-125	24-SEP-12
WG1551297-5	LCS							
Total Kjeldahl Nitrogen			95.8		%		75-125	24-SEP-12
WG1551297-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	24-SEP-12
TSS-VA		Water						
Batch	R2438121							
WG1548060-11	LCS							
Total Suspended Solids			92.5		%		85-115	17-SEP-12
WG1548060-2	LCS							



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TSS-VA		Water						
Batch	R2438121							
WG1548060-2	LCS							
Total Suspended Solids			91.9		%		85-115	17-SEP-12
WG1548060-5	LCS							
Total Suspended Solids			92.0		%		85-115	17-SEP-12
WG1548060-8	LCS							
Total Suspended Solids			92.9		%		85-115	17-SEP-12
WG1548060-1	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-10	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-4	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
WG1548060-7	MB							
Total Suspended Solids			<3.0		mg/L		3	17-SEP-12
TURBIDITY-VA		Water						
Batch	R2436466							
WG1546909-11	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-2	CRM	VA-TURB-SPK-8						
Turbidity			103.6		%		85-115	14-SEP-12
WG1546909-5	CRM	VA-TURB-SPK-8						
Turbidity			101.9		%		85-115	14-SEP-12
WG1546909-8	CRM	VA-TURB-SPK-8						
Turbidity			101.0		%		85-115	14-SEP-12
WG1546909-1	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-10	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-4	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
WG1546909-7	MB							
Turbidity			<0.10		NTU		0.1	14-SEP-12
HG-WET-CVAFS-VA		Tissue						
Batch	R2462493							
WG1568121-4	CRM	VA-NRC-TORT2						
Mercury (Hg)-Total			113.8		%		70-130	25-OCT-12
WG1568121-5	CRM	VA-NRC-DOLT4						
Mercury (Hg)-Total			104.4		%		70-130	25-OCT-12

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HG-WET-CVAFS-VA		Tissue						
Batch	R2462493							
WG1568121-3	DUP	L1208795-2						
Mercury (Hg)-Total		0.0060	0.0058		mg/kg wwt	4.6	30	25-OCT-12
WG1568121-1	MB							
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	25-OCT-12
WG1568121-2	MB							
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	25-OCT-12
MET-WET-MS-VA		Tissue						
Batch	R2461844							
WG1568121-4	CRM	VA-NRC-TORT2						
Arsenic (As)-Total			101.9		%		70-130	23-OCT-12
Cadmium (Cd)-Total			109.5		%		70-130	23-OCT-12
Chromium (Cr)-Total			72.8		%		70-130	23-OCT-12
Cobalt (Co)-Total			105.5		%		70-130	23-OCT-12
Copper (Cu)-Total			97.0		%		70-130	23-OCT-12
Lead (Pb)-Total			0.327		mg/kg wwt		0.15-0.55	23-OCT-12
Manganese (Mn)-Total			98.6		%		70-130	23-OCT-12
Molybdenum (Mo)-Total			104.9		%		70-130	23-OCT-12
Nickel (Ni)-Total			92.4		%		70-130	23-OCT-12
Selenium (Se)-Total			107.6		%		70-130	23-OCT-12
Strontium (Sr)-Total			95.4		%		70-130	23-OCT-12
Vanadium (V)-Total			1.84		mg/kg wwt		1.14-2.14	23-OCT-12
Zinc (Zn)-Total			105.7		%		70-130	23-OCT-12
WG1568121-5	CRM	VA-NRC-DOLT4						
Arsenic (As)-Total			94.0		%		70-130	23-OCT-12
Cadmium (Cd)-Total			99.3		%		70-130	23-OCT-12
Calcium (Ca)-Total			94.6		%		70-130	23-OCT-12
Chromium (Cr)-Total			1.11		mg/kg wwt		0.9-1.9	23-OCT-12
Cobalt (Co)-Total			0.229		mg/kg wwt		0.15-0.35	23-OCT-12
Copper (Cu)-Total			100.7		%		70-130	23-OCT-12
Lead (Pb)-Total			0.144		mg/kg wwt		0.06-0.26	23-OCT-12
Magnesium (Mg)-Total			88.6		%		70-130	23-OCT-12
Molybdenum (Mo)-Total			103.5		%		70-130	23-OCT-12
Nickel (Ni)-Total			0.94		mg/kg wwt		0.47-1.47	23-OCT-12
Selenium (Se)-Total			107.8		%		70-130	23-OCT-12
Strontium (Sr)-Total			94.1		%		70-130	23-OCT-12
Tin (Sn)-Total			90.3		%		70-130	23-OCT-12



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MET-WET-MS-VA		Tissue						
Batch	R2461844							
WG1568121-5 CRM		VA-NRC-DOLT4						
Vanadium (V)-Total			101.1		%		70-130	23-OCT-12
Zinc (Zn)-Total			103.9		%		70-130	23-OCT-12
WG1568121-3 DUP		L1208795-2						
Aluminum (Al)-Total		84.0	77.5		mg/kg wwt	8.0	30	23-OCT-12
Antimony (Sb)-Total		<0.010	<0.010	RPD-NA	mg/kg wwt	N/A	30	23-OCT-12
Arsenic (As)-Total		1.25	1.37		mg/kg wwt	9.5	30	23-OCT-12
Barium (Ba)-Total		0.948	1.44	DUP-H	mg/kg wwt	41	30	23-OCT-12
Beryllium (Be)-Total		<0.10	<0.10	RPD-NA	mg/kg wwt	N/A	30	23-OCT-12
Bismuth (Bi)-Total		<0.030	<0.030	RPD-NA	mg/kg wwt	N/A	30	23-OCT-12
Cadmium (Cd)-Total		0.538	0.615		mg/kg wwt	13	30	23-OCT-12
Calcium (Ca)-Total		3040	5800	DUP-H	mg/kg wwt	63	50	23-OCT-12
Chromium (Cr)-Total		0.11	0.12		mg/kg wwt	13	30	23-OCT-12
Cobalt (Co)-Total		0.083	0.094		mg/kg wwt	13	30	23-OCT-12
Copper (Cu)-Total		0.819	0.922		mg/kg wwt	12	30	23-OCT-12
Lead (Pb)-Total		0.026	0.031		mg/kg wwt	18	30	23-OCT-12
Lithium (Li)-Total		0.10	0.11		mg/kg wwt	2.3	30	23-OCT-12
Magnesium (Mg)-Total		435	496		mg/kg wwt	13	30	23-OCT-12
Manganese (Mn)-Total		3.67	4.47		mg/kg wwt	20	30	23-OCT-12
Molybdenum (Mo)-Total		0.036	0.094	DUP-H	mg/kg wwt	88	30	23-OCT-12
Nickel (Ni)-Total		0.15	0.16		mg/kg wwt	8.0	30	23-OCT-12
Selenium (Se)-Total		0.24	0.29		mg/kg wwt	20	30	23-OCT-12
Strontium (Sr)-Total		25.9	52.6	DUP-H	mg/kg wwt	68	50	23-OCT-12
Thallium (Tl)-Total		<0.010	<0.010	RPD-NA	mg/kg wwt	N/A	30	23-OCT-12
Tin (Sn)-Total		<0.050	<0.050	RPD-NA	mg/kg wwt	N/A	30	23-OCT-12
Uranium (U)-Total		0.0211	0.0435	DUP-H	mg/kg wwt	69	30	23-OCT-12
Vanadium (V)-Total		0.27	0.38	J	mg/kg wwt	0.11	0.2	23-OCT-12
Zinc (Zn)-Total		8.01	9.71		mg/kg wwt	19	30	23-OCT-12
WG1568121-1 MB								
Aluminum (Al)-Total			<2.0		mg/kg wwt		2	23-OCT-12
Antimony (Sb)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Arsenic (As)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Beryllium (Be)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Bismuth (Bi)-Total			<0.030		mg/kg wwt		0.03	23-OCT-12
Cadmium (Cd)-Total			<0.0050		mg/kg wwt		0.005	23-OCT-12

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MET-WET-MS-VA		Tissue						
Batch	R2461844							
WG1568121-1 MB								
Calcium (Ca)-Total			<2.0		mg/kg wwt		2	23-OCT-12
Chromium (Cr)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Cobalt (Co)-Total			<0.020		mg/kg wwt		0.02	23-OCT-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	22-OCT-12
Lead (Pb)-Total			<0.020		mg/kg wwt		0.02	23-OCT-12
Lithium (Li)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	23-OCT-12
Manganese (Mn)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Molybdenum (Mo)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Nickel (Ni)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Selenium (Se)-Total			<0.20		mg/kg wwt		0.2	23-OCT-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Thallium (Tl)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Tin (Sn)-Total			<0.050		mg/kg wwt		0.05	23-OCT-12
Uranium (U)-Total			<0.0020		mg/kg wwt		0.002	23-OCT-12
Vanadium (V)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
WG1568121-2 MB								
Aluminum (Al)-Total			<2.0		mg/kg wwt		2	23-OCT-12
Antimony (Sb)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Arsenic (As)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Beryllium (Be)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Bismuth (Bi)-Total			<0.030		mg/kg wwt		0.03	23-OCT-12
Cadmium (Cd)-Total			<0.0050		mg/kg wwt		0.005	23-OCT-12
Calcium (Ca)-Total			<2.0		mg/kg wwt		2	23-OCT-12
Chromium (Cr)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Cobalt (Co)-Total			<0.020		mg/kg wwt		0.02	23-OCT-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Lead (Pb)-Total			<0.020		mg/kg wwt		0.02	23-OCT-12
Lithium (Li)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	23-OCT-12
Manganese (Mn)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Molybdenum (Mo)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12

Quality Control Report

Workorder: L1208795

Report Date: 21-DEC-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-MS-VA								
	Tissue							
Batch	R2461844							
WG1568121-2	MB							
Nickel (Ni)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Selenium (Se)-Total			<0.20		mg/kg wwt		0.2	23-OCT-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Thallium (Tl)-Total			<0.010		mg/kg wwt		0.01	23-OCT-12
Tin (Sn)-Total			<0.050		mg/kg wwt		0.05	23-OCT-12
Uranium (U)-Total			<0.0020		mg/kg wwt		0.002	23-OCT-12
Vanadium (V)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	23-OCT-12
MOISTURE-TISS-VA								
	Tissue							
Batch	R2457497							
WG1568699-1	DUP	L1208795-2						
% Moisture		92.6	92.9		%	0.4	20	17-OCT-12
PAH-T-WET-SOX-MS-VA								
	Tissue							
Batch	R2460229							
WG1568430-2	LCS							
Acenaphthene			93.7		%		50-150	22-OCT-12
Acenaphthylene			94.3		%		50-150	22-OCT-12
Anthracene			98.0		%		50-150	22-OCT-12
Benz(a)anthracene			93.1		%		50-150	22-OCT-12
Benzo(a)pyrene			89.0		%		50-150	22-OCT-12
Benzo(b)fluoranthene			91.0		%		50-150	22-OCT-12
Benzo(g,h,i)perylene			87.1		%		50-150	22-OCT-12
Benzo(k)fluoranthene			96.3		%		50-150	22-OCT-12
Chrysene			94.6		%		50-150	22-OCT-12
Dibenz(a,h)anthracene			91.4		%		50-150	22-OCT-12
Fluoranthene			95.1		%		50-150	22-OCT-12
Fluorene			95.0		%		50-150	22-OCT-12
Indeno(1,2,3-c,d)pyrene			90.5		%		50-150	22-OCT-12
2-methylnaphthalene			90.8		%		50-150	22-OCT-12
Naphthalene			90.5		%		50-150	22-OCT-12
Phenanthrene			97.9		%		50-150	22-OCT-12
Pyrene			92.8		%		50-150	22-OCT-12
WG1568430-1	MB							
Acenaphthene			<0.010		mg/kg wwt		0.01	22-OCT-12

Quality Control Report

Workorder: L1208795

Report Date: 21-DEC-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-T-WET-SOX-MS-VA	Tissue							
Batch	R2460229							
WG1568430-1	MB							
Acenaphthylene			<0.010		mg/kg wwt		0.01	22-OCT-12
Anthracene			<0.010		mg/kg wwt		0.01	22-OCT-12
Benz(a)anthracene			<0.010		mg/kg wwt		0.01	22-OCT-12
Benzo(a)pyrene			<0.010		mg/kg wwt		0.01	22-OCT-12
Benzo(b)fluoranthene			<0.010		mg/kg wwt		0.01	22-OCT-12
Benzo(g,h,i)perylene			<0.010		mg/kg wwt		0.01	22-OCT-12
Benzo(k)fluoranthene			<0.010		mg/kg wwt		0.01	22-OCT-12
Chrysene			<0.010		mg/kg wwt		0.01	22-OCT-12
Dibenz(a,h)anthracene			<0.010		mg/kg wwt		0.01	22-OCT-12
Fluoranthene			<0.010		mg/kg wwt		0.01	22-OCT-12
Fluorene			<0.010		mg/kg wwt		0.01	22-OCT-12
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg wwt		0.01	22-OCT-12
2-methylnaphthalene			<0.010		mg/kg wwt		0.01	22-OCT-12
Naphthalene			<0.010		mg/kg wwt		0.01	22-OCT-12
Phenanthrene			<0.010		mg/kg wwt		0.01	22-OCT-12
Pyrene			<0.010		mg/kg wwt		0.01	22-OCT-12

Quality Control Report

Workorder: L1208795

Report Date: 21-DEC-12

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
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

Workorder: L1208795

Report Date: 21-DEC-12

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	3	12-SEP-12 14:55	15-SEP-12 08:51	0.25	66	hours	EHTR-FM
	4	12-SEP-12 16:30	15-SEP-12 08:51	0.25	64	hours	EHTR-FM
	5	11-SEP-12 15:05	15-SEP-12 08:51	0.25	90	hours	EHTR-FM
Anions and Nutrients							
Nitrate in Water by Ion Chromatography							
	3	12-SEP-12 14:55	18-SEP-12 13:09	3	6	days	EHT
	4	12-SEP-12 16:30	17-SEP-12 13:03	3	5	days	EHT
	5	11-SEP-12 15:05	18-SEP-12 13:09	3	7	days	EHT
Nitrite in Water by Ion Chromatography							
	3	12-SEP-12 14:55	18-SEP-12 13:09	3	6	days	EHT
	4	12-SEP-12 16:30	17-SEP-12 13:03	3	5	days	EHT
	5	11-SEP-12 15:05	18-SEP-12 13:09	3	7	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 L1208795 were received on 13-SEP-12 12:40.

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.

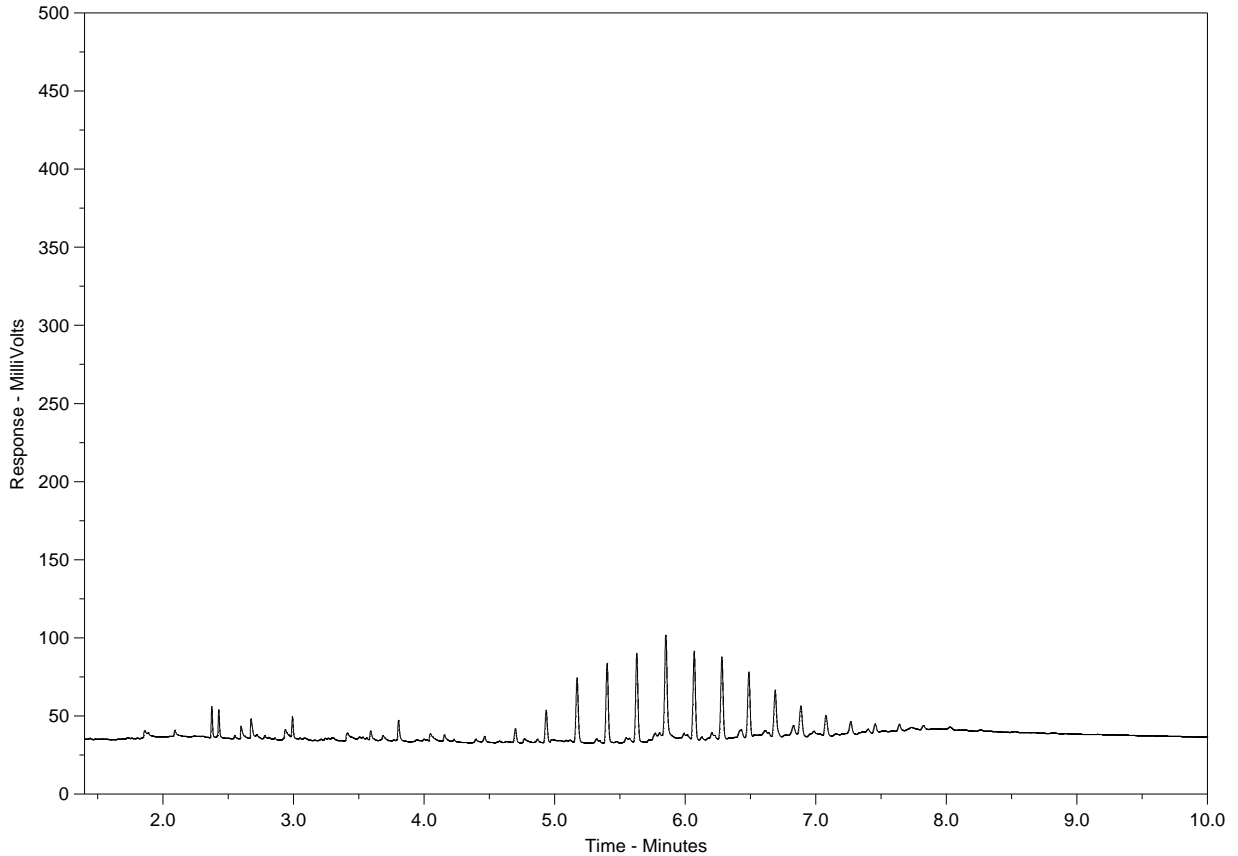
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1208795-3
Client Sample ID: MCF-6



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

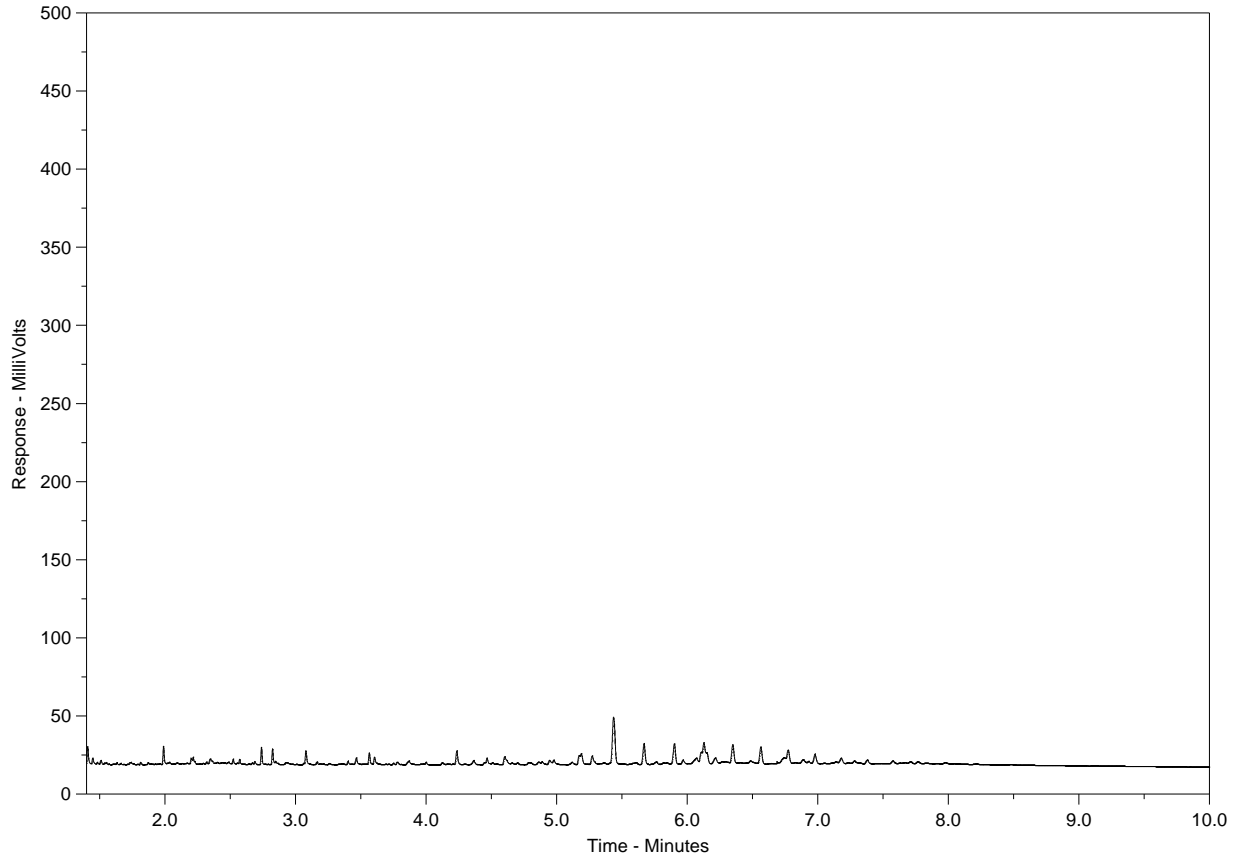
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208795-4
Client Sample ID: MCF-12



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

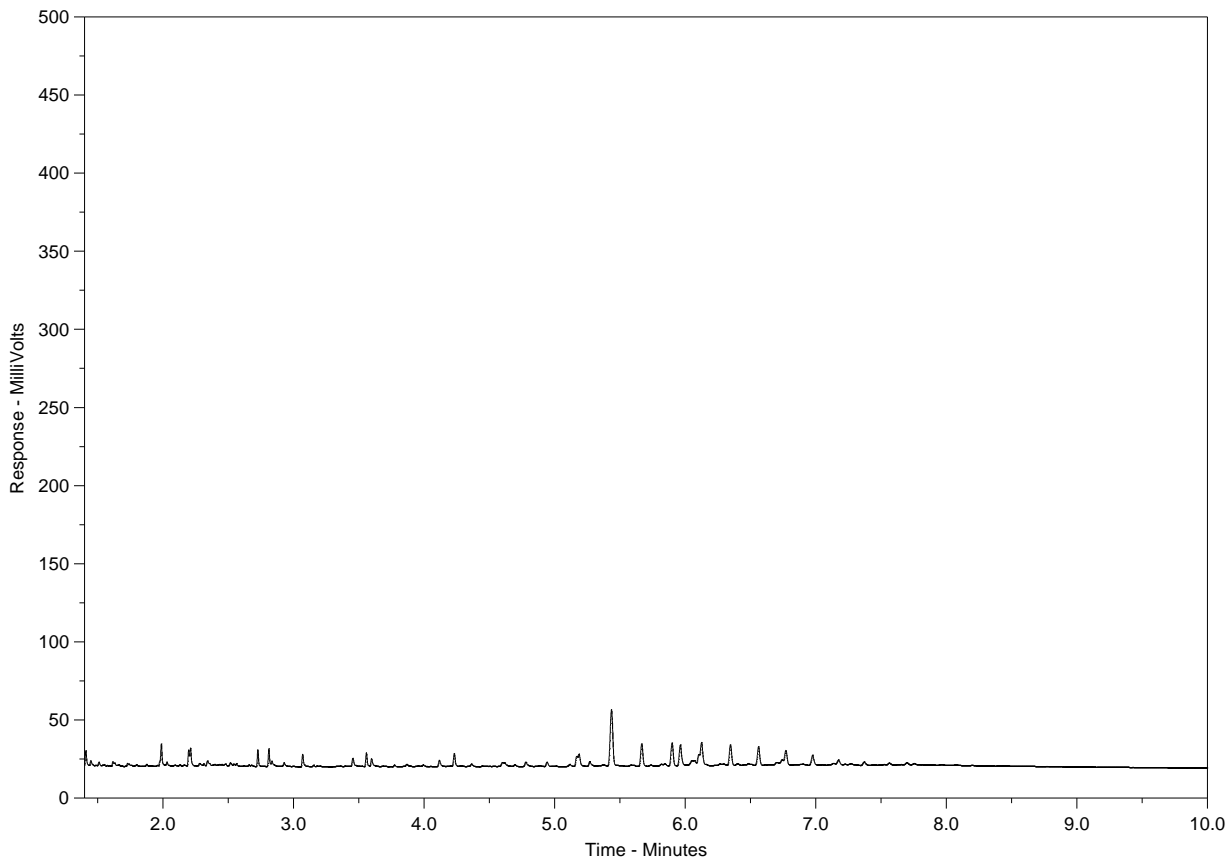
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1208795-5
Client Sample ID: MCF-10



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



Report To ALI CANNING	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: GOLDER ASS. Ltd.	Standard: <input checked="" type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: ALI CANNING	Select: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Exce Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Drive Suite 3 Burnaby BC V5E 6S6	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 604 296 4914 Fax: 604 298 5253	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle) Yes <input checked="" type="checkbox"/> No (if No, provide details)	Client / Project Information BUENCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)									
Copy of Invoice with Report? (circle) Yes <input checked="" type="checkbox"/> No	Job #: 11-1422-0046 ph. 4500	General	Total Metals	Dis. Metals	PAH/LEHP/HEHP	Nutrients /TKN	TOC	PAH	Mercury	Moisture & Metals Relative Level ICP HLS	Number of Containers
Company: GOLDER ASS. LTD.	PO / AFE:										
Contact: Rob Hoogendoorn	LSD:										
Address: 4321 Still Creek Drive Suite 3 Burnaby V5E 6S6	Quote #:										
Phone: 604 296 4314 Fax: 604 298 5253											
Lab Work Order # (lab use only) L1208795	ALS Contact: Amber Springer	Sampler: Ali Canning									

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dis. Metals	PAH/LEHP/HEHP	Nutrients /TKN	TOC	PAH	Mercury	Moisture & Metals Relative Level ICP HLS	Number of Containers
	BM REF 1 - T	12-SEP-12	-	tissue							X	X	X	1
	BM REF 2 - T	12-SEP-12	-	tissue							X	X	X	1
	MCF - 6	12-SEP-12	14:55	water	X	X	X	X	X	X				7
	MCF - 12	12-SEP-12	16:30	water	X	X	X	X	X	X				7
	MCF - 10	11-SEP-12	15:05	water	X	X	X	X	X	X				7

Short Holding Time

Rush Processing

Special Instructions / Regulation 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Ali Canning	Date: Sep. 13/12	Time: 9:45	Received by: Butt	Date: Sept. 13	Time: 12:40	Temperature: 9.4 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: Ali Canning
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 18-OCT-12
Report Date: 26-OCT-12 10:31 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1225933
Project P.O. #: NOT SUBMITTED
Job Reference: BURNCO EA 11-1422-0046 PH. 4500
C of C Numbers: 10-239469
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225933-1 water 17-OCT-12 14:35 FIELD BLANK	L1225933-2 water 17-OCT-12 14:03 MCF-8	L1225933-3 water 17-OCT-12 13:45 MCF-9	
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0	16.4	14.6	
	Conductivity (uS/cm)	<2.0	21.3	21.1	
	Hardness (as CaCO3) (mg/L)	<0.50	6.57	6.48	
	pH (pH)	5.71	7.32	7.62	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	<10	25	22	
	Turbidity (NTU)	<0.10	0.44	0.73	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.7	3.2	3.5	
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	6.3	6.3	
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	<0.50	0.90	0.84	
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	
	Nitrate (as N) (mg/L)	<0.0050	0.0453	0.0561	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.065	0.060	
	Total Nitrogen (mg/L)	<0.050	0.090	0.090	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	0.0013	
	Phosphorus (P)-Total (mg/L)	<0.0020	0.0036	0.0041	
	Sulfate (SO4) (mg/L)	<0.50	1.96	1.98	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	2.75	2.45	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0050	0.0703	0.0642	
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Total (mg/L)	<0.000017	0.000036	0.000041	
	Calcium (Ca)-Total (mg/L)	<0.10	2.16	2.18	
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Iron (Fe)-Total (mg/L)	<0.030	0.170	0.135	
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Total (mg/L)	<0.10	0.27	0.27	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225933-1 water 17-OCT-12 14:35 FIELD BLANK	L1225933-2 water 17-OCT-12 14:03 MCF-8	L1225933-3 water 17-OCT-12 13:45 MCF-9	
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	<0.00030	0.00633	0.00408	
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020	
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
Dissolved Metals	Dissolved Metals Filtration Location		LAB	LAB	
	Aluminum (Al)-Dissolved (mg/L)		0.0488	0.0423	
	Antimony (Sb)-Dissolved (mg/L)		<0.00050	<0.00050	
	Arsenic (As)-Dissolved (mg/L)		<0.00050	<0.00050	
	Barium (Ba)-Dissolved (mg/L)		<0.020	<0.020	
	Beryllium (Be)-Dissolved (mg/L)		<0.0010	<0.0010	
	Boron (B)-Dissolved (mg/L)		<0.10	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)		0.000033	0.000037	
	Calcium (Ca)-Dissolved (mg/L)		2.18	2.15	
	Chromium (Cr)-Dissolved (mg/L)		<0.0010	<0.0010	
	Cobalt (Co)-Dissolved (mg/L)		<0.00030	<0.00030	
	Copper (Cu)-Dissolved (mg/L)		<0.0010	<0.0010	
	Iron (Fe)-Dissolved (mg/L)		0.094	0.072	
	Lead (Pb)-Dissolved (mg/L)		<0.00050	<0.00050	
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	
	Magnesium (Mg)-Dissolved (mg/L)		0.27	0.27	
	Manganese (Mn)-Dissolved (mg/L)		0.00542	0.00280	
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)		<0.0010	<0.0010	
	Nickel (Ni)-Dissolved (mg/L)		<0.0010	<0.0010	
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	
	Silver (Ag)-Dissolved (mg/L)		<0.000020	<0.000020	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225933-1 water 17-OCT-12 14:35 FIELD BLANK	L1225933-2 water 17-OCT-12 14:03 MCF-8	L1225933-3 water 17-OCT-12 13:45 MCF-9	
Grouping	Analyte				
WATER					
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)		<2.0	<2.0	
	Thallium (Tl)-Dissolved (mg/L)		<0.00020	<0.00020	
	Tin (Sn)-Dissolved (mg/L)		<0.00050	<0.00050	
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	
	Uranium (U)-Dissolved (mg/L)		<0.00020	<0.00020	
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)		<0.0050	<0.0050	
Hydrocarbons	EPH10-19 (mg/L)			<0.25	
	EPH19-32 (mg/L)			<0.25	
	LEPH (mg/L)			<0.25	
	HEPH (mg/L)			<0.25	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)			<0.000010	
	Acenaphthylene (mg/L)			<0.000010	
	Acridine (mg/L)			<0.000010	
	Anthracene (mg/L)			<0.000010	
	Benz(a)anthracene (mg/L)			<0.000010	
	Benzo(a)pyrene (mg/L)			<0.000010	
	Benzo(b)fluoranthene (mg/L)			<0.000010	
	Benzo(g,h,i)perylene (mg/L)			<0.000010	
	Benzo(k)fluoranthene (mg/L)			<0.000010	
	Chrysene (mg/L)			<0.000010	
	Dibenz(a,h)anthracene (mg/L)			<0.000010	
	Fluoranthene (mg/L)			<0.000010	
	Fluorene (mg/L)			<0.000010	
	Indeno(1,2,3-c,d)pyrene (mg/L)			<0.000010	
	Naphthalene (mg/L)			<0.000050	
	Phenanthrene (mg/L)			<0.000020	
	Pyrene (mg/L)			<0.000010	
	Quinoline (mg/L)			<0.000010	
	Surrogate: Acenaphthene d10 (%)			88.2	
	Surrogate: Acridine d9 (%)			103.8	
	Surrogate: Chrysene d12 (%)			81.1	
	Surrogate: Naphthalene d8 (%)			93.2	
	Surrogate: Phenanthrene d10 (%)			92.8	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bromide (Br)	DLM	L1225933-1, -2, -3
Duplicate	Fluoride (F)	DLM	L1225933-1, -2, -3
Duplicate	Nitrite (as N)	DLM	L1225933-1, -2, -3
Duplicate	Nitrite (as N)	DLM	L1225933-1, -2, -3
Duplicate	Nitrate (as N)	DLM	L1225933-1, -2, -3
Duplicate	Bromide (Br)	DLM	L1225933-1, -2, -3
Duplicate	Fluoride (F)	DLM	L1225933-1, -2, -3
Duplicate	Nitrite (as N)	DLM	L1225933-1, -2, -3
Duplicate	Chloride (Cl)	DLM	L1225933-1, -2, -3
Matrix Spike	Phosphorus (P)-Total	MS-B	L1225933-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L1225933-2, -3
Matrix Spike	Nitrate (as N)	MS-B	L1225933-1, -2, -3
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225933-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225933-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225933-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225933-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			

Reference Information

COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
<p>This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.</p>			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
<p>This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.</p>			
EPH-SF-FID-VA	Water	EPH in Water by GCFID	BCMOE EPH GCFID
<p>This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).</p>			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
<p>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.</p>			
HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).</p>			
HG-TOT-LOW-CVAFS-VA	Water	Total Mercury in Water by CVAFS(Low)	EPA 245.7
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).</p>			
LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LABORATORY MANUAL (2005)
<p>Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).</p>			
MET-DIS-CCME-MS-VA	Water	Diss. Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020A
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).</p>			
MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).</p>			
MET-TOT-CCME-MS-VA	Water	Total Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020A
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).</p>			
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).</p>			
N-TOT-COMBUST-VA	Water	Total Nitrogen in Water by Combustion	BC: TN by Combustion/Chemiluminescence
<p>This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.</p>			

Reference Information

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
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.			
PAH-LL-SF-MS-VA	Water	PAH-Low Level in Water by GCMS	EPA 3510, 8270
The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.			
PAH-SURR-MS-VA	Water	PAH Surrogates for Waters	EPA 3510, 8270
Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.			
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.			
It is recommended that this analysis be conducted in the field.			
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Reference Information

Chain of Custody Numbers:

10-239469

GLOSSARY OF REPORT TERMS

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

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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: L1225933

Report Date: 26-OCT-12

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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C 6C6

Contact: Ali Canning

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2459280							
WG1569605-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.8		%		85-115	19-OCT-12
WG1569605-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.0		%		85-115	19-OCT-12
WG1569605-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.3		%		85-115	19-OCT-12
WG1569605-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-14 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			109.8		%		85-115	19-OCT-12
WG1569605-15 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			109.4		%		85-115	19-OCT-12
WG1569605-16 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-9 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			103.3		%		85-115	19-OCT-12
Batch	R2460664							
WG1570895-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.3		%		85-115	22-OCT-12
WG1570895-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			101.8		%		85-115	22-OCT-12
WG1570895-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			105.6		%		85-115	22-OCT-12
WG1570895-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			105.2		%		85-115	22-OCT-12
WG1570895-14 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.3		%		85-115	22-OCT-12
WG1570895-15 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			105.2		%		85-115	22-OCT-12
WG1570895-16 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			103.5		%		85-115	22-OCT-12
WG1570895-9 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			100.5		%		85-115	22-OCT-12
ALK-COL-VA		Water						
Batch	R2461334							
WG1572219-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			99.3		%		85-115	23-OCT-12
WG1572219-5 CRM		VA-ALKM-CONTROL						



Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-COL-VA								
	Water							
Batch	R2461334							
WG1572219-5	CRM	VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			108.7		%		85-115	23-OCT-12
WG1572219-8	CRM	VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			102.4		%		85-115	23-OCT-12
WG1572219-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
WG1572219-4	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
WG1572219-7	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
ANIONS-BR-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Bromide (Br)			103.3		%		85-115	20-OCT-12
WG1570542-2	LCS							
Bromide (Br)			103.6		%		85-115	20-OCT-12
WG1570542-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-10	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-13	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-16	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-11	MS	L1226190-3						
Bromide (Br)			104.9		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Bromide (Br)			104.9		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Bromide (Br)			102.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Bromide (Br)			104.5		%		75-125	20-OCT-12
ANIONS-CL-IC-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Chloride (Cl)			101.4		%		85-115	20-OCT-12
WG1570542-2	LCS							
Chloride (Cl)			101.5		%		85-115	20-OCT-12
WG1570542-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-16	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-11	MS	L1226190-3						
Chloride (Cl)			101.9		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Chloride (Cl)			102.1		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						
Chloride (Cl)			102.2		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Chloride (Cl)			102.5		%		75-125	20-OCT-12
ANIONS-F-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Fluoride (F)			107.1		%		85-115	20-OCT-12
WG1570542-2	LCS							
Fluoride (F)			107.2		%		85-115	20-OCT-12
WG1570542-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-4	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-VA								
	Water							
Batch	R2460107							
WG1570542-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-11	MS	L1226190-3						
Fluoride (F)			106.8		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Fluoride (F)			107.1		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Fluoride (F)			103.2		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						
Fluoride (F)			108.4		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Fluoride (F)			105.5		%		75-125	20-OCT-12
ANIONS-NO2-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Nitrite (as N)			104.6		%		85-115	20-OCT-12
WG1570542-2	LCS							
Nitrite (as N)			104.9		%		85-115	20-OCT-12
WG1570542-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-16	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-11	MS	L1226190-3						
Nitrite (as N)			105.0		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Nitrite (as N)			105.5		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Nitrite (as N)			103.7		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2460107							
WG1570542-5	MS	L1225300-2						
Nitrite (as N)			105.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Nitrite (as N)			103.7		%		75-125	20-OCT-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Nitrate (as N)			102.5		%		85-115	20-OCT-12
WG1570542-2	LCS							
Nitrate (as N)			102.5		%		85-115	20-OCT-12
WG1570542-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-11	MS	L1226190-3						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Nitrate (as N)			N/A	MS-B	%		-	20-OCT-12
WG1570542-5	MS	L1225300-2						
Nitrate (as N)			103.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
ANIONS-SO4-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Sulfate (SO4)			103.9		%		85-115	20-OCT-12
WG1570542-2	LCS							
Sulfate (SO4)			104.0		%		85-115	20-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-VA								
	Water							
Batch	R2460107							
WG1570542-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-16	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-11	MS	L1226190-3						
Sulfate (SO4)			102.6		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Sulfate (SO4)			104.3		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Sulfate (SO4)			90.3		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						
Sulfate (SO4)			104.2		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Sulfate (SO4)			102.2		%		75-125	20-OCT-12
CARBONS-TOC-VA								
	Water							
Batch	R2460160							
WG1570227-2	LCS							
Total Organic Carbon			96.7		%		80-120	19-OCT-12
WG1570227-4	LCS							
Total Organic Carbon			95.9		%		80-120	19-OCT-12
WG1570227-6	LCS							
Total Organic Carbon			96.8		%		80-120	19-OCT-12
WG1570227-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-5	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
Water								
Batch	R2460912							
WG1572131-3	DUP	L1225933-1						
Total Organic Carbon		<0.50	<0.50	RPD-NA	mg/L	N/A	20	23-OCT-12
WG1572131-2	LCS							
Total Organic Carbon			98.0		%		80-120	23-OCT-12
WG1572131-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	23-OCT-12
COLOUR-TRUE-VA								
Water								
Batch	R2459069							
WG1569669-2	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-5	CRM	VA-COL-C-25						
Colour, True			101.7		%		85-115	19-OCT-12
WG1569669-8	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-1	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-4	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-7	MB							
Colour, True			<5.0		CU		5	19-OCT-12
EC-PCT-VA								
Water								
Batch	R2459280							
WG1569605-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	19-OCT-12
WG1569605-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			92.9		%		90-110	19-OCT-12
WG1569605-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			96.0		%		90-110	19-OCT-12
WG1569605-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.1		%		90-110	19-OCT-12
WG1569605-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	19-OCT-12
WG1569605-22	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.9		%		90-110	19-OCT-12
WG1569605-23	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.3		%		90-110	19-OCT-12
WG1569605-1	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA								
	Water							
Batch	R2459280							
WG1569605-2	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-3	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-4	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-5	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-6	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-7	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-8	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
EPH-SF-FID-VA								
	Water							
Batch	R2459820							
WG1570543-1	MB							
EPH10-19			<0.25		mg/L		0.25	22-OCT-12
EPH19-32			<0.25		mg/L		0.25	22-OCT-12
HG-DIS-LOW-CVAFS-VA								
	Water							
Batch	R2459291							
WG1570016-5	LCS							
Mercury (Hg)-Dissolved			85.2		%		80-120	20-OCT-12
WG1570016-6	LCS							
Mercury (Hg)-Dissolved			86.6		%		80-120	20-OCT-12
WG1570016-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-2	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-8	MS	L1225931-1						
Mercury (Hg)-Dissolved			89.7		%		70-130	20-OCT-12
HG-TOT-LOW-CVAFS-VA								
	Water							
Batch	R2459492							
WG1570691-3	LCS							
Mercury (Hg)-Total			97.9		%		80-120	21-OCT-12
WG1570691-4	LCS							
Mercury (Hg)-Total			96.9		%		80-120	21-OCT-12
WG1570691-1	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch R2459492								
WG1570691-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-OCT-12
WG1570691-2 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-OCT-12
WG1570691-10 MS		L1225932-7						
Mercury (Hg)-Total			91.8		%		70-130	21-OCT-12
WG1570691-11 MS		L1224789-4						
Mercury (Hg)-Total			92.3		%		70-130	21-OCT-12
WG1570691-7 MS		L1224843-6						
Mercury (Hg)-Total			90.4		%		70-130	21-OCT-12
WG1570691-8 MS		L1226511-24						
Mercury (Hg)-Total			89.3		%		70-130	21-OCT-12
WG1570691-9 MS		L1226201-9						
Mercury (Hg)-Total			90.8		%		70-130	21-OCT-12
Batch R2461767								
WG1573049-3 LCS								
Mercury (Hg)-Total			97.0		%		80-120	24-OCT-12
WG1573049-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	24-OCT-12
WG1573049-2 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	24-OCT-12
WG1573049-12 MS		L1227395-4						
Mercury (Hg)-Total			82.1		%		70-130	24-OCT-12
WG1573049-15 MS		L1224961-8						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12
WG1573049-17 MS		L1226306-8						
Mercury (Hg)-Total			83.8		%		70-130	24-OCT-12
WG1573049-18 MS		L1226369-2						
Mercury (Hg)-Total			87.4		%		70-130	24-OCT-12
WG1573049-19 MS		L1226369-10						
Mercury (Hg)-Total			461.8	MS-B	%		70-130	24-OCT-12
WG1573049-20 MS		L1224636-1						
Mercury (Hg)-Total			87.2		%		70-130	24-OCT-12
WG1573049-21 MS		L1226360-3						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12
WG1573049-22 MS		L1224961-10						
Mercury (Hg)-Total			97.8		%		70-130	24-OCT-12
WG1573049-31 MS		L1226447-7						
Mercury (Hg)-Total			100.7		%		70-130	24-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2461767							
WG1573049-32 MS		L1227416-2						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12
MET-DIS-CCME-MS-VA Water								
Batch	R2459875							
WG1570016-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			97.7		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.5		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.1		%		80-120	19-OCT-12
Beryllium (Be)-Dissolved			99.2		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			102.6		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			98.7		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12
Copper (Cu)-Dissolved			95.6		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			102.5		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			99.9		%		80-120	19-OCT-12
Manganese (Mn)-Dissolved			95.7		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			100.3		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			97.4		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			103.4		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			103.8		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.0		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			98.8		%		80-120	19-OCT-12
Vanadium (V)-Dissolved			99.2		%		80-120	19-OCT-12
Uranium (U)-Dissolved			104.1		%		80-120	19-OCT-12
WG1570016-4 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			98.1		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.9		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.7		%		80-120	19-OCT-12
Beryllium (Be)-Dissolved			98.5		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			101.2		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			100.6		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12
Copper (Cu)-Dissolved			95.8		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			101.6		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			101.6		%		80-120	19-OCT-12



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MET-DIS-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1570016-4	CRM	VA-HIGH-WATRM						
Manganese (Mn)-Dissolved			94.9		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			102.1		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			98.2		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			101.5		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			105.4		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.2		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			97.7		%		80-120	19-OCT-12
Vanadium (V)-Dissolved			101.1		%		80-120	19-OCT-12
Uranium (U)-Dissolved			105.0		%		80-120	19-OCT-12
Batch	R2459923							
WG1570016-1	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
WG1570016-2	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch	R2459923							
WG1570016-2	MB							
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
MET-DIS-ICP-VA		Water						
Batch	R2460044							
WG1570016-3	CRM							
		VA-HIGH-WATRM						
Barium (Ba)-Dissolved			97.4		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.7		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			104.2		%		80-120	19-OCT-12
Iron (Fe)-Dissolved			100.6		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.5		%		80-120	19-OCT-12
Potassium (K)-Dissolved			102.9		%		80-120	19-OCT-12
Sodium (Na)-Dissolved			95.7		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			101.8		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.6		%		80-120	19-OCT-12
WG1570016-4	CRM							
		VA-HIGH-WATRM						
Barium (Ba)-Dissolved			95.6		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.9		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			105.3		%		80-120	19-OCT-12
Iron (Fe)-Dissolved			100.0		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.6		%		80-120	19-OCT-12
Potassium (K)-Dissolved			99.4		%		80-120	19-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2460044							
WG1570016-4 CRM		VA-HIGH-WATRM						
Sodium (Na)-Dissolved			95.1		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			100.1		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.5		%		80-120	19-OCT-12
WG1570016-1 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
WG1570016-2 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2461057							
WG1570016-8 MS		L1225931-1						
Boron (B)-Dissolved			99.0		%		70-130	22-OCT-12
Calcium (Ca)-Dissolved			99.3		%		70-130	22-OCT-12
Iron (Fe)-Dissolved			97.1		%		70-130	22-OCT-12
Magnesium (Mg)-Dissolved			95.9		%		70-130	22-OCT-12
Potassium (K)-Dissolved			107.0		%		70-130	22-OCT-12
Sodium (Na)-Dissolved			102.4		%		70-130	22-OCT-12
Titanium (Ti)-Dissolved			104.6		%		70-130	22-OCT-12
Zinc (Zn)-Dissolved			96.0		%		70-130	22-OCT-12
MET-TOT-CCME-MS-VA	Water							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1569432-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			99.2		%		80-120	19-OCT-12
Antimony (Sb)-Total			103.4		%		80-120	19-OCT-12
Arsenic (As)-Total			99.3		%		80-120	19-OCT-12
Beryllium (Be)-Total			99.0		%		80-120	19-OCT-12
Cadmium (Cd)-Total			102.3		%		80-120	19-OCT-12
Chromium (Cr)-Total			99.8		%		80-120	19-OCT-12
Cobalt (Co)-Total			98.1		%		80-120	19-OCT-12
Copper (Cu)-Total			97.0		%		80-120	19-OCT-12
Lead (Pb)-Total			100.8		%		80-120	19-OCT-12
Lithium (Li)-Total			100.6		%		80-120	19-OCT-12
Manganese (Mn)-Total			97.3		%		80-120	19-OCT-12
Molybdenum (Mo)-Total			100.5		%		80-120	19-OCT-12
Nickel (Ni)-Total			99.2		%		80-120	19-OCT-12
Selenium (Se)-Total			101.6		%		80-120	19-OCT-12
Silver (Ag)-Total			103.1		%		80-120	19-OCT-12
Thallium (Tl)-Total			103.3		%		80-120	19-OCT-12
Tin (Sn)-Total			98.8		%		80-120	19-OCT-12
Uranium (U)-Total			103.7		%		80-120	19-OCT-12
Vanadium (V)-Total			99.8		%		80-120	19-OCT-12
WG1569444-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			99.4		%		80-120	19-OCT-12
Antimony (Sb)-Total			105.8		%		80-120	19-OCT-12
Arsenic (As)-Total			101.3		%		80-120	19-OCT-12
Beryllium (Be)-Total			101.4		%		80-120	19-OCT-12
Cadmium (Cd)-Total			102.7		%		80-120	19-OCT-12
Chromium (Cr)-Total			101.3		%		80-120	19-OCT-12
Cobalt (Co)-Total			100.6		%		80-120	19-OCT-12
Copper (Cu)-Total			97.8		%		80-120	19-OCT-12
Lead (Pb)-Total			102.2		%		80-120	19-OCT-12
Lithium (Li)-Total			102.6		%		80-120	19-OCT-12
Manganese (Mn)-Total			98.5		%		80-120	19-OCT-12
Molybdenum (Mo)-Total			102.8		%		80-120	19-OCT-12
Nickel (Ni)-Total			101.1		%		80-120	19-OCT-12
Selenium (Se)-Total			103.8		%		80-120	19-OCT-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1569444-3	CRM	VA-HIGH-WATRM						
Silver (Ag)-Total			105.3		%		80-120	19-OCT-12
Thallium (Tl)-Total			104.9		%		80-120	19-OCT-12
Tin (Sn)-Total			102.3		%		80-120	19-OCT-12
Uranium (U)-Total			104.5		%		80-120	19-OCT-12
Vanadium (V)-Total			103.8		%		80-120	19-OCT-12
Batch	R2459923							
WG1569444-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	19-OCT-12
Batch	R2460106							
WG1569432-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	19-OCT-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2460106							
WG1569432-1	MB							
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	19-OCT-12
Batch	R2460726							
WG1569444-4	MS	L1225591-2						
Aluminum (Al)-Total			95.7		%		70-130	22-OCT-12
Antimony (Sb)-Total			107.5		%		70-130	22-OCT-12
Arsenic (As)-Total			107.8		%		70-130	22-OCT-12
Beryllium (Be)-Total			98.9		%		70-130	22-OCT-12
Cadmium (Cd)-Total			100.7		%		70-130	22-OCT-12
Chromium (Cr)-Total			100.2		%		70-130	22-OCT-12
Cobalt (Co)-Total			100.7		%		70-130	22-OCT-12
Copper (Cu)-Total			98.6		%		70-130	22-OCT-12
Lead (Pb)-Total			103.5		%		70-130	22-OCT-12
Lithium (Li)-Total			100.9		%		70-130	22-OCT-12
Manganese (Mn)-Total			N/A	MS-B	%		-	22-OCT-12
Molybdenum (Mo)-Total			111.0		%		70-130	22-OCT-12
Nickel (Ni)-Total			99.2		%		70-130	22-OCT-12
Selenium (Se)-Total			102.5		%		70-130	22-OCT-12
Silver (Ag)-Total			105.0		%		70-130	22-OCT-12
Thallium (Tl)-Total			104.1		%		70-130	22-OCT-12
Tin (Sn)-Total			104.6		%		70-130	22-OCT-12
Uranium (U)-Total			108.7		%		70-130	22-OCT-12
Vanadium (V)-Total			102.0		%		70-130	22-OCT-12



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MET-TOT-ICP-VA		Water						
Batch	R2458894							
WG1569432-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			94.6		%		80-120	19-OCT-12
Boron (B)-Total			98.7		%		80-120	19-OCT-12
Calcium (Ca)-Total			100.4		%		80-120	19-OCT-12
Iron (Fe)-Total			98.8		%		80-120	19-OCT-12
Magnesium (Mg)-Total			102.6		%		80-120	19-OCT-12
Potassium (K)-Total			99.1		%		80-120	19-OCT-12
Sodium (Na)-Total			96.0		%		80-120	19-OCT-12
Titanium (Ti)-Total			99.4		%		80-120	19-OCT-12
Zinc (Zn)-Total			96.7		%		80-120	19-OCT-12
WG1569432-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Total			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Total			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Total			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Total			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2460044							
WG1569444-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			100.4		%		80-120	19-OCT-12
Boron (B)-Total			101.5		%		80-120	19-OCT-12
Calcium (Ca)-Total			107.4		%		80-120	19-OCT-12
Iron (Fe)-Total			103.4		%		80-120	19-OCT-12
Magnesium (Mg)-Total			108.0		%		80-120	19-OCT-12
Potassium (K)-Total			109.0		%		80-120	19-OCT-12
Sodium (Na)-Total			103.6		%		80-120	19-OCT-12
Titanium (Ti)-Total			105.3		%		80-120	19-OCT-12
Zinc (Zn)-Total			97.9		%		80-120	19-OCT-12
WG1569444-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Total			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Total			<0.030		mg/L		0.03	19-OCT-12

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MET-TOT-ICP-VA								
	Water							
Batch	R2460044							
WG1569444-1	MB							
Magnesium (Mg)-Total			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Total			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Total			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2462559							
WG1569444-4	MS	L1225591-2						
Boron (B)-Total			102.4		%		70-130	25-OCT-12
Calcium (Ca)-Total			103.8		%		70-130	25-OCT-12
Iron (Fe)-Total			98.4		%		70-130	25-OCT-12
Magnesium (Mg)-Total			102.6		%		70-130	25-OCT-12
Potassium (K)-Total			107.2		%		70-130	25-OCT-12
Sodium (Na)-Total			104.5		%		70-130	25-OCT-12
Titanium (Ti)-Total			104.6		%		70-130	25-OCT-12
Zinc (Zn)-Total			95.6		%		70-130	25-OCT-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2459948							
WG1570230-2	LCS							
Total Nitrogen			115.8		%		80-120	19-OCT-12
WG1570230-4	LCS							
Total Nitrogen			108.4		%		80-120	19-OCT-12
WG1570230-6	LCS							
Total Nitrogen			117.0		%		80-120	19-OCT-12
WG1570230-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
WG1570230-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
WG1570230-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
Batch	R2461520							
WG1572744-7	DUP	L1225933-1						
Total Nitrogen		<0.050	<0.050	RPD-NA	mg/L	N/A	20	23-OCT-12
WG1572744-2	LCS							
Total Nitrogen			105.2		%		80-120	23-OCT-12
WG1572744-4	LCS							
Total Nitrogen			89.4		%		80-120	23-OCT-12



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N-TOT-COMBUST-VA								
Water								
Batch	R2461520							
WG1572744-6	LCS							
Total Nitrogen			101.6		%		80-120	23-OCT-12
WG1572744-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	23-OCT-12
WG1572744-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	23-OCT-12
WG1572744-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	23-OCT-12
NH3-F-VA								
Water								
Batch	R2462109							
WG1570295-10	CRM	VA-NH3-F						
Ammonia, Total (as N)			99.0		%		85-115	24-OCT-12
WG1570295-2	CRM	VA-NH3-F						
Ammonia, Total (as N)			102.4		%		85-115	24-OCT-12
WG1570295-4	CRM	VA-NH3-F						
Ammonia, Total (as N)			99.5		%		85-115	24-OCT-12
WG1570295-6	CRM	VA-NH3-F						
Ammonia, Total (as N)			99.1		%		85-115	24-OCT-12
WG1570295-8	CRM	VA-NH3-F						
Ammonia, Total (as N)			99.1		%		85-115	24-OCT-12
WG1570295-1	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-OCT-12
WG1570295-3	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-OCT-12
WG1570295-5	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-OCT-12
WG1570295-7	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-OCT-12
WG1570295-9	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-OCT-12
WG1570295-12	MS	L1225180-17						
Ammonia, Total (as N)			100.7		%		75-125	24-OCT-12
P-T-COL-VA								
Water								
Batch	R2458510							
WG1569660-10	CRM	VA-ERA-PO4						
Phosphorus (P)-Total			101.5		%		80-120	19-OCT-12
WG1569660-14	CRM	VA-ERA-PO4						
Phosphorus (P)-Total			103.4		%		80-120	19-OCT-12



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P-T-COL-VA								
Water								
Batch	R2458510							
WG1569660-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.8		%		80-120	19-OCT-12
WG1569660-21 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			100.8		%		80-120	19-OCT-12
WG1569660-23 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			101.8		%		80-120	19-OCT-12
WG1569660-27 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			102.4		%		80-120	19-OCT-12
WG1569660-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.8		%		80-120	19-OCT-12
WG1569660-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-13 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-20 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-22 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-26 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-12 MS		L1225180-3						
Phosphorus (P)-Total			111.9		%		70-130	19-OCT-12
WG1569660-19 MS		L1225342-2						
Phosphorus (P)-Total			90.9		%		70-130	19-OCT-12
WG1569660-25 MS		L1225824-12						
Phosphorus (P)-Total			98.2		%		70-130	19-OCT-12
WG1569660-4 MS		L1225032-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	19-OCT-12
WG1569660-8 MS		L1225032-23						
Phosphorus (P)-Total			100.5		%		70-130	19-OCT-12
PAH-LL-SF-MS-VA								
Water								
Batch	R2459704							
WG1570543-2 LCS								
Acenaphthene			99.2		%		60-130	22-OCT-12

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PAH-LL-SF-MS-VA		Water						
Batch	R2459704							
WG1570543-2	LCS							
Acenaphthylene			99.9		%		60-130	22-OCT-12
Acridine			92.4		%		60-130	22-OCT-12
Anthracene			98.6		%		60-130	22-OCT-12
Benz(a)anthracene			93.0		%		60-130	22-OCT-12
Benzo(a)pyrene			92.8		%		60-130	22-OCT-12
Benzo(b)fluoranthene			90.2		%		60-130	22-OCT-12
Benzo(g,h,i)perylene			101.1		%		60-130	22-OCT-12
Benzo(k)fluoranthene			99.2		%		60-130	22-OCT-12
Chrysene			97.1		%		60-130	22-OCT-12
Dibenz(a,h)anthracene			98.9		%		60-130	22-OCT-12
Fluoranthene			98.2		%		60-130	22-OCT-12
Fluorene			97.6		%		60-130	22-OCT-12
Indeno(1,2,3-c,d)pyrene			97.6		%		60-130	22-OCT-12
Naphthalene			93.1		%		50-130	22-OCT-12
Phenanthrene			101.3		%		60-130	22-OCT-12
Pyrene			97.2		%		60-130	22-OCT-12
Quinoline			95.8		%		60-130	22-OCT-12
WG1570543-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	22-OCT-12
Acenaphthylene			<0.000010		mg/L		0.00001	22-OCT-12
Acridine			<0.000010		mg/L		0.00001	22-OCT-12
Anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Chrysene			<0.000010		mg/L		0.00001	22-OCT-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Fluorene			<0.000010		mg/L		0.00001	22-OCT-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Naphthalene			<0.000050		mg/L		0.00005	22-OCT-12
Phenanthrene			<0.000020		mg/L		0.00002	22-OCT-12

Quality Control Report

Workorder: L1225933

Report Date: 26-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA Water								
Batch	R2459704							
WG1570543-1	MB							
Pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Quinoline			<0.000010		mg/L		0.00001	22-OCT-12
PH-MAN-VA Water								
Batch	R2460104							
WG1571280-2	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	22-OCT-12
WG1571280-3	DUP	L1225933-1						
pH		5.71	5.71	J	pH	0.00	0.2	22-OCT-12
PH-PCT-VA Water								
Batch	R2459280							
WG1569605-24	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	19-OCT-12
WG1569605-25	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	19-OCT-12
WG1569605-26	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	19-OCT-12
WG1569605-27	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	19-OCT-12
WG1569605-28	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	19-OCT-12
WG1569605-29	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	19-OCT-12
WG1569605-30	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	19-OCT-12
PO4-DO-COL-VA Water								
Batch	R2459131							
WG1570129-12	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			96.0		%		80-120	19-OCT-12
WG1570129-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			98.3		%		80-120	19-OCT-12
WG1570129-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-OCT-12
WG1570129-11	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-OCT-12
WG1570129-10	MS	L1226228-4						
Orthophosphate-Dissolved (as P)			101.8		%		70-130	19-OCT-12
WG1570129-4	MS	L1225342-2						



Quality Control Report

Workorder: L1225933

Report Date: 26-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA								
	Water							
Batch	R2459131							
WG1570129-4	MS	L1225342-2						
	Orthophosphate-Dissolved (as P)		101.5		%		70-130	19-OCT-12
WG1570129-6	MS	L1225931-5						
	Orthophosphate-Dissolved (as P)		98.8		%		70-130	19-OCT-12
WG1570129-8	MS	L1226193-1						
	Orthophosphate-Dissolved (as P)		100.3		%		70-130	19-OCT-12
TDS-VA								
	Water							
Batch	R2459606							
WG1569425-2	LCS							
	Total Dissolved Solids		98.4		%		85-115	18-OCT-12
WG1569425-4	LCS							
	Total Dissolved Solids		99.8		%		85-115	18-OCT-12
WG1569425-7	LCS							
	Total Dissolved Solids		98.6		%		85-115	18-OCT-12
WG1569425-1	MB							
	Total Dissolved Solids		<10		mg/L		10	18-OCT-12
WG1569425-3	MB							
	Total Dissolved Solids		<10		mg/L		10	18-OCT-12
WG1569425-6	MB							
	Total Dissolved Solids		<10		mg/L		10	18-OCT-12
TKN-F-VA								
	Water							
Batch	R2460178							
WG1569417-2	LCS							
	Total Kjeldahl Nitrogen		104.9		%		75-125	22-OCT-12
WG1569417-5	LCS							
	Total Kjeldahl Nitrogen		107.2		%		75-125	22-OCT-12
WG1569417-1	MB							
	Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	22-OCT-12
WG1569417-4	MB							
	Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	22-OCT-12
WG1570006-4	MB							
	Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	22-OCT-12
Batch	R2460571							
WG1570006-2	LCS							
	Total Kjeldahl Nitrogen		100.5		%		75-125	22-OCT-12
WG1570006-5	LCS							
	Total Kjeldahl Nitrogen		101.2		%		75-125	22-OCT-12
WG1570006-1	MB							



Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-F-VA								
Water								
Batch R2460571								
WG1570006-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	22-OCT-12
TSS-VA								
Water								
Batch R2458584								
WG1569427-2 LCS								
Total Suspended Solids			96.5		%		85-115	18-OCT-12
WG1569427-4 LCS								
Total Suspended Solids			95.1		%		85-115	18-OCT-12
WG1569427-7 LCS								
Total Suspended Solids			96.4		%		85-115	18-OCT-12
WG1569427-1 MB								
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-3 MB								
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-6 MB								
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
TURBIDITY-VA								
Water								
Batch R2458897								
WG1569670-2 CRM								
Turbidity		VA-TURB-SPK-8	106.4		%		85-115	19-OCT-12
WG1569670-3 DUP								
Turbidity		L1225933-3	0.73		NTU	0.4	15	19-OCT-12
WG1569670-1 MB								
Turbidity			<0.10		NTU		0.1	19-OCT-12

Quality Control Report

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
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

Workorder: L1225933

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Manual Meter	1	17-OCT-12 14:35	22-OCT-12 12:00	0.25	117	hours	EHTR-FM
pH by Meter (Automated)	2	17-OCT-12 14:03	19-OCT-12 10:21	0.25	44	hours	EHTR-FM
	3	17-OCT-12 13:45	19-OCT-12 10:21	0.25	45	hours	EHTR-FM

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 L1225933 were received on 18-OCT-12 14:00.

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.

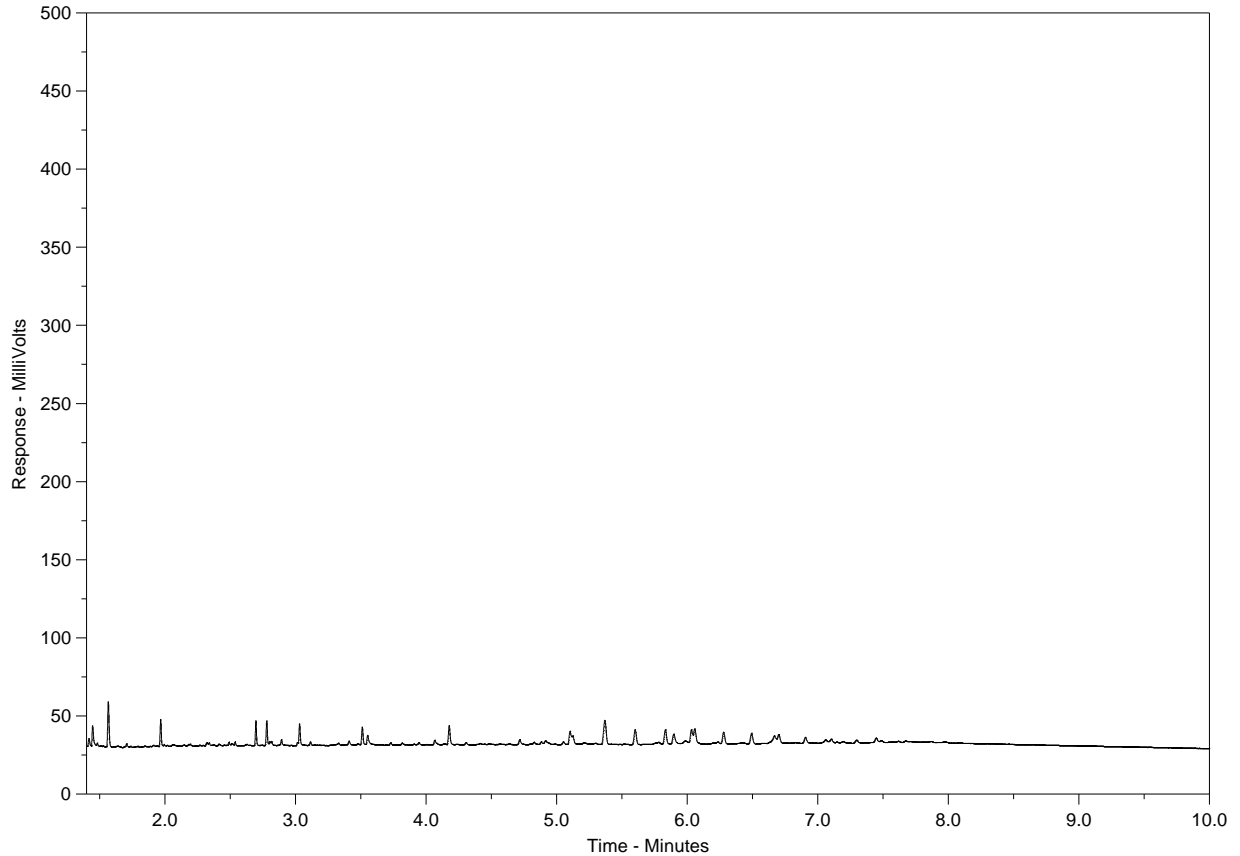
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1225933-3
Client Sample ID: MCF-9



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Short Holding Time

10-239469



Rush Processing

Chain of Custody / Analytical Request Form
 Canada Toll Free: 1 800 668 9878
 www.alsglobal.com

Page 1 of 1

Report To	Report Format / Distribution	Service Request (Rush subject to availability - Contact ALS to confirm TAT)
Company: GOLDER ASSOCIATES LTD	Standard: <input checked="" type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: ALIC ANNING	Select: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel Digital Fax	Priorly (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Drive Suite 300	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Burnaby BC V5C 6S6	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 604 296 4314 Fax: 604 298 5253		

Invoice To Same as Report? (circle) Yes or <input checked="" type="checkbox"/> No (if No, provide details)	Client / Project Information BURNCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)													
Copy of Invoice with Report? (circle) <input checked="" type="checkbox"/> Yes or No	Job #: 11-122-0046 ph 1500														
Company:	PO / AFE:														
Contact: Rob Hoogendorn	LSD:														
Address: 4321 Still Creek "	Quote #:														
Phone: 604 296 4200 Fax: 604 298 5253															
Lab Work Order # (lab use only)	L1225933	ALS Amber Contact: Springer	Sampler: AC / SH												

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dissolved Metals	TOC	Nutrients	PAH/LEHP/HEPH	Number of Containers
	Field Blank	17-Oct-12	14:35	water	x	x		x	x		4
	MCF-8	17-Oct-12	14:03	water	x	x	x	x	x		5
	MCF-9	17-Oct-12	13:45		x	x	x	x	x	x	7



Special Instructions / Regulation with water or land use (CCME-Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Metals: CCME & BC WQ 6 guidelines
 General: TDS, Alkalinity, Cond, TSS, turb.
 Nutrients: total phosphorus, orthophosphate, total nitrogen, nitrite, nitrate, TKN
 Hydrocarbons: PAH/LEHP/HEPH

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: ALC	Date: Oct 18/12	Time: 11:15	Received by: [Signature]	Date: Oct 18	Time: 14:00	Temperature: 8.3 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: Ali Canning
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 18-OCT-12
Report Date: 25-OCT-12 11:55 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1225931
Project P.O. #: NOT SUBMITTED
Job Reference: BURNCO EA 11-1422-0046 PH. 4500
C of C Numbers: 10-239467
Legal Site Desc:

Comments: Please note: No HCl preserved cut was received for sample MCF-DUPLICATE. Total Nitrogen analysis could not be run for this sample.

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1225931-1 water 17-OCT-12 10:50 MCF-13	L1225931-2 water 17-OCT-12 09:30 MCF-6	L1225931-3 water 17-OCT-12 12:45 MCF-12	L1225931-4 water 17-OCT-12 14:35 MCF-10	L1225931-5 water 17-OCT-12 10:20 MCF-7	
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	7.3	<5.0	7.0	<5.0	7.5
	Conductivity (uS/cm)	183	20.9	159	34.0	10.3
	Hardness (as CaCO3) (mg/L)	18.8	6.84	18.4	10.1	3.02
	pH (pH)	7.32	7.59	7.63	7.77	6.46
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	94	17	88	27	12
	Turbidity (NTU)	0.23	0.15	0.29	0.22	0.28
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	4.1	3.8	3.9	3.2	2.6
	Alkalinity, Total (as CaCO3) (mg/L)	2.6	5.9	8.9	8.8	<2.0
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	0.162	<0.050	0.124	<0.050	<0.050
	Chloride (Cl) (mg/L)	47.8	0.79	36.8	0.75	0.63
	Fluoride (F) (mg/L)	<0.020	<0.020	0.023	0.028	<0.020
	Nitrate (as N) (mg/L)	0.174	0.305	0.248	0.150	0.175
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.068	<0.050	0.062	<0.050	<0.050
	Total Nitrogen (mg/L)	0.270	0.360	0.320	0.180	0.250
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	0.0064	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	0.0038	0.0074	0.0023
	Sulfate (SO4) (mg/L)	7.48	1.72	7.33	4.96	0.88
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	2.10	0.70	1.70	0.80	2.04
Total Metals	Aluminum (Al)-Total (mg/L)	0.0771	0.0277	0.0671	0.0134	0.0784
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Total (mg/L)	<0.000017	<0.000017	0.000025	0.000114	<0.000017
	Calcium (Ca)-Total (mg/L)	2.20	2.30	2.88	3.40	1.02
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Total (mg/L)	<0.030	<0.030	0.075	<0.030	<0.030
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	3.44	0.27	2.56	0.42	0.13

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID				
	L1225931-6 water 17-OCT-12 14:20 MCF-DUPLICATE				
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	5.2			
	Conductivity (uS/cm)	33.8			
	Hardness (as CaCO3) (mg/L)	10.2			
	pH (pH)	7.74			
	Total Suspended Solids (mg/L)	5.3			
	Total Dissolved Solids (mg/L)	31			
	Turbidity (NTU)	0.22			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	3.3			
	Alkalinity, Total (as CaCO3) (mg/L)	9.3			
	Ammonia, Total (as N) (mg/L)	<0.0050			
	Bromide (Br) (mg/L)	<0.050			
	Chloride (Cl) (mg/L)	0.74			
	Fluoride (F) (mg/L)	0.028			
	Nitrate (as N) (mg/L)	0.149			
	Nitrite (as N) (mg/L)	<0.0010			
	Total Kjeldahl Nitrogen (mg/L)	<0.050			
	Total Nitrogen (mg/L)				
	Orthophosphate-Dissolved (as P) (mg/L)	0.0061			
	Phosphorus (P)-Total (mg/L)	0.0072			
	Sulfate (SO4) (mg/L)	4.93			
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)				
Total Metals	Aluminum (Al)-Total (mg/L)	0.0134			
	Antimony (Sb)-Total (mg/L)	<0.00050			
	Arsenic (As)-Total (mg/L)	<0.00050			
	Barium (Ba)-Total (mg/L)	<0.020			
	Beryllium (Be)-Total (mg/L)	<0.0010			
	Boron (B)-Total (mg/L)	<0.10			
	Cadmium (Cd)-Total (mg/L)	0.000126			
	Calcium (Ca)-Total (mg/L)	3.40			
	Chromium (Cr)-Total (mg/L)	<0.0010			
	Cobalt (Co)-Total (mg/L)	<0.00030			
	Copper (Cu)-Total (mg/L)	<0.0010			
	Iron (Fe)-Total (mg/L)	<0.030			
	Lead (Pb)-Total (mg/L)	<0.00050			
	Lithium (Li)-Total (mg/L)	<0.0050			
	Magnesium (Mg)-Total (mg/L)	0.42			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1225931-1	L1225931-2	L1225931-3	L1225931-4	L1225931-5
		Description	water	water	water	water	water
		Sampled Date	17-OCT-12	17-OCT-12	17-OCT-12	17-OCT-12	17-OCT-12
		Sampled Time	10:50	09:30	12:45	14:35	10:20
		Client ID	MCF-13	MCF-6	MCF-12	MCF-10	MCF-7
Grouping	Analyte						
WATER							
Total Metals	Manganese (Mn)-Total (mg/L)		0.00106	0.00725	0.00379	0.00053	0.00094
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Total (mg/L)		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)		27.9	<2.0	23.9	2.7	<2.0
	Thallium (Tl)-Total (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		<0.0050	<0.0050	<0.0050	0.0118	<0.0050
Dissolved Metals	Dissolved Metals Filtration Location		LAB	LAB	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)		0.0673	0.0189	0.0352	0.0061	0.0784
	Antimony (Sb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)		<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)		<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)		<0.000017	<0.000017	0.000025	0.000118	<0.000017
	Calcium (Ca)-Dissolved (mg/L)		2.17	2.30	2.94	3.36	1.01
	Chromium (Cr)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	0.034	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)		3.26	0.27	2.68	0.40	0.12
	Manganese (Mn)-Dissolved (mg/L)		0.00108	0.00694	0.00299	<0.00030	0.00093
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Dissolved (mg/L)		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID				
	L1225931-6 water 17-OCT-12 14:20 MCF-DUPLICATE				
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	0.00062			
	Mercury (Hg)-Total (mg/L)	<0.000010			
	Molybdenum (Mo)-Total (mg/L)	<0.0010			
	Nickel (Ni)-Total (mg/L)	<0.0010			
	Potassium (K)-Total (mg/L)	<2.0			
	Selenium (Se)-Total (mg/L)	<0.0010			
	Silver (Ag)-Total (mg/L)	<0.000020			
	Sodium (Na)-Total (mg/L)	2.7			
	Thallium (Tl)-Total (mg/L)	<0.00020			
	Tin (Sn)-Total (mg/L)	<0.00050			
	Titanium (Ti)-Total (mg/L)	<0.010			
	Uranium (U)-Total (mg/L)	<0.00020			
	Vanadium (V)-Total (mg/L)	<0.0010			
	Zinc (Zn)-Total (mg/L)	0.0119			
Dissolved Metals	Dissolved Metals Filtration Location	LAB			
	Aluminum (Al)-Dissolved (mg/L)	0.0054			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050			
	Arsenic (As)-Dissolved (mg/L)	<0.00050			
	Barium (Ba)-Dissolved (mg/L)	<0.020			
	Beryllium (Be)-Dissolved (mg/L)	<0.0010			
	Boron (B)-Dissolved (mg/L)	<0.10			
	Cadmium (Cd)-Dissolved (mg/L)	0.000109			
	Calcium (Ca)-Dissolved (mg/L)	3.39			
	Chromium (Cr)-Dissolved (mg/L)	<0.0010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00030			
	Copper (Cu)-Dissolved (mg/L)	<0.0010			
	Iron (Fe)-Dissolved (mg/L)	<0.030			
	Lead (Pb)-Dissolved (mg/L)	<0.00050			
	Lithium (Li)-Dissolved (mg/L)	<0.0050			
	Magnesium (Mg)-Dissolved (mg/L)	0.42			
	Manganese (Mn)-Dissolved (mg/L)	<0.00030			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010			
	Nickel (Ni)-Dissolved (mg/L)	<0.0010			
	Potassium (K)-Dissolved (mg/L)	<2.0			
	Selenium (Se)-Dissolved (mg/L)	<0.0010			
	Silver (Ag)-Dissolved (mg/L)	<0.000020			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1225931-1 water 17-OCT-12 10:50 MCF-13	L1225931-2 water 17-OCT-12 09:30 MCF-6	L1225931-3 water 17-OCT-12 12:45 MCF-12	L1225931-4 water 17-OCT-12 14:35 MCF-10	L1225931-5 water 17-OCT-12 10:20 MCF-7	
Grouping	Analyte					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	26.2	<2.0	25.1	2.7	<2.0
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	0.0118	<0.0050
Hydrocarbons	EPH10-19 (mg/L)	<0.25		<0.25		
	EPH19-32 (mg/L)	<0.25		<0.25		
	LEPH (mg/L)	<0.25		<0.25		
	HEPH (mg/L)	<0.25		<0.25		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010		<0.000010		
	Acenaphthylene (mg/L)	<0.000010		<0.000010		
	Acridine (mg/L)	<0.000010		<0.000010		
	Anthracene (mg/L)	<0.000010		<0.000010		
	Benz(a)anthracene (mg/L)	<0.000010		<0.000010		
	Benzo(a)pyrene (mg/L)	<0.000010		<0.000010		
	Benzo(b)fluoranthene (mg/L)	<0.000010		<0.000010		
	Benzo(g,h,i)perylene (mg/L)	<0.000010		<0.000010		
	Benzo(k)fluoranthene (mg/L)	<0.000010		<0.000010		
	Chrysene (mg/L)	<0.000010		<0.000010		
	Dibenz(a,h)anthracene (mg/L)	<0.000010		<0.000010		
	Fluoranthene (mg/L)	<0.000010		<0.000010		
	Fluorene (mg/L)	<0.000010		<0.000010		
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010		<0.000010		
	Naphthalene (mg/L)	<0.000050		<0.000050		
	Phenanthrene (mg/L)	<0.000020		<0.000020		
	Pyrene (mg/L)	<0.000010		<0.000010		
	Quinoline (mg/L)	<0.000010		<0.000010		
	Surrogate: Acenaphthene d10 (%)	87.2		72.6		
	Surrogate: Acridine d9 (%)	90.2		74.1		
Surrogate: Chrysene d12 (%)	70.1		60.0			
Surrogate: Naphthalene d8 (%)	85.3		71.3			
Surrogate: Phenanthrene d10 (%)	90.3		74.1			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID				
	L1225931-6 water 17-OCT-12 14:20 MCF-DUPLICATE				
Grouping	Analyte				
WATER					
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	2.8			
	Thallium (Tl)-Dissolved (mg/L)	<0.00020			
	Tin (Sn)-Dissolved (mg/L)	<0.00050			
	Titanium (Ti)-Dissolved (mg/L)	<0.010			
	Uranium (U)-Dissolved (mg/L)	<0.00020			
	Vanadium (V)-Dissolved (mg/L)	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	0.0120			
Hydrocarbons	EPH10-19 (mg/L)				
	EPH19-32 (mg/L)				
	LEPH (mg/L)				
	HEPH (mg/L)				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)				
	Acenaphthylene (mg/L)				
	Acridine (mg/L)				
	Anthracene (mg/L)				
	Benz(a)anthracene (mg/L)				
	Benzo(a)pyrene (mg/L)				
	Benzo(b)fluoranthene (mg/L)				
	Benzo(g,h,i)perylene (mg/L)				
	Benzo(k)fluoranthene (mg/L)				
	Chrysene (mg/L)				
	Dibenz(a,h)anthracene (mg/L)				
	Fluoranthene (mg/L)				
	Fluorene (mg/L)				
	Indeno(1,2,3-c,d)pyrene (mg/L)				
	Naphthalene (mg/L)				
	Phenanthrene (mg/L)				
	Pyrene (mg/L)				
	Quinoline (mg/L)				
	Surrogate: Acenaphthene d10 (%)				
	Surrogate: Acridine d9 (%)				
	Surrogate: Chrysene d12 (%)				
	Surrogate: Naphthalene d8 (%)				
	Surrogate: Phenanthrene d10 (%)				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bromide (Br)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Fluoride (F)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Nitrite (as N)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Nitrite (as N)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Nitrate (as N)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Bromide (Br)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Fluoride (F)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Nitrite (as N)	DLM	L1225931-1, -2, -3, -4, -5, -6
Duplicate	Chloride (Cl)	DLM	L1225931-1, -2, -3, -4, -5, -6
Matrix Spike	Phosphorus (P)-Total	MS-B	L1225931-1, -2, -3, -4, -5, -6
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225931-1, -2, -3, -4, -5, -6
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225931-1, -2, -3, -4, -5, -6
Matrix Spike	Manganese (Mn)-Total	MS-B	L1225931-1, -2, -3, -4, -5, -6
Matrix Spike	Nitrate (as N)	MS-B	L1225931-1, -2, -3, -4, -5, -6

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOC Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric			

Reference Information

method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by GCFID BCMOE EPH GCFID

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society

Reference Information

of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PAH-SURR-MS-VA Water PAH Surrogates for Waters EPA 3510, 8270

Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
----------------------------	---------------------

VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
----	---

Chain of Custody Numbers:

Reference Information

10-239467

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.



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Client: GOLDER ASSOCIATES LTD.
 # 500 - 4260 Still Creek Drive
 Burnaby BC V5C 6C6

Contact: Ali Canning

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2459280							
WG1569605-10	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.8		%		85-115	19-OCT-12
WG1569605-11	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.0		%		85-115	19-OCT-12
WG1569605-12	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.3		%		85-115	19-OCT-12
WG1569605-13	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-14	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			109.8		%		85-115	19-OCT-12
WG1569605-15	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			109.4		%		85-115	19-OCT-12
WG1569605-16	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-9	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			103.3		%		85-115	19-OCT-12
ALK-COL-VA		Water						
Batch	R2460638							
WG1571230-2	CRM	VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			102.1		%		85-115	22-OCT-12
WG1571230-5	CRM	VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			105.6		%		85-115	22-OCT-12
WG1571230-8	CRM	VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			102.4		%		85-115	22-OCT-12
WG1571230-9	DUP	L1225931-3						
Alkalinity, Total (as CaCO3)		8.9	9.0		mg/L	1.1	20	22-OCT-12
WG1571230-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	22-OCT-12
WG1571230-4	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	22-OCT-12
WG1571230-7	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	22-OCT-12
ANIONS-BR-IC-VA		Water						
Batch	R2460107							
WG1570542-18	LCS							
Bromide (Br)			103.3		%		85-115	20-OCT-12
WG1570542-2	LCS							
Bromide (Br)			103.6		%		85-115	20-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
	Water							
Batch	R2460107							
WG1570542-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-10	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-13	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-16	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1570542-11	MS	L1226190-3						
Bromide (Br)			104.9		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Bromide (Br)			104.9		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Bromide (Br)			102.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Bromide (Br)			104.5		%		75-125	20-OCT-12
ANIONS-CL-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Chloride (Cl)			101.4		%		85-115	20-OCT-12
WG1570542-2	LCS							
Chloride (Cl)			101.5		%		85-115	20-OCT-12
WG1570542-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-16	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-11	MS	L1226190-3						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
	Water							
Batch	R2460107							
WG1570542-11 MS		L1226190-3						
Chloride (Cl)			101.9		%		75-125	20-OCT-12
WG1570542-14 MS		L1226201-10						
Chloride (Cl)			102.1		%		75-125	20-OCT-12
WG1570542-5 MS		L1225300-2						
Chloride (Cl)			102.2		%		75-125	20-OCT-12
WG1570542-8 MS		L1226138-3						
Chloride (Cl)			102.5		%		75-125	20-OCT-12
ANIONS-F-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18 LCS								
Fluoride (F)			107.1		%		85-115	20-OCT-12
WG1570542-2 LCS								
Fluoride (F)			107.2		%		85-115	20-OCT-12
WG1570542-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-10 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-13 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-16 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-4 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-7 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1570542-11 MS		L1226190-3						
Fluoride (F)			106.8		%		75-125	20-OCT-12
WG1570542-14 MS		L1226201-10						
Fluoride (F)			107.1		%		75-125	20-OCT-12
WG1570542-17 MS		L1226306-8						
Fluoride (F)			103.2		%		75-125	20-OCT-12
WG1570542-5 MS		L1225300-2						
Fluoride (F)			108.4		%		75-125	20-OCT-12
WG1570542-8 MS		L1226138-3						
Fluoride (F)			105.5		%		75-125	20-OCT-12
ANIONS-NO2-IC-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Nitrite (as N)			104.6		%		85-115	20-OCT-12
WG1570542-2	LCS							
Nitrite (as N)			104.9		%		85-115	20-OCT-12
WG1570542-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-16	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1570542-11	MS	L1226190-3						
Nitrite (as N)			105.0		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Nitrite (as N)			105.5		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Nitrite (as N)			103.7		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						
Nitrite (as N)			105.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Nitrite (as N)			103.7		%		75-125	20-OCT-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Nitrate (as N)			102.5		%		85-115	20-OCT-12
WG1570542-2	LCS							
Nitrate (as N)			102.5		%		85-115	20-OCT-12
WG1570542-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-16	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
	Water							
Batch	R2460107							
WG1570542-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1570542-11	MS	L1226190-3						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						
Nitrate (as N)			N/A	MS-B	%		-	20-OCT-12
WG1570542-5	MS	L1225300-2						
Nitrate (as N)			103.7		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Nitrate (as N)			102.9		%		75-125	20-OCT-12
ANIONS-SO4-IC-VA								
	Water							
Batch	R2460107							
WG1570542-18	LCS							
Sulfate (SO4)			103.9		%		85-115	20-OCT-12
WG1570542-2	LCS							
Sulfate (SO4)			104.0		%		85-115	20-OCT-12
WG1570542-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-16	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1570542-11	MS	L1226190-3						
Sulfate (SO4)			102.6		%		75-125	20-OCT-12
WG1570542-14	MS	L1226201-10						
Sulfate (SO4)			104.3		%		75-125	20-OCT-12
WG1570542-17	MS	L1226306-8						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-VA								
	Water							
Batch	R2460107							
WG1570542-17	MS	L1226306-8						
Sulfate (SO4)			90.3		%		75-125	20-OCT-12
WG1570542-5	MS	L1225300-2						
Sulfate (SO4)			104.2		%		75-125	20-OCT-12
WG1570542-8	MS	L1226138-3						
Sulfate (SO4)			102.2		%		75-125	20-OCT-12
CARBONS-TOC-VA								
	Water							
Batch	R2460160							
WG1570227-2	LCS							
Total Organic Carbon			96.7		%		80-120	19-OCT-12
WG1570227-4	LCS							
Total Organic Carbon			95.9		%		80-120	19-OCT-12
WG1570227-6	LCS							
Total Organic Carbon			96.8		%		80-120	19-OCT-12
WG1570227-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-5	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
COLOUR-TRUE-VA								
	Water							
Batch	R2459069							
WG1569669-2	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-5	CRM	VA-COL-C-25						
Colour, True			101.7		%		85-115	19-OCT-12
WG1569669-8	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-6	DUP	L1225931-2						
Colour, True		<5.0	<5.0	RPD-NA	CU	N/A	20	19-OCT-12
WG1569669-1	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-4	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-7	MB							
Colour, True			<5.0		CU		5	19-OCT-12
EC-PCT-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2459280							
WG1569605-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	19-OCT-12
WG1569605-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			92.9		%		90-110	19-OCT-12
WG1569605-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			96.0		%		90-110	19-OCT-12
WG1569605-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.1		%		90-110	19-OCT-12
WG1569605-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	19-OCT-12
WG1569605-22	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.9		%		90-110	19-OCT-12
WG1569605-23	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.3		%		90-110	19-OCT-12
WG1569605-1	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-2	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-3	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-4	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-5	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-6	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-7	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-8	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
EPH-SF-FID-VA		Water						
Batch	R2459820							
WG1569884-1	MB							
EPH10-19			<0.25		mg/L		0.25	22-OCT-12
EPH19-32			<0.25		mg/L		0.25	22-OCT-12
HG-DIS-LOW-CVAFS-VA		Water						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA Water								
Batch	R2459291							
WG1570016-5 LCS								
Mercury (Hg)-Dissolved			85.2		%		80-120	20-OCT-12
WG1570016-6 LCS								
Mercury (Hg)-Dissolved			86.6		%		80-120	20-OCT-12
WG1570016-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-2 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-8 MS		L1225931-1						
Mercury (Hg)-Dissolved			89.7		%		70-130	20-OCT-12
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2460712							
WG1571346-2 LCS								
Mercury (Hg)-Total			98.0		%		80-120	22-OCT-12
WG1571346-4 LCS								
Mercury (Hg)-Total			99.1		%		80-120	22-OCT-12
WG1571346-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	22-OCT-12
WG1571346-3 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	22-OCT-12
WG1571346-11 MS		L1223409-6						
Mercury (Hg)-Total			101.0		%		70-130	22-OCT-12
WG1571346-12 MS		L1223409-8						
Mercury (Hg)-Total			N/A	MS-B	%		-	22-OCT-12
WG1571346-13 MS		L1223409-10						
Mercury (Hg)-Total			N/A	MS-B	%		-	22-OCT-12
WG1571346-16 MS		L1225180-12						
Mercury (Hg)-Total			91.4		%		70-130	22-OCT-12
WG1571346-17 MS		L1226355-2						
Mercury (Hg)-Total			99.0		%		70-130	22-OCT-12
WG1571346-9 MS		L1226201-10						
Mercury (Hg)-Total			92.7		%		70-130	22-OCT-12
MET-DIS-CCME-MS-VA Water								
Batch	R2459875							
WG1570016-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			97.7		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.5		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.1		%		80-120	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1570016-3	CRM	VA-HIGH-WATRM						
Beryllium (Be)-Dissolved			99.2		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			102.6		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			98.7		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12
Copper (Cu)-Dissolved			95.6		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			102.5		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			99.9		%		80-120	19-OCT-12
Manganese (Mn)-Dissolved			95.7		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			100.3		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			97.4		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			103.4		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			103.8		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.0		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			98.8		%		80-120	19-OCT-12
Vanadium (V)-Dissolved			99.2		%		80-120	19-OCT-12
Uranium (U)-Dissolved			104.1		%		80-120	19-OCT-12
WG1570016-4	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			98.1		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.9		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.7		%		80-120	19-OCT-12
Beryllium (Be)-Dissolved			98.5		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			101.2		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			100.6		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12
Copper (Cu)-Dissolved			95.8		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			101.6		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			101.6		%		80-120	19-OCT-12
Manganese (Mn)-Dissolved			94.9		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			102.1		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			98.2		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			101.5		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			105.4		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.2		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			97.7		%		80-120	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1570016-4	CRM	VA-HIGH-WATRM						
Vanadium (V)-Dissolved			101.1		%		80-120	19-OCT-12
Uranium (U)-Dissolved			105.0		%		80-120	19-OCT-12
Batch	R2459923							
WG1570016-1	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
WG1570016-2	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch	R2459923							
WG1570016-2	MB							
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
MET-DIS-ICP-VA		Water						
Batch	R2460044							
WG1570016-3	CRM							
	VA-HIGH-WATRM							
Barium (Ba)-Dissolved			97.4		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.7		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			104.2		%		80-120	19-OCT-12
Iron (Fe)-Dissolved			100.6		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.5		%		80-120	19-OCT-12
Potassium (K)-Dissolved			102.9		%		80-120	19-OCT-12
Sodium (Na)-Dissolved			95.7		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			101.8		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.6		%		80-120	19-OCT-12
WG1570016-4	CRM							
	VA-HIGH-WATRM							
Barium (Ba)-Dissolved			95.6		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.9		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			105.3		%		80-120	19-OCT-12
Iron (Fe)-Dissolved			100.0		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.6		%		80-120	19-OCT-12
Potassium (K)-Dissolved			99.4		%		80-120	19-OCT-12
Sodium (Na)-Dissolved			95.1		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			100.1		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.5		%		80-120	19-OCT-12
WG1570016-1	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2460044							
WG1570016-1	MB							
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
WG1570016-2	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2461057							
WG1570016-8	MS	L1225931-1						
Boron (B)-Dissolved			99.0		%		70-130	22-OCT-12
Calcium (Ca)-Dissolved			99.3		%		70-130	22-OCT-12
Iron (Fe)-Dissolved			97.1		%		70-130	22-OCT-12
Magnesium (Mg)-Dissolved			95.9		%		70-130	22-OCT-12
Potassium (K)-Dissolved			107.0		%		70-130	22-OCT-12
Sodium (Na)-Dissolved			102.4		%		70-130	22-OCT-12
Titanium (Ti)-Dissolved			104.6		%		70-130	22-OCT-12
Zinc (Zn)-Dissolved			96.0		%		70-130	22-OCT-12
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1569444-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			99.4		%		80-120	19-OCT-12
Antimony (Sb)-Total			105.8		%		80-120	19-OCT-12
Arsenic (As)-Total			101.3		%		80-120	19-OCT-12
Beryllium (Be)-Total			101.4		%		80-120	19-OCT-12
Cadmium (Cd)-Total			102.7		%		80-120	19-OCT-12
Chromium (Cr)-Total			101.3		%		80-120	19-OCT-12
Cobalt (Co)-Total			100.6		%		80-120	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2459875							
WG1569444-3	CRM	VA-HIGH-WATRM						
Copper (Cu)-Total			97.8		%		80-120	19-OCT-12
Lead (Pb)-Total			102.2		%		80-120	19-OCT-12
Lithium (Li)-Total			102.6		%		80-120	19-OCT-12
Manganese (Mn)-Total			98.5		%		80-120	19-OCT-12
Molybdenum (Mo)-Total			102.8		%		80-120	19-OCT-12
Nickel (Ni)-Total			101.1		%		80-120	19-OCT-12
Selenium (Se)-Total			103.8		%		80-120	19-OCT-12
Silver (Ag)-Total			105.3		%		80-120	19-OCT-12
Thallium (Tl)-Total			104.9		%		80-120	19-OCT-12
Tin (Sn)-Total			102.3		%		80-120	19-OCT-12
Uranium (U)-Total			104.5		%		80-120	19-OCT-12
Vanadium (V)-Total			103.8		%		80-120	19-OCT-12
Batch	R2459923							
WG1569444-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	19-OCT-12

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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2460726							
WG1569444-4 MS		L1225591-2						
Aluminum (Al)-Total			95.7		%		70-130	22-OCT-12
Antimony (Sb)-Total			107.5		%		70-130	22-OCT-12
Arsenic (As)-Total			107.8		%		70-130	22-OCT-12
Beryllium (Be)-Total			98.9		%		70-130	22-OCT-12
Cadmium (Cd)-Total			100.7		%		70-130	22-OCT-12
Chromium (Cr)-Total			100.2		%		70-130	22-OCT-12
Cobalt (Co)-Total			100.7		%		70-130	22-OCT-12
Copper (Cu)-Total			98.6		%		70-130	22-OCT-12
Lead (Pb)-Total			103.5		%		70-130	22-OCT-12
Lithium (Li)-Total			100.9		%		70-130	22-OCT-12
Manganese (Mn)-Total			N/A	MS-B	%		-	22-OCT-12
Molybdenum (Mo)-Total			111.0		%		70-130	22-OCT-12
Nickel (Ni)-Total			99.2		%		70-130	22-OCT-12
Selenium (Se)-Total			102.5		%		70-130	22-OCT-12
Silver (Ag)-Total			105.0		%		70-130	22-OCT-12
Thallium (Tl)-Total			104.1		%		70-130	22-OCT-12
Tin (Sn)-Total			104.6		%		70-130	22-OCT-12
Uranium (U)-Total			108.7		%		70-130	22-OCT-12
Vanadium (V)-Total			102.0		%		70-130	22-OCT-12
MET-TOT-ICP-VA								
	Water							
Batch	R2460044							
WG1569444-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			100.4		%		80-120	19-OCT-12
Boron (B)-Total			101.5		%		80-120	19-OCT-12
Calcium (Ca)-Total			107.4		%		80-120	19-OCT-12
Iron (Fe)-Total			103.4		%		80-120	19-OCT-12
Magnesium (Mg)-Total			108.0		%		80-120	19-OCT-12
Potassium (K)-Total			109.0		%		80-120	19-OCT-12
Sodium (Na)-Total			103.6		%		80-120	19-OCT-12
Titanium (Ti)-Total			105.3		%		80-120	19-OCT-12
Zinc (Zn)-Total			97.9		%		80-120	19-OCT-12
WG1569444-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Total			<0.10		mg/L		0.1	19-OCT-12



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MET-TOT-ICP-VA								
	Water							
Batch	R2460044							
WG1569444-1	MB							
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Total			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Total			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Total			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	19-OCT-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2459948							
WG1570230-2	LCS							
Total Nitrogen			115.8		%		80-120	19-OCT-12
WG1570230-4	LCS							
Total Nitrogen			108.4		%		80-120	19-OCT-12
WG1570230-6	LCS							
Total Nitrogen			117.0		%		80-120	19-OCT-12
WG1570230-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
WG1570230-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
WG1570230-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
NH3-F-VA								
	Water							
Batch	R2461233							
WG1569842-10	CRM	VA-NH3-F						
Ammonia, Total (as N)			102.2		%		85-115	23-OCT-12
WG1569842-2	CRM	VA-NH3-F						
Ammonia, Total (as N)			106.9		%		85-115	23-OCT-12
WG1569842-4	CRM	VA-NH3-F						
Ammonia, Total (as N)			97.8		%		85-115	23-OCT-12
WG1569842-6	CRM	VA-NH3-F						
Ammonia, Total (as N)			101.2		%		85-115	23-OCT-12
WG1569842-8	CRM	VA-NH3-F						
Ammonia, Total (as N)			101.0		%		85-115	23-OCT-12
WG1569842-11	DUP	L1225931-1						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-OCT-12
WG1569842-1	MB							
Ammonia, Total (as N)			<0.0050		mg/L		0.005	23-OCT-12



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P-T-COL-VA								
	Water							
Batch	R2458510							
WG1569660-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-12 MS		L1225180-3						
Phosphorus (P)-Total			111.9		%		70-130	19-OCT-12
WG1569660-19 MS		L1225342-2						
Phosphorus (P)-Total			90.9		%		70-130	19-OCT-12
WG1569660-25 MS		L1225824-12						
Phosphorus (P)-Total			98.2		%		70-130	19-OCT-12
WG1569660-4 MS		L1225032-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	19-OCT-12
WG1569660-8 MS		L1225032-23						
Phosphorus (P)-Total			100.5		%		70-130	19-OCT-12
PAH-LL-SF-MS-VA								
	Water							
Batch	R2459493							
WG1569884-2 LCS								
Acenaphthene			99.9		%		60-130	24-OCT-12
Acenaphthylene			99.1		%		60-130	24-OCT-12
Acridine			94.2		%		60-130	24-OCT-12
Anthracene			100.5		%		60-130	24-OCT-12
Benz(a)anthracene			89.2		%		60-130	24-OCT-12
Benzo(a)pyrene			92.9		%		60-130	24-OCT-12
Benzo(b)fluoranthene			97.6		%		60-130	24-OCT-12
Benzo(g,h,i)perylene			97.2		%		60-130	24-OCT-12
Benzo(k)fluoranthene			102.4		%		60-130	24-OCT-12
Chrysene			95.2		%		60-130	24-OCT-12
Dibenz(a,h)anthracene			94.6		%		60-130	24-OCT-12
Fluoranthene			100.2		%		60-130	24-OCT-12
Fluorene			98.6		%		60-130	24-OCT-12
Indeno(1,2,3-c,d)pyrene			97.6		%		60-130	24-OCT-12
Naphthalene			95.1		%		50-130	24-OCT-12
Phenanthrene			101.4		%		60-130	24-OCT-12
Pyrene			98.9		%		60-130	24-OCT-12
Quinoline			98.5		%		60-130	24-OCT-12
WG1569884-1 MB								
Acenaphthene			<0.000010		mg/L		0.00001	24-OCT-12



Quality Control Report

Workorder: L1225931

Report Date: 25-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA								
	Water							
Batch	R2459493							
WG1569884-1	MB							
Acenaphthylene			<0.000010		mg/L		0.00001	24-OCT-12
Acridine			<0.000010		mg/L		0.00001	24-OCT-12
Anthracene			<0.000010		mg/L		0.00001	24-OCT-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	24-OCT-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	24-OCT-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	24-OCT-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	24-OCT-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	24-OCT-12
Chrysene			<0.000010		mg/L		0.00001	24-OCT-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	24-OCT-12
Fluoranthene			<0.000010		mg/L		0.00001	24-OCT-12
Fluorene			<0.000010		mg/L		0.00001	24-OCT-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	24-OCT-12
Naphthalene			<0.000050		mg/L		0.00005	24-OCT-12
Phenanthrene			<0.000020		mg/L		0.00002	24-OCT-12
Pyrene			<0.000010		mg/L		0.00001	24-OCT-12
Quinoline			<0.000010		mg/L		0.00001	24-OCT-12
PH-MAN-VA								
	Water							
Batch	R2460104							
WG1571280-2	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	22-OCT-12
PH-PCT-VA								
	Water							
Batch	R2459280							
WG1569605-24	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	19-OCT-12
WG1569605-25	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	19-OCT-12
WG1569605-26	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	19-OCT-12
WG1569605-27	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	19-OCT-12
WG1569605-28	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	19-OCT-12
WG1569605-29	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	19-OCT-12



Quality Control Report

Workorder: L1225931

Report Date: 25-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA		Water						
Batch	R2459280							
WG1569605-30	CRM	VA-PH7-BUF	7.00		pH		6.9-7.1	19-OCT-12
	pH							
PO4-DO-COL-VA		Water						
Batch	R2459131							
WG1570129-12	CRM	VA-OPO4-CONTROL	96.0		%		80-120	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-2	CRM	VA-OPO4-CONTROL	98.3		%		80-120	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-5	DUP	L1225931-4	0.0060		mg/L	6.5	20	19-OCT-12
	Orthophosphate-Dissolved (as P)	0.0064						
WG1570129-1	MB		<0.0010		mg/L		0.001	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-11	MB		<0.0010		mg/L		0.001	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-10	MS	L1226228-4	101.8		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-4	MS	L1225342-2	101.5		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-6	MS	L1225931-5	98.8		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-8	MS	L1226193-1	100.3		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
TDS-VA		Water						
Batch	R2459606							
WG1569425-2	LCS		98.4		%		85-115	18-OCT-12
	Total Dissolved Solids							
WG1569425-4	LCS		99.8		%		85-115	18-OCT-12
	Total Dissolved Solids							
WG1569425-7	LCS		98.6		%		85-115	18-OCT-12
	Total Dissolved Solids							
WG1569425-1	MB		<10		mg/L		10	18-OCT-12
	Total Dissolved Solids							
WG1569425-3	MB		<10		mg/L		10	18-OCT-12
	Total Dissolved Solids							
WG1569425-6	MB		<10		mg/L		10	18-OCT-12
	Total Dissolved Solids							
TKN-F-VA		Water						

Quality Control Report

Workorder: L1225931

Report Date: 25-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-F-VA								
Water								
Batch	R2460178							
WG1570006-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	22-OCT-12
Batch	R2460571							
WG1570006-3	DUP	L1225931-3						
Total Kjeldahl Nitrogen		0.062	0.060		mg/L	3.6	20	22-OCT-12
WG1570006-2	LCS							
Total Kjeldahl Nitrogen			100.5		%		75-125	22-OCT-12
WG1570006-5	LCS							
Total Kjeldahl Nitrogen			101.2		%		75-125	22-OCT-12
WG1570006-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	22-OCT-12
TSS-VA								
Water								
Batch	R2458584							
WG1569427-2	LCS							
Total Suspended Solids			96.5		%		85-115	18-OCT-12
WG1569427-4	LCS							
Total Suspended Solids			95.1		%		85-115	18-OCT-12
WG1569427-7	LCS							
Total Suspended Solids			96.4		%		85-115	18-OCT-12
WG1569427-1	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-3	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-6	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
TURBIDITY-VA								
Water								
Batch	R2458897							
WG1569670-2	CRM	VA-TURB-SPK-8						
Turbidity			106.4		%		85-115	19-OCT-12
WG1569670-1	MB							
Turbidity			<0.10		NTU		0.1	19-OCT-12

Quality Control Report

Workorder: L1225931

Report Date: 25-OCT-12

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
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

Workorder: L1225931

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Manual Meter	5	17-OCT-12 10:20	22-OCT-12 12:00	0.25	122	hours	EHTR-FM
pH by Meter (Automated)	1	17-OCT-12 10:50	19-OCT-12 10:21	0.25	48	hours	EHTR-FM
	2	17-OCT-12 09:30	19-OCT-12 10:21	0.25	49	hours	EHTR-FM
	3	17-OCT-12 12:45	19-OCT-12 10:21	0.25	46	hours	EHTR-FM
	4	17-OCT-12 14:35	19-OCT-12 10:21	0.25	44	hours	EHTR-FM
	6	17-OCT-12 14:20	19-OCT-12 10:21	0.25	44	hours	EHTR-FM

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 L1225931 were received on 18-OCT-12 14:00.

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.

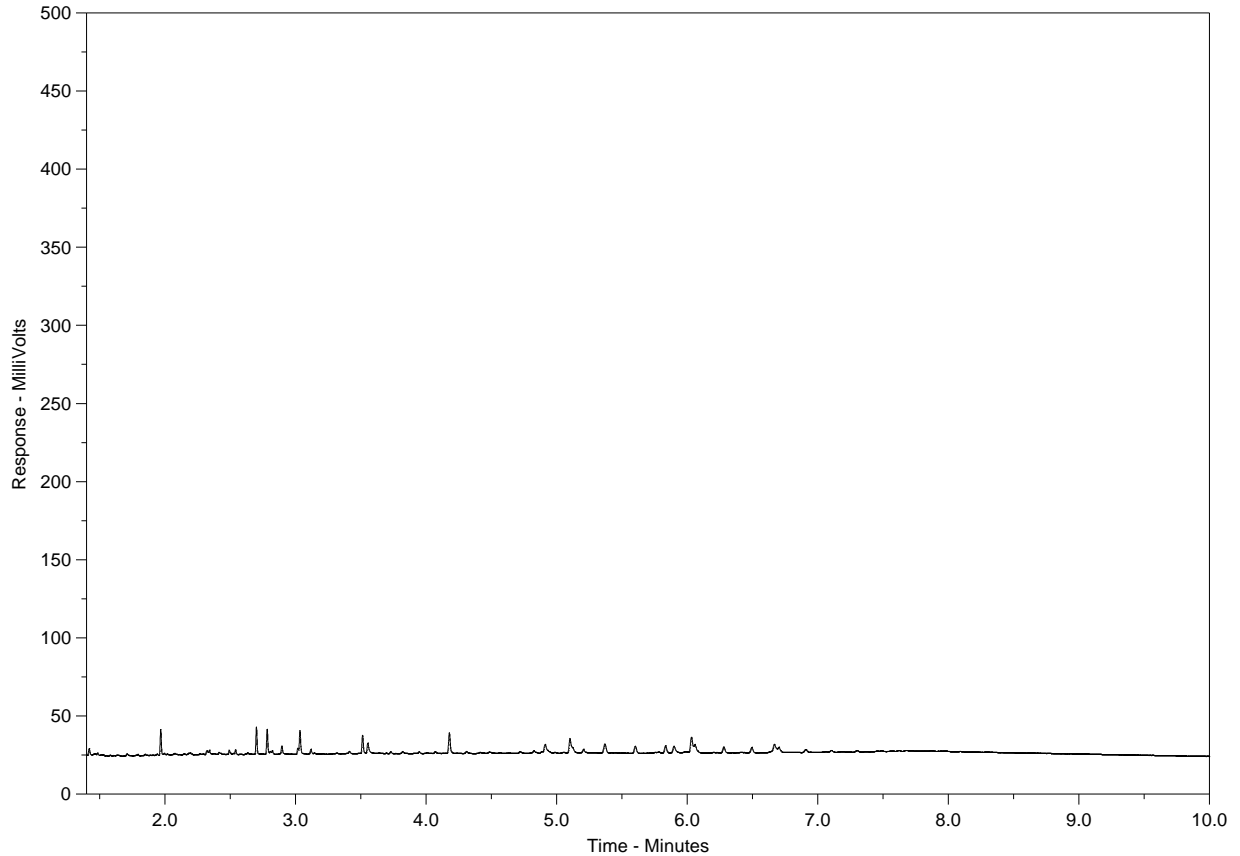
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1225931-L-1
Client Sample ID: MCF-13



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Diesel / Jet Fuels →
← Motor Oils / Lube Oils / Grease →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

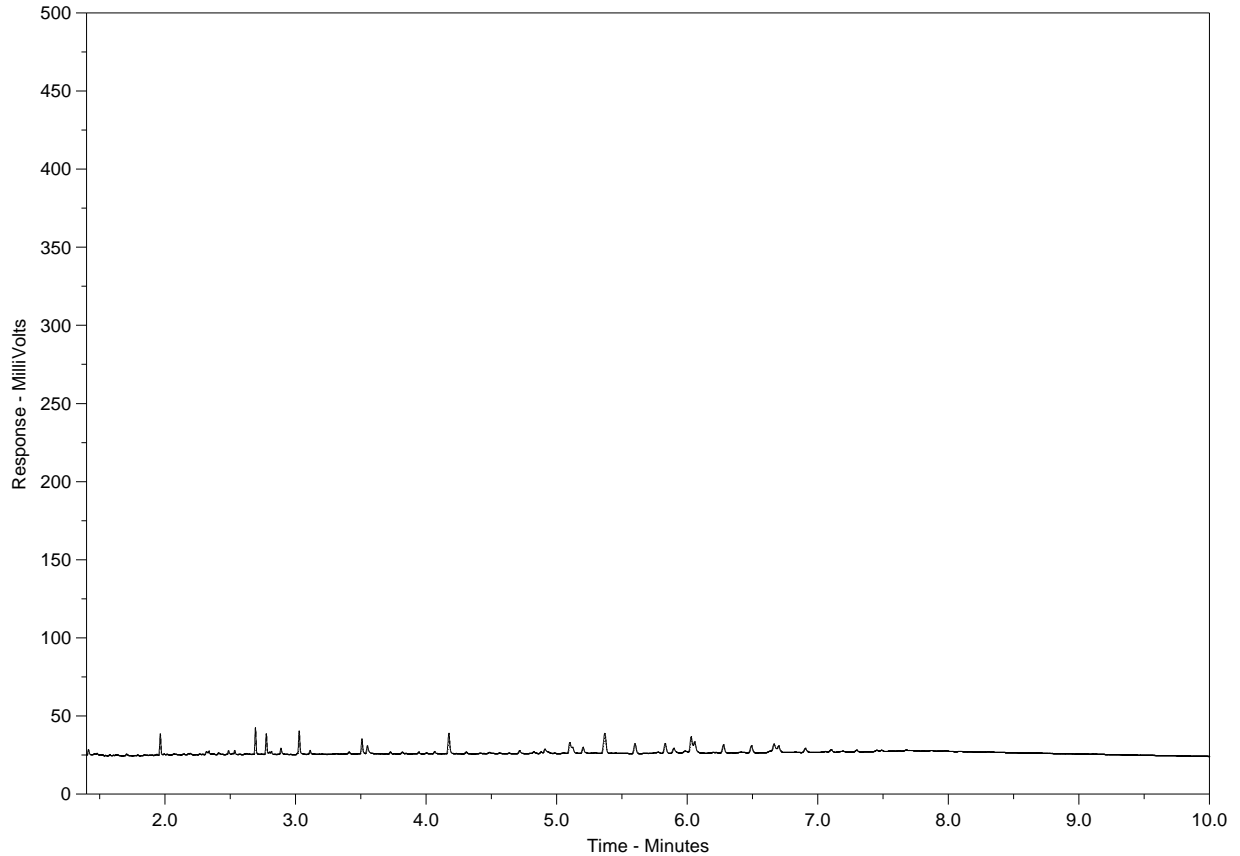
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1225931-L-3
Client Sample ID: MCF-12



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Short Holding Time



Rush Processing

Chain of Custody / Analytical Request Form
 Canada Toll Free: 1 800 668 9878
 www.alsglobal.com

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: <u>GOLDER ASSOCIATES Ltd.</u>	Standard: <u>2</u> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: <u>Ali Canning</u>	Select: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: <u>4321 Still Creek Drive</u>	Email 1: <u>acanning@golder.com</u>	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
<u>Burnaby BC V5C 6S6</u>	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: <u>604 296 4314</u> Fax: <u>604 298 5253</u>		

Invoice To Same as Report? (circle) Yes or <input checked="" type="checkbox"/> No (if No, provide details)	Client / Project Information <u>BURNABY EA</u>	Analysis Request (Indicate Filtered or Preserved, F/P)														
Copy of Invoice with Report? (circle) <input checked="" type="checkbox"/> Yes or No	Job #: <u>11-1422-0046 pl. 4500</u>															
Company:	PO / AFE:															
Contact: <u>Rob Henderson</u>	LSD:															
Address: <u>4321 Still Creek "</u>	Quote #:															
Phone: <u>604 296 4200</u> Fax: <u>604 298 5253</u>																

Lab Work Order # (lab use only)	<u>L1225931</u>	ALS Contact: <u>Amber Springer</u>	Sampler: <u>AC / SH</u>
--	-----------------	---	--------------------------------

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dissolved Metals	TOC	PAH/LEHP/HEPH	Nutrients	Number of Containers
	MCF-13	17-Oct-12	10:50	Water	X	X	X	X	X	X	7
	MCF-6	"	9:30	"	X	X	X	X	X	X	5
	MCF-12	"	12:45	"	X	X	X	X	X	X	7
	MCF-10	"	14:55	"	X	X	X	X	X	X	5
	MCF-7	"	10:20	"	X	X	X	X	X	X	5
	MCF - Duplicate	"	14:20	"	X	X	X			X	4



L1225931-COFC

Special Instructions / Regulation with water or land use (CCME - Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Metals - CCME & BC WQG guidelines
 General - TDS, Alkalinity, Cond, TSS, Turb
 Nutrients: Total phosphorus orthophosphate, total nitrogen, nitrate, nitrite, TCN
 Hydrocarbons: PAH/LEHP/HEPH

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: <u>Ali Canning</u>	Date: <u>Oct 18/12</u>	Time: <u>11:15</u>	Received by: <u>[Signature]</u>	Date: <u>Oct 18</u>	Time: <u>14:00</u>	Temperature: <u>10.1 °C</u>	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD.
ATTN: Ali Canning
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 18-OCT-12
Report Date: 26-OCT-12 14:43 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1225932
Project P.O. #: NOT SUBMITTED
Job Reference: BURNCO EA 11-1422-0046 PH. 4500
C of C Numbers: 10-239468
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1225932-1 water TRAVEL BLANK	L1225932-2 water 16-OCT-12 11:26 MCF-2	L1225932-3 water 16-OCT-12 10:40 MCF-1	L1225932-4 water 16-OCT-12 13:10 MCF-5	L1225932-5 water 16-OCT-12 15:40 MCF-11	
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	12.9	11.0	<5.0	5.0
	Conductivity (uS/cm)	<2.0	20.1	8.0	20.3	17.4
	Hardness (as CaCO3) (mg/L)	<0.50	6.50	2.51	6.74	4.51
	pH (pH)	5.91	7.55	6.20	7.08	6.05
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	<10	19	<10	13	15
	Turbidity (NTU)	<0.10	1.30	0.51	0.12	0.26
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.9	3.7	3.1	4.7	3.7
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	4.8	<2.0	5.7	<2.0
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	0.97	0.57	0.83	1.14
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Nitrate (as N) (mg/L)	<0.0050	0.517	0.148	0.339	0.953
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.139	0.069	<0.050	0.082 ^{TKNI}
	Total Nitrogen (mg/L)	<0.050	0.560	0.240	0.350	0.970
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0013	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020	0.0115	0.0039	<0.0020	0.0048
	Sulfate (SO4) (mg/L)	<0.50	1.08	0.71	1.48	1.16
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	2.75	2.52	0.66	1.81
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0050	0.409	0.137	0.0385	0.0832
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Total (mg/L)	<0.000017	0.000031	<0.000017	<0.000017	0.000077
	Calcium (Ca)-Total (mg/L)	<0.10	2.20	0.84	2.32	1.41
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	0.00031
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Total (mg/L)	<0.030	0.249	0.034	<0.030	<0.030
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	<0.10	0.36	0.11	0.28	0.27

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225932-6 water 16-OCT-12 14:40 MCF-4	L1225932-7 water 16-OCT-12 12:00 MCF-3		
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	6.9	12.1		
	Conductivity (uS/cm)	26.5	15.2		
	Hardness (as CaCO3) (mg/L)	8.65	4.58		
	pH (pH)	7.61	6.20		
	Total Suspended Solids (mg/L)	<3.0	<3.0		
	Total Dissolved Solids (mg/L)	15	17		
	Turbidity (NTU)	0.23	0.53		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	3.5	3.2		
	Alkalinity, Total (as CaCO3) (mg/L)	2.8	3.1		
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050		
	Bromide (Br) (mg/L)	<0.050	<0.050		
	Chloride (Cl) (mg/L)	1.16	0.86		
	Fluoride (F) (mg/L)	<0.020	<0.020		
	Nitrate (as N) (mg/L)	<0.0050	0.170		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.076		
	Total Nitrogen (mg/L)	<0.050	0.230		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010		
	Phosphorus (P)-Total (mg/L)	0.0036	0.0046		
	Sulfate (SO4) (mg/L)	6.39	1.83		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	2.12	2.83		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0474	0.0902		
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050		
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050		
	Barium (Ba)-Total (mg/L)	<0.020	<0.020		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010		
	Boron (B)-Total (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	0.000030	0.000026		
	Calcium (Ca)-Total (mg/L)	3.03	1.50		
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010		
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030		
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010		
	Iron (Fe)-Total (mg/L)	<0.030	0.031		
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050		
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050		
	Magnesium (Mg)-Total (mg/L)	0.31	0.21		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225932-1 water TRAVEL BLANK	L1225932-2 water 16-OCT-12 11:26 MCF-2	L1225932-3 water 16-OCT-12 10:40 MCF-1	L1225932-4 water 16-OCT-12 13:10 MCF-5	L1225932-5 water 16-OCT-12 15:40 MCF-11
Grouping	Analyte					
WATER						
Total Metals	Manganese (Mn)-Total (mg/L)	<0.00030	0.0113	0.00232	0.0105	0.00846
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0014
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0097
Dissolved Metals	Dissolved Metals Filtration Location		LAB	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)		0.0716	0.115	0.0284	0.0638
	Antimony (Sb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)		<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)		<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)		<0.000017	<0.000017	<0.000017	0.000076
	Calcium (Ca)-Dissolved (mg/L)		2.10	0.83	2.26	1.38
	Chromium (Cr)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)		0.31	0.11	0.27	0.26
	Manganese (Mn)-Dissolved (mg/L)		0.00476	0.00193	0.00944	0.00770
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	0.0013
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Silver (Ag)-Dissolved (mg/L)		<0.000020	<0.000020	<0.000020	<0.000020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1225932-6 water 16-OCT-12 14:40 MCF-4	L1225932-7 water 16-OCT-12 12:00 MCF-3			
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	0.00074	0.00363		
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010		
	Potassium (K)-Total (mg/L)	<2.0	<2.0		
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010		
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020		
	Sodium (Na)-Total (mg/L)	<2.0	<2.0		
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020		
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050		
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010		
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020		
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050		
Dissolved Metals	Dissolved Metals Filtration Location	LAB	LAB		
	Aluminum (Al)-Dissolved (mg/L)	0.0407	0.0702		
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050		
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050		
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.020		
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010		
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Dissolved (mg/L)	0.000027	0.000021		
	Calcium (Ca)-Dissolved (mg/L)	2.97	1.49		
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010		
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030		
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010		
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030		
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050		
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050		
	Magnesium (Mg)-Dissolved (mg/L)	0.30	0.21		
	Manganese (Mn)-Dissolved (mg/L)	0.00063	0.00289		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010		
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0		
	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010		
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225932-1 water TRAVEL BLANK	L1225932-2 water 16-OCT-12 11:26 MCF-2	L1225932-3 water 16-OCT-12 10:40 MCF-1	L1225932-4 water 16-OCT-12 13:10 MCF-5	L1225932-5 water 16-OCT-12 15:40 MCF-11
Grouping	Analyte					
WATER						
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0
	Thallium (Tl)-Dissolved (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)		<0.00020	0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	0.0093
Hydrocarbons	EPH10-19 (mg/L)			<0.25		
	EPH19-32 (mg/L)			<0.25		
	LEPH (mg/L)			<0.25		
	HEPH (mg/L)			<0.25		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)			<0.000010		
	Acenaphthylene (mg/L)			<0.000010		
	Acridine (mg/L)			<0.000010		
	Anthracene (mg/L)			<0.000010		
	Benz(a)anthracene (mg/L)			<0.000010		
	Benzo(a)pyrene (mg/L)			<0.000010		
	Benzo(b)fluoranthene (mg/L)			<0.000010		
	Benzo(g,h,i)perylene (mg/L)			<0.000010		
	Benzo(k)fluoranthene (mg/L)			<0.000010		
	Chrysene (mg/L)			<0.000010		
	Dibenz(a,h)anthracene (mg/L)			<0.000010		
	Fluoranthene (mg/L)			<0.000010		
	Fluorene (mg/L)			<0.000010		
	Indeno(1,2,3-c,d)pyrene (mg/L)			<0.000010		
	Naphthalene (mg/L)			<0.000050		
	Phenanthrene (mg/L)			<0.000020		
	Pyrene (mg/L)			<0.000010		
	Quinoline (mg/L)			<0.000010		
	Surrogate: Acenaphthene d10 (%)			88.9		
	Surrogate: Acridine d9 (%)			100.9		
	Surrogate: Chrysene d12 (%)			71.9		
	Surrogate: Naphthalene d8 (%)			90.2		
	Surrogate: Phenanthrene d10 (%)			90.3		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1225932-6 water 16-OCT-12 14:40 MCF-4	L1225932-7 water 16-OCT-12 12:00 MCF-3		
Grouping	Analyte				
WATER					
Dissolved Metals	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0		
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020		
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010		
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050		
Hydrocarbons	EPH10-19 (mg/L)				
	EPH19-32 (mg/L)				
	LEPH (mg/L)				
	HEPH (mg/L)				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)				
	Acenaphthylene (mg/L)				
	Acridine (mg/L)				
	Anthracene (mg/L)				
	Benz(a)anthracene (mg/L)				
	Benzo(a)pyrene (mg/L)				
	Benzo(b)fluoranthene (mg/L)				
	Benzo(g,h,i)perylene (mg/L)				
	Benzo(k)fluoranthene (mg/L)				
	Chrysene (mg/L)				
	Dibenz(a,h)anthracene (mg/L)				
	Fluoranthene (mg/L)				
	Fluorene (mg/L)				
	Indeno(1,2,3-c,d)pyrene (mg/L)				
	Naphthalene (mg/L)				
	Phenanthrene (mg/L)				
	Pyrene (mg/L)				
	Quinoline (mg/L)				
	Surrogate: Acenaphthene d10 (%)				
	Surrogate: Acridine d9 (%)				
Surrogate: Chrysene d12 (%)					
Surrogate: Naphthalene d8 (%)					
Surrogate: Phenanthrene d10 (%)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Calcium (Ca)-Total	MB-LOR	L1225932-2, -3, -4, -5, -6, -7
Method Blank	Copper (Cu)-Total	MB-LOR	L1225932-2, -3, -4, -5, -6, -7
Matrix Spike	Phosphorus (P)-Total	MS-B	L1225932-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Fluoride (F)	MS-B	L1225932-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Nitrate (as N)	MS-B	L1225932-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sulfate (SO4)	MS-B	L1225932-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225932-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225932-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225932-1
Matrix Spike	Mercury (Hg)-Total	MS-B	L1225932-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
TKNI	TKN result is likely biased low due to Nitrate interference. Nitrate-N is > 10x TKN.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.	
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
		This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.	
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by GCFID BCMOE EPH GCFID

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-TOT-COMBUST-VA Water Total Nitrogen in Water by Combustion BC: TN by Combustion/Chemiluminescence

This analysis is carried out, on hydrochloric acid preserved samples, following Method BC MOE "Total and Dissolved Nitrogen (TN) by Combustion with Chemiluminescence Detection". Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

Reference Information

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.

PAH-LL-SF-MS-VA Water PAH-Low Level in Water by GCMS EPA 3510, 8270

The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PAH-SURR-MS-VA Water PAH Surrogates for Waters EPA 3510, 8270

Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-239468

Reference Information

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.

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Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Contact: Ali Canning

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2459280							
WG1569605-10	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.8		%		85-115	19-OCT-12
WG1569605-11	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.0		%		85-115	19-OCT-12
WG1569605-12	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.3		%		85-115	19-OCT-12
WG1569605-13	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-14	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			109.8		%		85-115	19-OCT-12
WG1569605-15	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			109.4		%		85-115	19-OCT-12
WG1569605-16	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			107.6		%		85-115	19-OCT-12
WG1569605-9	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			103.3		%		85-115	19-OCT-12
WG1569605-37	DUP	L1225932-4						
Acidity (as CaCO3)		4.7	4.0		mg/L	16	20	19-OCT-12
ALK-COL-VA		Water						
Batch	R2461334							
WG1572219-2	CRM	VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			99.3		%		85-115	23-OCT-12
WG1572219-5	CRM	VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			108.7		%		85-115	23-OCT-12
WG1572219-8	CRM	VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			102.4		%		85-115	23-OCT-12
WG1572219-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
WG1572219-4	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
WG1572219-7	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-OCT-12
ANIONS-BR-IC-VA		Water						
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Bromide (Br)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	20-OCT-12
WG1569538-15	LCS							
Bromide (Br)			100.8		%		85-115	20-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA								
	Water							
Batch	R2459839							
WG1569538-2	LCS							
Bromide (Br)			101.3		%		85-115	20-OCT-12
WG1569538-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1569538-10	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1569538-13	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1569538-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1569538-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	20-OCT-12
WG1569538-5	MS	L1225657-21						
Bromide (Br)			97.5		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						
Bromide (Br)			99.96		%		75-125	20-OCT-12
ANIONS-CL-IC-VA								
	Water							
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Chloride (Cl)		0.57	0.56		mg/L	1.2	20	20-OCT-12
WG1569538-15	LCS							
Chloride (Cl)			101.9		%		85-115	20-OCT-12
WG1569538-2	LCS							
Chloride (Cl)			101.4		%		85-115	20-OCT-12
WG1569538-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-11	MS	L1223819-5						
Chloride (Cl)			101.8		%		75-125	20-OCT-12
WG1569538-14	MS	L1223821-14						
Chloride (Cl)			96.4		%		75-125	20-OCT-12
WG1569538-5	MS	L1225657-21						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
Water								
Batch	R2459839							
WG1569538-5	MS	L1225657-21						
Chloride (Cl)			91.7		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						
Chloride (Cl)			102.4		%		75-125	20-OCT-12
ANIONS-F-IC-VA								
Water								
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Fluoride (F)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	20-OCT-12
WG1569538-15	LCS							
Fluoride (F)			106.9		%		85-115	20-OCT-12
WG1569538-2	LCS							
Fluoride (F)			106.6		%		85-115	20-OCT-12
WG1569538-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1569538-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1569538-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1569538-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1569538-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	20-OCT-12
WG1569538-11	MS	L1223819-5						
Fluoride (F)			108.2		%		75-125	20-OCT-12
WG1569538-14	MS	L1223821-14						
Fluoride (F)			N/A	MS-B	%		-	20-OCT-12
WG1569538-5	MS	L1225657-21						
Fluoride (F)			101.9		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						
Fluoride (F)			107.7		%		75-125	20-OCT-12
ANIONS-NO2-IC-VA								
Water								
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-OCT-12
WG1569538-15	LCS							
Nitrite (as N)			102.5		%		85-115	20-OCT-12
WG1569538-2	LCS							
Nitrite (as N)			102.1		%		85-115	20-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2459839							
WG1569538-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1569538-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1569538-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1569538-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1569538-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	20-OCT-12
WG1569538-11	MS	L1223819-5						
Nitrite (as N)			102.5		%		75-125	20-OCT-12
WG1569538-14	MS	L1223821-14						
Nitrite (as N)			99.6		%		75-125	20-OCT-12
WG1569538-5	MS	L1225657-21						
Nitrite (as N)			99.7		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						
Nitrite (as N)			102.3		%		75-125	20-OCT-12
ANIONS-NO3-IC-VA								
	Water							
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Nitrate (as N)		0.148	0.147		mg/L	0.8	20	20-OCT-12
WG1569538-15	LCS							
Nitrate (as N)			103.4		%		85-115	20-OCT-12
WG1569538-2	LCS							
Nitrate (as N)			102.6		%		85-115	20-OCT-12
WG1569538-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1569538-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1569538-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	20-OCT-12
WG1569538-11	MS	L1223819-5						
Nitrate (as N)			102.8		%		75-125	20-OCT-12
WG1569538-14	MS	L1223821-14						
Nitrate (as N)			N/A	MS-B	%		-	20-OCT-12
WG1569538-5	MS	L1225657-21						
Nitrate (as N)			102.6		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
Batch	R2459839							
WG1569538-8	MS	L1225932-2						
Nitrate (as N)			100.9		%		75-125	20-OCT-12
ANIONS-SO4-IC-VA								
Batch	R2459839							
WG1569538-6	DUP	L1225932-3						
Sulfate (SO4)		0.71	0.70		mg/L	1.0	20	20-OCT-12
WG1569538-15	LCS							
Sulfate (SO4)			103.8		%		85-115	20-OCT-12
WG1569538-2	LCS							
Sulfate (SO4)			103.6		%		85-115	20-OCT-12
WG1569538-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	20-OCT-12
WG1569538-11	MS	L1223819-5						
Sulfate (SO4)			104.0		%		75-125	20-OCT-12
WG1569538-14	MS	L1223821-14						
Sulfate (SO4)			N/A	MS-B	%		-	20-OCT-12
WG1569538-5	MS	L1225657-21						
Sulfate (SO4)			95.5		%		75-125	20-OCT-12
WG1569538-8	MS	L1225932-2						
Sulfate (SO4)			104.1		%		75-125	20-OCT-12
CARBONS-TOC-VA								
Batch	R2460160							
WG1570227-8	DUP	L1225932-3						
Total Organic Carbon		2.52	2.58		mg/L	2.4	20	19-OCT-12
WG1570227-2	LCS							
Total Organic Carbon			96.7		%		80-120	19-OCT-12
WG1570227-4	LCS							
Total Organic Carbon			95.9		%		80-120	19-OCT-12
WG1570227-6	LCS							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
Water								
Batch	R2460160							
WG1570227-6	LCS							
Total Organic Carbon			96.8		%		80-120	19-OCT-12
WG1570227-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
WG1570227-5	MB							
Total Organic Carbon			<0.50		mg/L		0.5	19-OCT-12
COLOUR-TRUE-VA								
Water								
Batch	R2459069							
WG1569669-2	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-5	CRM	VA-COL-C-25						
Colour, True			101.7		%		85-115	19-OCT-12
WG1569669-8	CRM	VA-COL-C-25						
Colour, True			102.2		%		85-115	19-OCT-12
WG1569669-1	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-4	MB							
Colour, True			<5.0		CU		5	19-OCT-12
WG1569669-7	MB							
Colour, True			<5.0		CU		5	19-OCT-12
EC-PCT-VA								
Water								
Batch	R2459280							
WG1569605-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	19-OCT-12
WG1569605-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			92.9		%		90-110	19-OCT-12
WG1569605-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			96.0		%		90-110	19-OCT-12
WG1569605-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.1		%		90-110	19-OCT-12
WG1569605-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.0		%		90-110	19-OCT-12
WG1569605-22	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.9		%		90-110	19-OCT-12
WG1569605-23	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.3		%		90-110	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA								
Water								
Batch	R2459280							
WG1569605-37	DUP	L1225932-4						
Conductivity		20.3	20.3		uS/cm	0.0	10	19-OCT-12
WG1569605-1	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-2	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-3	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-4	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-5	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-6	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-7	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
WG1569605-8	MB							
Conductivity			<2.0		uS/cm		2	19-OCT-12
EPH-SF-FID-VA								
Water								
Batch	R2459820							
WG1570543-1	MB							
EPH10-19			<0.25		mg/L		0.25	22-OCT-12
EPH19-32			<0.25		mg/L		0.25	22-OCT-12
HG-DIS-LOW-CVAFS-VA								
Water								
Batch	R2459291							
WG1570016-5	LCS							
Mercury (Hg)-Dissolved			85.2		%		80-120	20-OCT-12
WG1570016-6	LCS							
Mercury (Hg)-Dissolved			86.6		%		80-120	20-OCT-12
WG1570016-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-2	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-OCT-12
WG1570016-8	MS	L1225931-1						
Mercury (Hg)-Dissolved			89.7		%		70-130	20-OCT-12
HG-TOT-LOW-CVAFS-VA								
Water								



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch R2459492								
WG1570691-3	LCS							
Mercury (Hg)-Total			97.9		%		80-120	21-OCT-12
WG1570691-4	LCS							
Mercury (Hg)-Total			96.9		%		80-120	21-OCT-12
WG1570691-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-OCT-12
WG1570691-2	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-OCT-12
WG1570691-10	MS	L1225932-7						
Mercury (Hg)-Total			91.8		%		70-130	21-OCT-12
WG1570691-11	MS	L1224789-4						
Mercury (Hg)-Total			92.3		%		70-130	21-OCT-12
WG1570691-7	MS	L1224843-6						
Mercury (Hg)-Total			90.4		%		70-130	21-OCT-12
WG1570691-8	MS	L1226511-24						
Mercury (Hg)-Total			89.3		%		70-130	21-OCT-12
WG1570691-9	MS	L1226201-9						
Mercury (Hg)-Total			90.8		%		70-130	21-OCT-12
Batch R2461767								
WG1573049-3	LCS							
Mercury (Hg)-Total			97.0		%		80-120	24-OCT-12
WG1573049-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	24-OCT-12
WG1573049-2	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	24-OCT-12
WG1573049-12	MS	L1227395-4						
Mercury (Hg)-Total			82.1		%		70-130	24-OCT-12
WG1573049-15	MS	L1224961-8						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12
WG1573049-17	MS	L1226306-8						
Mercury (Hg)-Total			83.8		%		70-130	24-OCT-12
WG1573049-18	MS	L1226369-2						
Mercury (Hg)-Total			87.4		%		70-130	24-OCT-12
WG1573049-19	MS	L1226369-10						
Mercury (Hg)-Total			461.8	MS-B	%		70-130	24-OCT-12
WG1573049-20	MS	L1224636-1						
Mercury (Hg)-Total			87.2		%		70-130	24-OCT-12
WG1573049-21	MS	L1226360-3						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12



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HG-TOT-LOW-CVAFS-VA Water								
Batch	R2461767							
WG1573049-22 MS		L1224961-10						
Mercury (Hg)-Total			97.8		%		70-130	24-OCT-12
WG1573049-31 MS		L1226447-7						
Mercury (Hg)-Total			100.7		%		70-130	24-OCT-12
WG1573049-32 MS		L1227416-2						
Mercury (Hg)-Total			N/A	MS-B	%		-	24-OCT-12
MET-DIS-CCME-MS-VA Water								
Batch	R2459875							
WG1570016-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			97.7		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.5		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.1		%		80-120	19-OCT-12
Beryllium (Be)-Dissolved			99.2		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			102.6		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			98.7		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12
Copper (Cu)-Dissolved			95.6		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			102.5		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			99.9		%		80-120	19-OCT-12
Manganese (Mn)-Dissolved			95.7		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			100.3		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			97.4		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			103.4		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			103.8		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.0		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			98.8		%		80-120	19-OCT-12
Vanadium (V)-Dissolved			99.2		%		80-120	19-OCT-12
Uranium (U)-Dissolved			104.1		%		80-120	19-OCT-12
WG1570016-4 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			98.1		%		80-120	19-OCT-12
Antimony (Sb)-Dissolved			104.9		%		80-120	19-OCT-12
Arsenic (As)-Dissolved			98.7		%		80-120	19-OCT-12
Beryllium (Be)-Dissolved			98.5		%		80-120	19-OCT-12
Cadmium (Cd)-Dissolved			101.2		%		80-120	19-OCT-12
Chromium (Cr)-Dissolved			100.6		%		80-120	19-OCT-12
Cobalt (Co)-Dissolved			96.8		%		80-120	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA		Water						
Batch	R2459875							
WG1570016-4	CRM	VA-HIGH-WATRM						
Copper (Cu)-Dissolved			95.8		%		80-120	19-OCT-12
Lead (Pb)-Dissolved			101.6		%		80-120	19-OCT-12
Lithium (Li)-Dissolved			101.6		%		80-120	19-OCT-12
Manganese (Mn)-Dissolved			94.9		%		80-120	19-OCT-12
Molybdenum (Mo)-Dissolved			102.1		%		80-120	19-OCT-12
Nickel (Ni)-Dissolved			98.2		%		80-120	19-OCT-12
Selenium (Se)-Dissolved			101.5		%		80-120	19-OCT-12
Silver (Ag)-Dissolved			105.4		%		80-120	19-OCT-12
Thallium (Tl)-Dissolved			104.2		%		80-120	19-OCT-12
Tin (Sn)-Dissolved			97.7		%		80-120	19-OCT-12
Vanadium (V)-Dissolved			101.1		%		80-120	19-OCT-12
Uranium (U)-Dissolved			105.0		%		80-120	19-OCT-12
Batch	R2459923							
WG1570016-1	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
WG1570016-2	MB							
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-CCME-MS-VA								
	Water							
Batch	R2459923							
WG1570016-2	MB							
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Dissolved			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Dissolved			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Dissolved			<0.00050		mg/L		0.0005	19-OCT-12
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-OCT-12
Uranium (U)-Dissolved			<0.00020		mg/L		0.0002	19-OCT-12
MET-DIS-ICP-VA								
	Water							
Batch	R2460044							
WG1570016-3	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			97.4		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.7		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			104.2		%		80-120	19-OCT-12
Iron (Fe)-Dissolved			100.6		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.5		%		80-120	19-OCT-12
Potassium (K)-Dissolved			102.9		%		80-120	19-OCT-12
Sodium (Na)-Dissolved			95.7		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			101.8		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.6		%		80-120	19-OCT-12
WG1570016-4	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			95.6		%		80-120	19-OCT-12
Boron (B)-Dissolved			99.9		%		80-120	19-OCT-12
Calcium (Ca)-Dissolved			105.3		%		80-120	19-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2460044							
WG1570016-4 CRM		VA-HIGH-WATRM						
Iron (Fe)-Dissolved			100.0		%		80-120	19-OCT-12
Magnesium (Mg)-Dissolved			105.6		%		80-120	19-OCT-12
Potassium (K)-Dissolved			99.4		%		80-120	19-OCT-12
Sodium (Na)-Dissolved			95.1		%		80-120	19-OCT-12
Titanium (Ti)-Dissolved			100.1		%		80-120	19-OCT-12
Zinc (Zn)-Dissolved			97.5		%		80-120	19-OCT-12
WG1570016-1 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
WG1570016-2 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Dissolved			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Dissolved			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2461057							
WG1570016-8 MS		L1225931-1						
Boron (B)-Dissolved			99.0		%		70-130	22-OCT-12
Calcium (Ca)-Dissolved			99.3		%		70-130	22-OCT-12
Iron (Fe)-Dissolved			97.1		%		70-130	22-OCT-12
Magnesium (Mg)-Dissolved			95.9		%		70-130	22-OCT-12
Potassium (K)-Dissolved			107.0		%		70-130	22-OCT-12
Sodium (Na)-Dissolved			102.4		%		70-130	22-OCT-12
Titanium (Ti)-Dissolved			104.6		%		70-130	22-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2461057							
WG1570016-8 MS		L1225931-1						
Zinc (Zn)-Dissolved			96.0		%		70-130	22-OCT-12
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2458987							
WG1569778-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			92.9		%		80-120	19-OCT-12
Antimony (Sb)-Total			92.2		%		80-120	19-OCT-12
Arsenic (As)-Total			92.7		%		80-120	19-OCT-12
Beryllium (Be)-Total			94.2		%		80-120	19-OCT-12
Cadmium (Cd)-Total			93.2		%		80-120	19-OCT-12
Chromium (Cr)-Total			92.9		%		80-120	19-OCT-12
Cobalt (Co)-Total			90.7		%		80-120	19-OCT-12
Copper (Cu)-Total			87.8		%		80-120	19-OCT-12
Lead (Pb)-Total			94.7		%		80-120	19-OCT-12
Lithium (Li)-Total			90.1		%		80-120	19-OCT-12
Manganese (Mn)-Total			90.4		%		80-120	19-OCT-12
Molybdenum (Mo)-Total			92.7		%		80-120	19-OCT-12
Nickel (Ni)-Total			91.6		%		80-120	19-OCT-12
Selenium (Se)-Total			94.7		%		80-120	19-OCT-12
Silver (Ag)-Total			91.5		%		80-120	19-OCT-12
Thallium (Tl)-Total			95.8		%		80-120	19-OCT-12
Tin (Sn)-Total			91.9		%		80-120	19-OCT-12
Uranium (U)-Total			96.7		%		80-120	19-OCT-12
Vanadium (V)-Total			92.9		%		80-120	19-OCT-12
WG1569778-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Arsenic (As)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Total			0.0024	MB-LOR	mg/L		0.001	19-OCT-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-CCME-MS-VA								
	Water							
Batch	R2458987							
WG1569778-1	MB							
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	19-OCT-12
Batch	R2459875							
WG1569432-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			99.2		%		80-120	19-OCT-12
Antimony (Sb)-Total			103.4		%		80-120	19-OCT-12
Arsenic (As)-Total			99.3		%		80-120	19-OCT-12
Beryllium (Be)-Total			99.0		%		80-120	19-OCT-12
Cadmium (Cd)-Total			102.3		%		80-120	19-OCT-12
Chromium (Cr)-Total			99.8		%		80-120	19-OCT-12
Cobalt (Co)-Total			98.1		%		80-120	19-OCT-12
Copper (Cu)-Total			97.0		%		80-120	19-OCT-12
Lead (Pb)-Total			100.8		%		80-120	19-OCT-12
Lithium (Li)-Total			100.6		%		80-120	19-OCT-12
Manganese (Mn)-Total			97.3		%		80-120	19-OCT-12
Molybdenum (Mo)-Total			100.5		%		80-120	19-OCT-12
Nickel (Ni)-Total			99.2		%		80-120	19-OCT-12
Selenium (Se)-Total			101.6		%		80-120	19-OCT-12
Silver (Ag)-Total			103.1		%		80-120	19-OCT-12
Thallium (Tl)-Total			103.3		%		80-120	19-OCT-12
Tin (Sn)-Total			98.8		%		80-120	19-OCT-12
Uranium (U)-Total			103.7		%		80-120	19-OCT-12
Vanadium (V)-Total			99.8		%		80-120	19-OCT-12
Batch	R2460106							
WG1569432-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-OCT-12
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	19-OCT-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2460106							
WG1569432-1	MB							
Arsenic (As)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Beryllium (Be)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	19-OCT-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	19-OCT-12
Cobalt (Co)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-OCT-12
Lead (Pb)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Lithium (Li)-Total			<0.0050		mg/L		0.005	19-OCT-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	19-OCT-12
Molybdenum (Mo)-Total			<0.0010		mg/L		0.001	19-OCT-12
Nickel (Ni)-Total			<0.0010		mg/L		0.001	19-OCT-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	19-OCT-12
Silver (Ag)-Total			<0.000020		mg/L		0.00002	19-OCT-12
Thallium (Tl)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Tin (Sn)-Total			<0.00050		mg/L		0.0005	19-OCT-12
Uranium (U)-Total			<0.00020		mg/L		0.0002	19-OCT-12
Vanadium (V)-Total			<0.0010		mg/L		0.001	19-OCT-12
Batch	R2460726							
WG1569778-2	DUP	L1225932-5						
Aluminum (Al)-Total		0.0832	0.0819		mg/L	1.6	20	22-OCT-12
Antimony (Sb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-OCT-12
Arsenic (As)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-OCT-12
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
Cadmium (Cd)-Total		0.000077	0.000079		mg/L	2.8	20	22-OCT-12
Chromium (Cr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
Cobalt (Co)-Total		0.00031	0.00030		mg/L	2.7	20	22-OCT-12
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
Lead (Pb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-OCT-12
Lithium (Li)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-OCT-12
Manganese (Mn)-Total		0.00846	0.00835		mg/L	1.4	20	22-OCT-12
Molybdenum (Mo)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
Nickel (Ni)-Total		0.0014	0.0013		mg/L	3.4	20	22-OCT-12
Selenium (Se)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
Silver (Ag)-Total		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	22-OCT-12



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MET-TOT-CCME-MS-VA								
	Water							
Batch	R2460726							
WG1569778-2	DUP	L1225932-5						
Thallium (Tl)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-OCT-12
Tin (Sn)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-OCT-12
Uranium (U)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-OCT-12
Vanadium (V)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-OCT-12
MET-TOT-ICP-VA								
	Water							
Batch	R2458894							
WG1569432-3	CRM	VA-HIGH-WATRM						
Barium (Ba)-Total			94.6		%		80-120	19-OCT-12
Boron (B)-Total			98.7		%		80-120	19-OCT-12
Calcium (Ca)-Total			100.4		%		80-120	19-OCT-12
Iron (Fe)-Total			98.8		%		80-120	19-OCT-12
Magnesium (Mg)-Total			102.6		%		80-120	19-OCT-12
Potassium (K)-Total			99.1		%		80-120	19-OCT-12
Sodium (Na)-Total			96.0		%		80-120	19-OCT-12
Titanium (Ti)-Total			99.4		%		80-120	19-OCT-12
Zinc (Zn)-Total			96.7		%		80-120	19-OCT-12
WG1569778-3	CRM	VA-HIGH-WATRM						
Barium (Ba)-Total			99.6		%		80-120	19-OCT-12
Boron (B)-Total			101.6		%		80-120	19-OCT-12
Calcium (Ca)-Total			101.9		%		80-120	19-OCT-12
Iron (Fe)-Total			98.4		%		80-120	19-OCT-12
Magnesium (Mg)-Total			105.5		%		80-120	19-OCT-12
Potassium (K)-Total			104.3		%		80-120	19-OCT-12
Sodium (Na)-Total			98.6		%		80-120	19-OCT-12
Titanium (Ti)-Total			105.6		%		80-120	19-OCT-12
Zinc (Zn)-Total			98.2		%		80-120	19-OCT-12
WG1569432-1	MB							
Barium (Ba)-Total			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Total			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-OCT-12
Iron (Fe)-Total			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Total			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Total			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-ICP-VA								
	Water							
Batch	R2458894							
WG1569432-1	MB							
Zinc (Zn)-Total			<0.0050		mg/L		0.005	19-OCT-12
WG1569778-1	MB							
Barium (Ba)-Total			<0.010		mg/L		0.01	19-OCT-12
Boron (B)-Total			<0.10		mg/L		0.1	19-OCT-12
Calcium (Ca)-Total			0.244	MB-LOR	mg/L		0.05	19-OCT-12
Iron (Fe)-Total			<0.030		mg/L		0.03	19-OCT-12
Magnesium (Mg)-Total			<0.10		mg/L		0.1	19-OCT-12
Potassium (K)-Total			<2.0		mg/L		2	19-OCT-12
Sodium (Na)-Total			<2.0		mg/L		2	19-OCT-12
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-OCT-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	19-OCT-12
Batch	R2463267							
WG1569778-2	DUP	L1225932-5						
Barium (Ba)-Total		<0.020	<0.010	RPD-NA	mg/L	N/A	20	25-OCT-12
Boron (B)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-OCT-12
Calcium (Ca)-Total		1.41	1.41		mg/L	0.2	20	25-OCT-12
Iron (Fe)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	25-OCT-12
Magnesium (Mg)-Total		0.27	0.27		mg/L	1.8	20	25-OCT-12
Potassium (K)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	25-OCT-12
Sodium (Na)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	25-OCT-12
Titanium (Ti)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-OCT-12
Zinc (Zn)-Total		0.0097	0.0086		mg/L	12	20	25-OCT-12
N-TOT-COMBUST-VA								
	Water							
Batch	R2459948							
WG1570230-7	DUP	L1225932-3						
Total Nitrogen		0.240	0.230		mg/L	4.3	20	19-OCT-12
WG1570230-2	LCS							
Total Nitrogen			115.8		%		80-120	19-OCT-12
WG1570230-4	LCS							
Total Nitrogen			108.4		%		80-120	19-OCT-12
WG1570230-6	LCS							
Total Nitrogen			117.0		%		80-120	19-OCT-12
WG1570230-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12
WG1570230-3	MB							
Total Nitrogen			<0.050		mg/L		0.05	19-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOT-COMBUST-VA								
Batch R2459948								
WG1570230-5 MB								
Total Nitrogen								
	Water		<0.050		mg/L		0.05	19-OCT-12
NH3-F-VA								
Batch R2462109								
WG1570295-10 CRM								
Ammonia, Total (as N)								
	Water	VA-NH3-F	99.0		%		85-115	24-OCT-12
WG1570295-2 CRM								
Ammonia, Total (as N)								
	Water	VA-NH3-F	102.4		%		85-115	24-OCT-12
WG1570295-4 CRM								
Ammonia, Total (as N)								
	Water	VA-NH3-F	99.5		%		85-115	24-OCT-12
WG1570295-6 CRM								
Ammonia, Total (as N)								
	Water	VA-NH3-F	99.1		%		85-115	24-OCT-12
WG1570295-8 CRM								
Ammonia, Total (as N)								
	Water	VA-NH3-F	99.1		%		85-115	24-OCT-12
WG1570295-1 MB								
Ammonia, Total (as N)								
	Water		<0.0050		mg/L		0.005	24-OCT-12
WG1570295-3 MB								
Ammonia, Total (as N)								
	Water		<0.0050		mg/L		0.005	24-OCT-12
WG1570295-5 MB								
Ammonia, Total (as N)								
	Water		<0.0050		mg/L		0.005	24-OCT-12
WG1570295-7 MB								
Ammonia, Total (as N)								
	Water		<0.0050		mg/L		0.005	24-OCT-12
WG1570295-9 MB								
Ammonia, Total (as N)								
	Water		<0.0050		mg/L		0.005	24-OCT-12
WG1570295-12 MS								
Ammonia, Total (as N)								
	Water	L1225180-17	100.7		%		75-125	24-OCT-12
P-T-COL-VA								
Batch R2458510								
WG1569660-10 CRM								
Phosphorus (P)-Total								
	Water	VA-ERA-PO4	101.5		%		80-120	19-OCT-12
WG1569660-14 CRM								
Phosphorus (P)-Total								
	Water	VA-ERA-PO4	103.4		%		80-120	19-OCT-12
WG1569660-2 CRM								
Phosphorus (P)-Total								
	Water	VA-ERA-PO4	103.8		%		80-120	19-OCT-12
WG1569660-21 CRM								
Phosphorus (P)-Total								
	Water	VA-ERA-PO4	100.8		%		80-120	19-OCT-12
WG1569660-23 CRM								
Phosphorus (P)-Total								
	Water	VA-ERA-PO4						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA								
Water								
Batch	R2458510							
WG1569660-23 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			101.8		%		80-120	19-OCT-12
WG1569660-27 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			102.4		%		80-120	19-OCT-12
WG1569660-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.8		%		80-120	19-OCT-12
WG1569660-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-13 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-20 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-22 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-26 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	19-OCT-12
WG1569660-12 MS		L1225180-3						
Phosphorus (P)-Total			111.9		%		70-130	19-OCT-12
WG1569660-19 MS		L1225342-2						
Phosphorus (P)-Total			90.9		%		70-130	19-OCT-12
WG1569660-25 MS		L1225824-12						
Phosphorus (P)-Total			98.2		%		70-130	19-OCT-12
WG1569660-4 MS		L1225032-3						
Phosphorus (P)-Total			N/A	MS-B	%		-	19-OCT-12
WG1569660-8 MS		L1225032-23						
Phosphorus (P)-Total			100.5		%		70-130	19-OCT-12
PAH-LL-SF-MS-VA								
Water								
Batch	R2459704							
WG1570543-2 LCS								
Acenaphthene			99.2		%		60-130	22-OCT-12
Acenaphthylene			99.9		%		60-130	22-OCT-12
Acridine			92.4		%		60-130	22-OCT-12
Anthracene			98.6		%		60-130	22-OCT-12
Benz(a)anthracene			93.0		%		60-130	22-OCT-12

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2459704							
WG1570543-2	LCS							
Benzo(a)pyrene			92.8		%		60-130	22-OCT-12
Benzo(b)fluoranthene			90.2		%		60-130	22-OCT-12
Benzo(g,h,i)perylene			101.1		%		60-130	22-OCT-12
Benzo(k)fluoranthene			99.2		%		60-130	22-OCT-12
Chrysene			97.1		%		60-130	22-OCT-12
Dibenz(a,h)anthracene			98.9		%		60-130	22-OCT-12
Fluoranthene			98.2		%		60-130	22-OCT-12
Fluorene			97.6		%		60-130	22-OCT-12
Indeno(1,2,3-c,d)pyrene			97.6		%		60-130	22-OCT-12
Naphthalene			93.1		%		50-130	22-OCT-12
Phenanthrene			101.3		%		60-130	22-OCT-12
Pyrene			97.2		%		60-130	22-OCT-12
Quinoline			95.8		%		60-130	22-OCT-12
WG1570543-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	22-OCT-12
Acenaphthylene			<0.000010		mg/L		0.00001	22-OCT-12
Acridine			<0.000010		mg/L		0.00001	22-OCT-12
Anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Benz(a)anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(a)pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	22-OCT-12
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Chrysene			<0.000010		mg/L		0.00001	22-OCT-12
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	22-OCT-12
Fluoranthene			<0.000010		mg/L		0.00001	22-OCT-12
Fluorene			<0.000010		mg/L		0.00001	22-OCT-12
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Naphthalene			<0.000050		mg/L		0.00005	22-OCT-12
Phenanthrene			<0.000020		mg/L		0.00002	22-OCT-12
Pyrene			<0.000010		mg/L		0.00001	22-OCT-12
Quinoline			<0.000010		mg/L		0.00001	22-OCT-12
PH-MAN-VA	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-MAN-VA								
Batch R2460104								
WG1571280-2	CRM	VA-PH7-BUF	7.03		pH		6.9-7.1	22-OCT-12
	pH							
PH-PCT-VA								
Batch R2459280								
WG1569605-24	CRM	VA-PH7-BUF	7.00		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-25	CRM	VA-PH7-BUF	7.03		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-26	CRM	VA-PH7-BUF	7.00		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-27	CRM	VA-PH7-BUF	6.99		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-28	CRM	VA-PH7-BUF	7.01		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-29	CRM	VA-PH7-BUF	7.01		pH		6.9-7.1	19-OCT-12
	pH							
WG1569605-30	CRM	VA-PH7-BUF	7.00		pH		6.9-7.1	19-OCT-12
	pH							
PO4-DO-COL-VA								
Batch R2459131								
WG1570129-12	CRM	VA-OPO4-CONTROL	96.0		%		80-120	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-2	CRM	VA-OPO4-CONTROL	98.3		%		80-120	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-1	MB		<0.0010		mg/L		0.001	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-11	MB		<0.0010		mg/L		0.001	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-10	MS	L1226228-4	101.8		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-4	MS	L1225342-2	101.5		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-6	MS	L1225931-5	98.8		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
WG1570129-8	MS	L1226193-1	100.3		%		70-130	19-OCT-12
	Orthophosphate-Dissolved (as P)							
TDS-VA								
Water								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA		Water						
Batch	R2459606							
WG1569425-2	LCS							
Total Dissolved Solids			98.4		%		85-115	18-OCT-12
WG1569425-4	LCS							
Total Dissolved Solids			99.8		%		85-115	18-OCT-12
WG1569425-7	LCS							
Total Dissolved Solids			98.6		%		85-115	18-OCT-12
WG1569425-1	MB							
Total Dissolved Solids			<10		mg/L		10	18-OCT-12
WG1569425-3	MB							
Total Dissolved Solids			<10		mg/L		10	18-OCT-12
WG1569425-6	MB							
Total Dissolved Solids			<10		mg/L		10	18-OCT-12
TKN-F-VA		Water						
Batch	R2460178							
WG1569417-2	LCS							
Total Kjeldahl Nitrogen			104.9		%		75-125	22-OCT-12
WG1569417-5	LCS							
Total Kjeldahl Nitrogen			107.2		%		75-125	22-OCT-12
WG1569417-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	22-OCT-12
WG1569417-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	22-OCT-12
Batch	R2460938							
WG1571190-2	LCS							
Total Kjeldahl Nitrogen			101.2		%		75-125	23-OCT-12
WG1571190-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	23-OCT-12
Batch	R2461358							
WG1571190-5	LCS							
Total Kjeldahl Nitrogen			109.3		%		75-125	23-OCT-12
WG1571190-4	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	23-OCT-12
TSS-VA		Water						
Batch	R2458584							
WG1569427-2	LCS							
Total Suspended Solids			96.5		%		85-115	18-OCT-12
WG1569427-4	LCS							
Total Suspended Solids			95.1		%		85-115	18-OCT-12



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-VA								
	Water							
Batch	R2458584							
WG1569427-7	LCS							
Total Suspended Solids			96.4		%		85-115	18-OCT-12
WG1569427-1	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-3	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
WG1569427-6	MB							
Total Suspended Solids			<3.0		mg/L		3	18-OCT-12
TURBIDITY-VA								
	Water							
Batch	R2458897							
WG1569670-2	CRM	VA-TURB-SPK-8						
Turbidity			106.4		%		85-115	19-OCT-12
WG1569670-1	MB							
Turbidity			<0.10		NTU		0.1	19-OCT-12

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Manual Meter							
	1	Not provided	22-OCT-12 12:00	0.25	94	hours	EHTR-FM
	3	16-OCT-12 10:40	22-OCT-12 12:00	0.25	145	hours	EHTR-FM
	5	16-OCT-12 15:40	22-OCT-12 12:00	0.25	140	hours	EHTR-FM
	7	16-OCT-12 12:00	22-OCT-12 12:00	0.25	144	hours	EHTR-FM
pH by Meter (Automated)							
	2	16-OCT-12 11:26	19-OCT-12 10:21	0.25	71	hours	EHTR-FM
	4	16-OCT-12 13:10	19-OCT-12 10:21	0.25	69	hours	EHTR-FM
	6	16-OCT-12 14:40	19-OCT-12 10:21	0.25	68	hours	EHTR-FM
Anions and Nutrients							
Nitrate in Water by Ion Chromatography							
	2	16-OCT-12 11:26	20-OCT-12 09:02	3	4	days	EHTL
	3	16-OCT-12 10:40	20-OCT-12 09:02	3	4	days	EHTL
	4	16-OCT-12 13:10	20-OCT-12 09:02	3	4	days	EHTL
	5	16-OCT-12 15:40	20-OCT-12 09:02	3	4	days	EHT
	6	16-OCT-12 14:40	20-OCT-12 09:02	3	4	days	EHT
	7	16-OCT-12 12:00	20-OCT-12 09:02	3	4	days	EHTL
Nitrite in Water by Ion Chromatography							
	2	16-OCT-12 11:26	20-OCT-12 09:02	3	4	days	EHTL
	3	16-OCT-12 10:40	20-OCT-12 09:02	3	4	days	EHTL
	4	16-OCT-12 13:10	20-OCT-12 09:02	3	4	days	EHTL
	5	16-OCT-12 15:40	20-OCT-12 09:02	3	4	days	EHT
	6	16-OCT-12 14:40	20-OCT-12 09:02	3	4	days	EHT
	7	16-OCT-12 12:00	20-OCT-12 09:02	3	4	days	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 L1225932 were received on 18-OCT-12 14:00.

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.

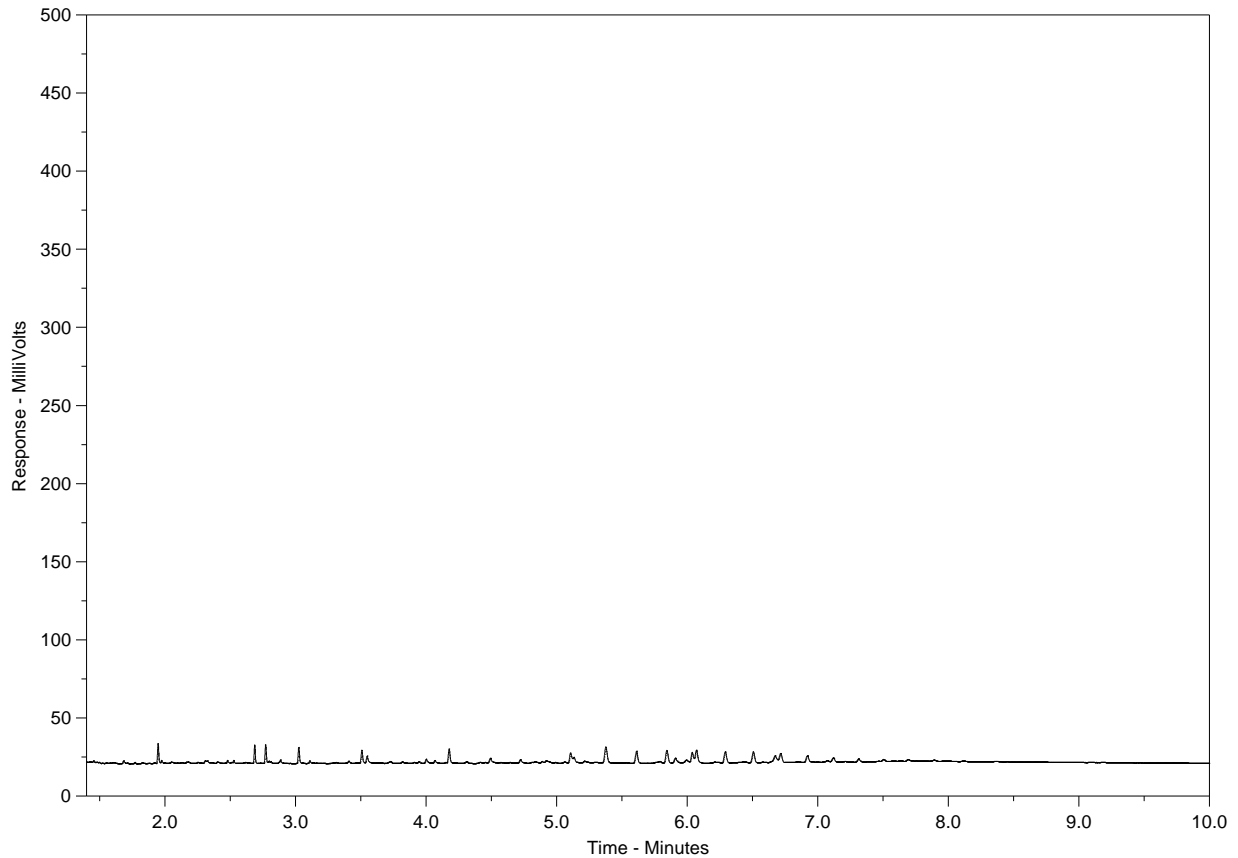
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1225932-3
Client Sample ID: MCF-1



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



Short Holding Time

Rush Processing

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

10-239468

Page 1 of 1

Report To	Report Format / Distribution	Service Request (Rush subject to availability - Contact ALS to confirm TAT)
Company: GOLDER ASSOCIATES Ltd	Standard: A Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: Ali Canning	Select: PDF Excel Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 4321 Still Creek Dr. Suite 300	Email 1: acanning@golder.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Burnaby BC V5C 6S6	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 604 296 4314 Fax: 604 298 5253		

Invoice To Same as Report? (circle) Yes or No (if No, provide details)	Client / Project Information BURNCO EA	Analysis Request (Indicate Filtered or Preserved, F/P)																	
Copy of Invoice with Report? (circle) Yes or No	Job #: 11-H22-0096 ph. 4500																		
Company:	PO / AFE:																		
Contact: Rob Hoogendorn	LSD:																		
Address: 4321 Still Creek "	Quote #:																		
Phone: 604 296-4200 Fax: 604 298 5253																			
Lab Work Order # (lab use only) L1225932	ALS Contact: Amber Springer	Sampler: AC / SH																	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals	Dissolved Metals	TOC	Nutrients	PAH/LEAP/HEAP										Number of Containers	
	TRAVEL BLANK			water	X	X		X	X												4
	MCF-2	16-Oct-12	11:26	"	X	X	X	X	X												5
	MCF-2	16-Oct-12	10:40	"	X	X	X	X	X	X											7
	MCF-5	16-Oct-12	13:10	"	X	X	X	X	X												5
	MCF-11	16-Oct-12	15:40	"	X	X	X	X	X												5
	MCF-4	16-Oct-12	14:40	"	X	X	X	X	X												5
	MCF-3	16-Oct-12	12:00	"	X	X	X	X	X												5



L1225932-COFC

Special Instructions / Regulation with water or land use (CCME - Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Metals: **CMB & BCWAG guidelines** Nutrients: **Total phosphorus, orthophosphate, total nitrogen, nitrite, nitrate, TGN**
General: **TDS, Alkalinity, Cond, TSS, Turb.** Hydrocarbons: **PAH/LEAP/HEAP**

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)				SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Ali Canning	Date: Oct 18/12	Time: 11:15	Received by: <i>[Signature]</i>	Date: Oct 18	Time: 14:00	Temperature: 10.0 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF	



GOLDER ASSOCIATES LTD.
ATTN: Arman Kaltayev
3795 Carey Road
Victoria BC V8Z 6T8

Date Received: 27-MAR-14
Report Date: 07-APR-14 16:20 (MT)
Version: FINAL

Client Phone: 250-881-7372

Certificate of Analysis

Lab Work Order #: L1437205
Project P.O. #: NOT SUBMITTED
Job Reference: 11-1422-0046 PHASE 4400
C of C Numbers: 10-368560
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-1 Water 27-MAR-14 13:40 MCF6	L1437205-2 Water 27-MAR-14 10:10 MCF7	L1437205-3 Water 27-MAR-14 14:15 MCF12	L1437205-4 Water 27-MAR-14 10:45 MCF13	L1437205-5 Water 27-MAR-14 12:37 MCF14
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	8.1	<5.0	7.7	<5.0
	Conductivity (uS/cm)	19.7	7.8	33.7	11.4	1850
	Hardness (as CaCO3) (mg/L)	5.52	1.84	5.51	2.41	161
	pH (pH)	7.30	7.01	7.01	6.89	7.05
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	16	13	26	12	1020
	Turbidity (NTU)	0.10	0.92	0.46	0.91	0.21
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.9	1.7	1.9	1.8	2.2
	Alkalinity, Total (as CaCO3) (mg/L)	4.0	<2.0	4.0	<2.0	9.3
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	0.0202	0.0053
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	1.8
	Chloride (Cl) (mg/L)	0.70	<0.50	5.14	1.23	539
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	<0.020	1.11
	Nitrate (as N) (mg/L)	0.231	0.0840	0.106	0.0821	0.26
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.020 ^{DLM}
	Total Kjeldahl Nitrogen (mg/L)	0.070	0.068	0.061	0.070	0.077
	Total Nitrogen (mg/L)	0.249	0.102	0.114	0.109	0.234
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0025
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	0.0026	0.0021	0.0052
	Sulfate (SO4) (mg/L)	2.06	0.83	2.72	0.97	77
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	1.29	<0.50	1.29	0.58
Total Metals	Aluminum (Al)-Total (mg/L)	0.0244	0.162	0.0534	0.176	0.0504
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	0.19
	Cadmium (Cd)-Total (mg/L)	0.000013	<0.000010	<0.000010	<0.000010	<0.000010
	Calcium (Ca)-Total (mg/L)	1.94	0.76	1.41	0.75	11.2
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Total (mg/L)	<0.030	0.065	<0.030	0.081	<0.030
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0060
	Magnesium (Mg)-Total (mg/L)	0.23	0.12	0.50	0.17	35.0

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-6 Water 27-MAR-14 12:00 MCF15	L1437205-7 Water 27-MAR-14 12:07 DUPLICATE		
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0	<5.0		
	Conductivity (uS/cm)	129	120		
	Hardness (as CaCO3) (mg/L)	13.5	14.0		
	pH (pH)	6.62	6.93		
	Total Suspended Solids (mg/L)	<3.0	<3.0		
	Total Dissolved Solids (mg/L)	77	69		
	Turbidity (NTU)	0.13	0.12		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.3	2.2		
	Alkalinity, Total (as CaCO3) (mg/L)	4.0	3.6		
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050		
	Bromide (Br) (mg/L)	0.101	0.097		
	Chloride (Cl) (mg/L)	31.3	28.2		
	Fluoride (F) (mg/L)	<0.020	<0.020		
	Nitrate (as N) (mg/L)	0.222	0.220		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	0.054	<0.050		
	Total Nitrogen (mg/L)	0.238	0.229		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010		
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020		
	Sulfate (SO4) (mg/L)	6.16	5.64		
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	<0.50	<0.50		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0391	0.0332		
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050		
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050		
	Barium (Ba)-Total (mg/L)	<0.020	<0.020		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010		
	Boron (B)-Total (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	<0.000010	0.000010		
	Calcium (Ca)-Total (mg/L)	2.17	2.23		
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010		
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030		
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010		
	Iron (Fe)-Total (mg/L)	0.073	<0.030		
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050		
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050		
	Magnesium (Mg)-Total (mg/L)	1.99	1.99		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-1 Water 27-MAR-14 13:40 MCF6	L1437205-2 Water 27-MAR-14 10:10 MCF7	L1437205-3 Water 27-MAR-14 14:15 MCF12	L1437205-4 Water 27-MAR-14 10:45 MCF13	L1437205-5 Water 27-MAR-14 12:37 MCF14
Grouping	Analyte					
WATER						
Total Metals	Manganese (Mn)-Total (mg/L)	0.00288	0.00158	0.00074	0.00153	0.00142
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	12.4
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	4.1	<2.0	320
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals	Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	LAB
	Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)	0.0203	0.0919	0.0331	0.0920	0.0333
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	0.16
	Cadmium (Cd)-Dissolved (mg/L)	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	1.86	0.74	1.38	0.72	10.5
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0054
	Magnesium (Mg)-Dissolved (mg/L)	0.21	<0.10	0.50	0.15	32.8
	Manganese (Mn)-Dissolved (mg/L)	0.00285	0.00061	0.00062	0.00057	0.00137
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	11.6
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-6 Water 27-MAR-14 12:00 MCF15	L1437205-7 Water 27-MAR-14 12:07 DUPLICATE		
Grouping	Analyte				
WATER					
Total Metals	Manganese (Mn)-Total (mg/L)	0.00203	0.00200		
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010		
	Potassium (K)-Total (mg/L)	<2.0	<2.0		
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010		
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020		
	Sodium (Na)-Total (mg/L)	17.4	17.5		
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020		
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050		
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010		
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020		
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050		
Dissolved Metals	Dissolved Mercury Filtration Location	LAB	LAB		
	Dissolved Metals Filtration Location	LAB	LAB		
	Aluminum (Al)-Dissolved (mg/L)	0.0216	0.0216		
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050		
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050		
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.020		
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010		
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010	<0.000010		
	Calcium (Ca)-Dissolved (mg/L)	2.16	2.20		
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010		
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030		
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010		
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030		
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050		
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050		
	Magnesium (Mg)-Dissolved (mg/L)	1.98	2.06		
	Manganese (Mn)-Dissolved (mg/L)	0.00205	0.00195		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010		
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0		
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-1 Water 27-MAR-14 13:40 MCF6	L1437205-2 Water 27-MAR-14 10:10 MCF7	L1437205-3 Water 27-MAR-14 14:15 MCF12	L1437205-4 Water 27-MAR-14 10:45 MCF13	L1437205-5 Water 27-MAR-14 12:37 MCF14
Grouping	Analyte					
WATER						
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	4.1	<2.0	298
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Hydrocarbons	EPH10-19 (mg/L)			<0.25	<0.25	
	EPH19-32 (mg/L)			<0.25	<0.25	
	LEPH (mg/L)			<0.25	<0.25	
	HEPH (mg/L)			<0.25	<0.25	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)			<0.000010	<0.000010	
	Acenaphthylene (mg/L)			<0.000010	<0.000010	
	Acridine (mg/L)			<0.000010	<0.000010	
	Anthracene (mg/L)			<0.000010	<0.000010	
	Benz(a)anthracene (mg/L)			<0.000010	<0.000010	
	Benzo(a)pyrene (mg/L)			<0.000010	<0.000010	
	Benzo(b)fluoranthene (mg/L)			<0.000010	<0.000010	
	Benzo(g,h,i)perylene (mg/L)			<0.000010	<0.000010	
	Benzo(k)fluoranthene (mg/L)			<0.000010	<0.000010	
	Chrysene (mg/L)			<0.000010	<0.000010	
	Dibenz(a,h)anthracene (mg/L)			<0.000010	<0.000010	
	Fluoranthene (mg/L)			<0.000010	<0.000010	
	Fluorene (mg/L)			<0.000010	<0.000010	
	Indeno(1,2,3-c,d)pyrene (mg/L)			<0.000010	<0.000010	
	Naphthalene (mg/L)			<0.000050	<0.000050	
	Phenanthrene (mg/L)			<0.000020	<0.000020	
	Pyrene (mg/L)			<0.000010	<0.000010	
	Quinoline (mg/L)			<0.000010	<0.000010	
	Surrogate: Acenaphthene d10 (%)			92.4	90.8	
	Surrogate: Acridine d9 (%)			98.6	96.5	
Surrogate: Chrysene d12 (%)			88.7	86.7		
Surrogate: Naphthalene d8 (%)			90.1	88.7		
Surrogate: Phenanthrene d10 (%)			94.1	92.5		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1437205-6 Water 27-MAR-14 12:00 MCF15	L1437205-7 Water 27-MAR-14 12:07 DUPLICATE		
Grouping	Analyte				
WATER					
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020		
	Sodium (Na)-Dissolved (mg/L)	17.2	17.8		
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020		
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010		
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050		
Hydrocarbons	EPH10-19 (mg/L)				
	EPH19-32 (mg/L)				
	LEPH (mg/L)				
	HEPH (mg/L)				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)				
	Acenaphthylene (mg/L)				
	Acridine (mg/L)				
	Anthracene (mg/L)				
	Benz(a)anthracene (mg/L)				
	Benzo(a)pyrene (mg/L)				
	Benzo(b)fluoranthene (mg/L)				
	Benzo(g,h,i)perylene (mg/L)				
	Benzo(k)fluoranthene (mg/L)				
	Chrysene (mg/L)				
	Dibenz(a,h)anthracene (mg/L)				
	Fluoranthene (mg/L)				
	Fluorene (mg/L)				
	Indeno(1,2,3-c,d)pyrene (mg/L)				
	Naphthalene (mg/L)				
	Phenanthrene (mg/L)				
	Pyrene (mg/L)				
	Quinoline (mg/L)				
	Surrogate: Acenaphthene d10 (%)				
	Surrogate: Acridine d9 (%)				
	Surrogate: Chrysene d12 (%)				
	Surrogate: Naphthalene d8 (%)				
	Surrogate: Phenanthrene d10 (%)				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Total Nitrogen	DLA	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Bromide (Br)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Nitrite (as N)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Nitrate (as N)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Bromide (Br)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Nitrite (as N)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Nitrate (as N)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Duplicate	Bromide (Br)	DLM	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sulfate (SO4)	MS-B	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Total Nitrogen	MS-B	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Total Nitrogen	MS-B	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Total Organic Carbon	MS-B	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1437205-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Ammonia, Total (as N)	MS-B	L1437205-2, -3, -4, -5, -6, -7

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
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**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.	
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength

Reference Information

This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by Tumbler and GCFID BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Water by GC/FID", v2.1, July 1999. Whole water samples are extracted with DCM prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-T-COL-VA Water Total Nitrogen in water by Colour USGS - 03 - 4174 / NEMI 5735

This analysis is carried out using procedures adapted from the US Geological Survey (USGS) Method 03-4174 "Evaluation of Alkaline persulfate digestion as an alternative to kjeldahl digestion for determination of total and dissolved nitrogen and phosphorus in water." and National Environmental Methods Index Nemi method 5735. Nitrate via manual vanadium (III) reduction.

Reference Information

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
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.			
PAH-LL-SF-MS-VA	Water	PAH-Low Level in Water by GCMS	EPA 3510, 8270
The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.			
PAH-SURR-MS-VA	Water	PAH Surrogates for Waters	EPA 3510, 8270
Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-368560

Reference Information

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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: L1437205

Report Date: 07-APR-14

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Client: GOLDER ASSOCIATES LTD.
 3795 Carey Road
 Victoria BC V8Z 6T8

Contact: Arman Kaltayev

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2812273							
WG1850674-10	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			106.0		%		85-115	28-MAR-14
WG1850674-11	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			102.2		%		85-115	28-MAR-14
WG1850674-12	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			106.9		%		85-115	28-MAR-14
WG1850674-13	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			105.9		%		85-115	28-MAR-14
WG1850674-14	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			106.4		%		85-115	28-MAR-14
WG1850674-9	CRM	VA-ACY-CONTROL						
Acidity (as CaCO3)			105.4		%		85-115	28-MAR-14
WG1850674-37	DUP	L1437205-7						
Acidity (as CaCO3)		2.2	2.0		mg/L	8.5	20	28-MAR-14
ALK-COL-VA		Water						
Batch	R2812258							
WG1850679-2	CRM	VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			103.3		%		85-115	28-MAR-14
WG1850679-5	CRM	VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			100.8		%		85-115	28-MAR-14
WG1850679-8	CRM	VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			102.3		%		85-115	28-MAR-14
WG1850679-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	28-MAR-14
WG1850679-11	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	28-MAR-14
WG1850679-4	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	28-MAR-14
WG1850679-7	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	28-MAR-14
ANIONS-BR-IC-VA		Water						
Batch	R2812623							
WG1850771-2	LCS							
Bromide (Br)			106.3		%		85-115	28-MAR-14
WG1850771-21	LCS							
Bromide (Br)			104.3		%		85-115	28-MAR-14
WG1850771-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	28-MAR-14



Quality Control Report

Workorder: L1437205

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
	Water							
Batch	R2812623							
WG1850771-19	MB							
Chloride (Cl)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-11	MS	L1437205-6						
Chloride (Cl)			99.2		%		75-125	28-MAR-14
WG1850771-14	MS	L1437437-12						
Chloride (Cl)			101.6		%		75-125	28-MAR-14
WG1850771-17	MS	L1437457-9						
Chloride (Cl)			102.0		%		75-125	28-MAR-14
WG1850771-5	MS	L1436652-2						
Chloride (Cl)			100.7		%		75-125	28-MAR-14
WG1850771-8	MS	L1436655-9						
Chloride (Cl)			101.3		%		75-125	28-MAR-14
ANIONS-F-IC-VA								
	Water							
Batch	R2812623							
WG1850771-2	LCS							
Fluoride (F)			106.8		%		90-110	28-MAR-14
WG1850771-21	LCS							
Fluoride (F)			107.3		%		90-110	28-MAR-14
WG1850771-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-19	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAR-14
WG1850771-11	MS	L1437205-6						
Fluoride (F)			112.9		%		75-125	28-MAR-14
WG1850771-14	MS	L1437437-12						

Quality Control Report

Workorder: L1437205

Report Date: 07-APR-14

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-VA								
	Water							
Batch	R2812623							
WG1850771-14 MS		L1437437-12						
Fluoride (F)			109.2		%		75-125	28-MAR-14
WG1850771-17 MS		L1437457-9						
Fluoride (F)			107.8		%		75-125	28-MAR-14
WG1850771-20 MS		L1437463-9						
Fluoride (F)			107.1		%		75-125	28-MAR-14
WG1850771-5 MS		L1436652-2						
Fluoride (F)			108.0		%		75-125	28-MAR-14
WG1850771-8 MS		L1436655-9						
Fluoride (F)			106.8		%		75-125	28-MAR-14
ANIONS-NO2-IC-VA								
	Water							
Batch	R2812623							
WG1850771-2 LCS								
Nitrite (as N)			102.6		%		90-110	28-MAR-14
WG1850771-21 LCS								
Nitrite (as N)			103.0		%		90-110	28-MAR-14
WG1850771-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-10 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-13 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-16 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-19 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-4 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-7 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAR-14
WG1850771-11 MS		L1437205-6						
Nitrite (as N)			102.4		%		75-125	28-MAR-14
WG1850771-14 MS		L1437437-12						
Nitrite (as N)			101.9		%		75-125	28-MAR-14
WG1850771-17 MS		L1437457-9						
Nitrite (as N)			102.3		%		75-125	28-MAR-14
WG1850771-20 MS		L1437463-9						
Nitrite (as N)			101.9		%		75-125	28-MAR-14
WG1850771-5 MS		L1436652-2						



Quality Control Report

Workorder: L1437205

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-VA								
	Water							
Batch	R2812623							
WG1850771-5	MS	L1436652-2						
Nitrite (as N)			99.5		%		75-125	28-MAR-14
WG1850771-8	MS	L1436655-9						
Nitrite (as N)			100.3		%		75-125	28-MAR-14
ANIONS-NO3-IC-VA								
	Water							
Batch	R2812623							
WG1850771-2	LCS							
Nitrate (as N)			101.6		%		90-110	28-MAR-14
WG1850771-21	LCS							
Nitrate (as N)			102.0		%		90-110	28-MAR-14
WG1850771-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-16	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-19	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAR-14
WG1850771-11	MS	L1437205-6						
Nitrate (as N)			101.2		%		75-125	28-MAR-14
WG1850771-14	MS	L1437437-12						
Nitrate (as N)			101.1		%		75-125	28-MAR-14
WG1850771-17	MS	L1437457-9						
Nitrate (as N)			101.5		%		75-125	28-MAR-14
WG1850771-20	MS	L1437463-9						
Nitrate (as N)			101.1		%		75-125	28-MAR-14
WG1850771-5	MS	L1436652-2						
Nitrate (as N)			100.2		%		75-125	28-MAR-14
WG1850771-8	MS	L1436655-9						
Nitrate (as N)			101.3		%		75-125	28-MAR-14
ANIONS-SO4-IC-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-VA								
	Water							
Batch	R2812623							
WG1850771-2	LCS							
Sulfate (SO4)			102.4		%		90-110	28-MAR-14
WG1850771-21	LCS							
Sulfate (SO4)			102.7		%		90-110	28-MAR-14
WG1850771-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-16	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-19	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	28-MAR-14
WG1850771-11	MS	L1437205-6						
Sulfate (SO4)			102.7		%		75-125	28-MAR-14
WG1850771-14	MS	L1437437-12						
Sulfate (SO4)			102.1		%		75-125	28-MAR-14
WG1850771-17	MS	L1437457-9						
Sulfate (SO4)			102.6		%		75-125	28-MAR-14
WG1850771-20	MS	L1437463-9						
Sulfate (SO4)			101.8		%		75-125	28-MAR-14
WG1850771-5	MS	L1436652-2						
Sulfate (SO4)			97.7		%		75-125	28-MAR-14
WG1850771-8	MS	L1436655-9						
Sulfate (SO4)			N/A	MS-B	%		-	28-MAR-14
CARBONS-TOC-VA								
	Water							
Batch	R2814025							
WG1851504-1	LCS							
Total Organic Carbon			92.1		%		80-120	31-MAR-14
WG1851504-12	LCS							
Total Organic Carbon			93.9		%		80-120	31-MAR-14
WG1851504-16	LCS							
Total Organic Carbon			97.4		%		80-120	31-MAR-14
WG1851504-5	LCS							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
	Water							
Batch	R2814025							
WG1851504-5	LCS							
Total Organic Carbon			96.3		%		80-120	31-MAR-14
WG1851504-8	LCS							
Total Organic Carbon			96.4		%		80-120	31-MAR-14
WG1851504-11	MB							
Total Organic Carbon			<0.50		mg/L		0.5	31-MAR-14
WG1851504-15	MB							
Total Organic Carbon			<0.50		mg/L		0.5	31-MAR-14
WG1851504-4	MB							
Total Organic Carbon			<0.50		mg/L		0.5	31-MAR-14
WG1851504-7	MB							
Total Organic Carbon			<0.50		mg/L		0.5	31-MAR-14
WG1851504-10	MS	L1436904-3						
Total Organic Carbon			N/A	MS-B	%		-	31-MAR-14
WG1851504-14	MS	L1438028-4						
Total Organic Carbon			102.2		%		70-130	31-MAR-14
COLOUR-TRUE-VA								
	Water							
Batch	R2811828							
WG1850576-2	CRM	VA-COL-C-25						
Colour, True			99.2		%		85-115	28-MAR-14
WG1850576-5	CRM	VA-COL-C-25						
Colour, True			97.9		%		85-115	28-MAR-14
WG1850576-8	CRM	VA-COL-C-25						
Colour, True			97.6		%		85-115	28-MAR-14
WG1850576-1	MB							
Colour, True			<5.0		CU		5	28-MAR-14
WG1850576-4	MB							
Colour, True			<5.0		CU		5	28-MAR-14
WG1850576-7	MB							
Colour, True			<5.0		CU		5	28-MAR-14
EC-PCT-VA								
	Water							
Batch	R2812273							
WG1850674-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	28-MAR-14
WG1850674-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			97.1		%		90-110	28-MAR-14
WG1850674-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.7		%		90-110	28-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R2812273							
WG1850674-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.7		%		90-110	28-MAR-14
WG1850674-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			98.7		%		90-110	28-MAR-14
WG1850674-22	CRM	VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	28-MAR-14
WG1850674-37	DUP	L1437205-7						
Conductivity		120	120		uS/cm	0.3	10	28-MAR-14
WG1850674-1	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
WG1850674-2	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
WG1850674-3	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
WG1850674-4	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
WG1850674-5	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
WG1850674-6	MB							
Conductivity			<2.0		uS/cm		2	28-MAR-14
EPH-SF-FID-VA		Water						
Batch	R2814041							
WG1853634-1	MB							
EPH10-19			<0.25		mg/L		0.25	04-APR-14
EPH19-32			<0.25		mg/L		0.25	04-APR-14
HG-DIS-LOW-CVAFS-VA		Water						
Batch	R2814950							
WG1852547-2	LCS							
Mercury (Hg)-Dissolved			99.5		%		80-120	02-APR-14
WG1852547-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	02-APR-14
WG1852547-4	MS	L1436888-1						
Mercury (Hg)-Dissolved			102.5		%		70-130	02-APR-14
HG-TOT-LOW-CVAFS-VA		Water						
Batch	R2812389							
WG1851134-2	LCS							
Mercury (Hg)-Total			90.1		%		80-120	28-MAR-14
WG1851134-1	MB							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-TOT-LOW-CVAFS-VA Water								
Batch	R2812389							
WG1851134-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	28-MAR-14
WG1851134-10 MS		L1436904-4						
Mercury (Hg)-Total			96.5		%		70-130	28-MAR-14
WG1851134-11 MS		L1437205-1						
Mercury (Hg)-Total			103.2		%		70-130	28-MAR-14
WG1851134-12 MS		L1436864-1						
Mercury (Hg)-Total			100.4		%		70-130	28-MAR-14
WG1851134-13 MS		L1436888-5						
Mercury (Hg)-Total			96.9		%		70-130	28-MAR-14
WG1851134-9 MS		L1437046-2						
Mercury (Hg)-Total			92.7		%		70-130	28-MAR-14
MET-D-CCMS-VA Water								
Batch	R2813560							
WG1851353-2 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			99.6		%		80-120	29-MAR-14
Antimony (Sb)-Dissolved			97.0		%		80-120	29-MAR-14
Arsenic (As)-Dissolved			98.7		%		80-120	29-MAR-14
Beryllium (Be)-Dissolved			96.1		%		80-120	29-MAR-14
Cadmium (Cd)-Dissolved			97.3		%		80-120	29-MAR-14
Chromium (Cr)-Dissolved			99.5		%		80-120	29-MAR-14
Cobalt (Co)-Dissolved			99.8		%		80-120	29-MAR-14
Copper (Cu)-Dissolved			95.7		%		80-120	29-MAR-14
Lead (Pb)-Dissolved			95.8		%		80-120	29-MAR-14
Lithium (Li)-Dissolved			94.7		%		80-120	29-MAR-14
Manganese (Mn)-Dissolved			104.0		%		80-120	29-MAR-14
Molybdenum (Mo)-Dissolved			95.8		%		80-120	29-MAR-14
Nickel (Ni)-Dissolved			99.5		%		80-120	29-MAR-14
Selenium (Se)-Dissolved			97.0		%		80-120	29-MAR-14
Silver (Ag)-Dissolved			99.7		%		80-120	29-MAR-14
Thallium (Tl)-Dissolved			92.8		%		80-120	29-MAR-14
Tin (Sn)-Dissolved			99.0		%		80-120	29-MAR-14
Uranium (U)-Dissolved			98.8		%		80-120	29-MAR-14
Vanadium (V)-Dissolved			101.4		%		80-120	29-MAR-14
WG1851353-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	29-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
	Water							
Batch	R2813560							
WG1851353-1	MB							
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	29-MAR-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	29-MAR-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	29-MAR-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	29-MAR-14
Batch	R2815468							
WG1851353-4	DUP	L1437205-1						
Aluminum (Al)-Dissolved		0.0203	0.0167		mg/L	20	20	02-APR-14
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Arsenic (As)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Cadmium (Cd)-Dissolved		0.000012	0.000012		mg/L	0.7	20	02-APR-14
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Cobalt (Co)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	02-APR-14
Copper (Cu)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Lead (Pb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Lithium (Li)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-APR-14
Manganese (Mn)-Dissolved		0.00285	0.00282		mg/L	0.9	20	02-APR-14
Molybdenum (Mo)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Nickel (Ni)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-APR-14



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MET-D-CCMS-VA								
	Water							
Batch	R2815468							
WG1851353-4	DUP	L1437205-1						
Silver (Ag)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	02-APR-14
Thallium (Tl)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-APR-14
Tin (Sn)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Uranium (U)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-APR-14
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
WG1851353-5	MS	L1436888-2						
Aluminum (Al)-Dissolved			92.5		%		70-130	02-APR-14
Antimony (Sb)-Dissolved			96.7		%		70-130	02-APR-14
Arsenic (As)-Dissolved			96.3		%		70-130	02-APR-14
Beryllium (Be)-Dissolved			96.7		%		70-130	02-APR-14
Cadmium (Cd)-Dissolved			96.5		%		70-130	02-APR-14
Chromium (Cr)-Dissolved			94.0		%		70-130	02-APR-14
Cobalt (Co)-Dissolved			94.2		%		70-130	02-APR-14
Copper (Cu)-Dissolved			89.4		%		70-130	02-APR-14
Lead (Pb)-Dissolved			93.6		%		70-130	02-APR-14
Lithium (Li)-Dissolved			97.7		%		70-130	02-APR-14
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	02-APR-14
Molybdenum (Mo)-Dissolved			96.0		%		70-130	02-APR-14
Nickel (Ni)-Dissolved			97.4		%		70-130	02-APR-14
Selenium (Se)-Dissolved			97.2		%		70-130	02-APR-14
Silver (Ag)-Dissolved			93.3		%		70-130	02-APR-14
Thallium (Tl)-Dissolved			93.1		%		70-130	02-APR-14
Tin (Sn)-Dissolved			96.8		%		70-130	02-APR-14
Uranium (U)-Dissolved			96.4		%		70-130	02-APR-14
Vanadium (V)-Dissolved			95.1		%		70-130	02-APR-14
MET-DIS-ICP-VA								
	Water							
Batch	R2813502							
WG1851353-2	CRM	VA-HIGH-WATRM						
Barium (Ba)-Dissolved			96.9		%		80-120	30-MAR-14
Boron (B)-Dissolved			102.3		%		80-120	30-MAR-14
Calcium (Ca)-Dissolved			102.7		%		80-120	30-MAR-14
Iron (Fe)-Dissolved			97.1		%		80-120	30-MAR-14
Magnesium (Mg)-Dissolved			103.0		%		80-120	30-MAR-14
Potassium (K)-Dissolved			98.3		%		80-120	30-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA		Water						
Batch	R2813502							
WG1851353-2	CRM	VA-HIGH-WATRM						
Sodium (Na)-Dissolved			98.4		%		80-120	30-MAR-14
Titanium (Ti)-Dissolved			102.9		%		80-120	30-MAR-14
Zinc (Zn)-Dissolved			98.6		%		80-120	30-MAR-14
WG1851353-1	MB							
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	30-MAR-14
Boron (B)-Dissolved			<0.10		mg/L		0.1	30-MAR-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	30-MAR-14
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	30-MAR-14
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	30-MAR-14
Potassium (K)-Dissolved			<2.0		mg/L		2	30-MAR-14
Sodium (Na)-Dissolved			<2.0		mg/L		2	30-MAR-14
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	30-MAR-14
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	30-MAR-14
Batch	R2814975							
WG1851353-4	DUP	L1437205-1						
Barium (Ba)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	01-APR-14
Boron (B)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	01-APR-14
Calcium (Ca)-Dissolved		1.86	1.88		mg/L	0.7	20	01-APR-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	01-APR-14
Magnesium (Mg)-Dissolved		0.21	0.21		mg/L	1.8	20	01-APR-14
Potassium (K)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	01-APR-14
Sodium (Na)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	01-APR-14
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-APR-14
Zinc (Zn)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-APR-14
Batch	R2814984							
WG1851353-5	MS	L1436888-2						
Boron (B)-Dissolved			96.3		%		70-130	01-APR-14
Calcium (Ca)-Dissolved			99.6		%		70-130	01-APR-14
Iron (Fe)-Dissolved			93.5		%		70-130	01-APR-14
Magnesium (Mg)-Dissolved			97.8		%		70-130	01-APR-14
Potassium (K)-Dissolved			95.6		%		70-130	01-APR-14
Sodium (Na)-Dissolved			98.1		%		70-130	01-APR-14
Titanium (Ti)-Dissolved			106.8		%		70-130	01-APR-14
Zinc (Zn)-Dissolved			91.7		%		70-130	01-APR-14
MET-T-CCMS-VA		Water						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA								
	Water							
Batch	R2812413							
WG1850938-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	28-MAR-14
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Arsenic (As)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Copper (Cu)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Lead (Pb)-Total			<0.000050		mg/L		0.00005	28-MAR-14
Lithium (Li)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	28-MAR-14
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Selenium (Se)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Silver (Ag)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Tin (Sn)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Uranium (U)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Vanadium (V)-Total			<0.0010		mg/L		0.001	28-MAR-14
Batch	R2813318							
WG1850938-3	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Total			105.2		%		80-120	29-MAR-14
Antimony (Sb)-Total			98.4		%		80-120	29-MAR-14
Arsenic (As)-Total			100.2		%		80-120	29-MAR-14
Beryllium (Be)-Total			99.5		%		80-120	29-MAR-14
Cadmium (Cd)-Total			105.9		%		80-120	29-MAR-14
Chromium (Cr)-Total			104.1		%		80-120	29-MAR-14
Cobalt (Co)-Total			101.4		%		80-120	29-MAR-14
Copper (Cu)-Total			100.5		%		80-120	29-MAR-14
Lead (Pb)-Total			98.9		%		80-120	29-MAR-14
Lithium (Li)-Total			100.0		%		80-120	29-MAR-14
Manganese (Mn)-Total			106.5		%		80-120	29-MAR-14
Molybdenum (Mo)-Total			99.3		%		80-120	29-MAR-14
Nickel (Ni)-Total			102.6		%		80-120	29-MAR-14
Selenium (Se)-Total			98.1		%		80-120	29-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R2813318							
WG1850938-3 CRM		VA-HIGH-WATRM						
Silver (Ag)-Total			100.4		%		80-120	29-MAR-14
Thallium (Tl)-Total			96.9		%		80-120	29-MAR-14
Tin (Sn)-Total			98.7		%		80-120	29-MAR-14
Uranium (U)-Total			100.6		%		80-120	29-MAR-14
Vanadium (V)-Total			104.6		%		80-120	29-MAR-14
WG1850938-1 MB								
Manganese (Mn)-Total			<0.000050		mg/L		0.00005	29-MAR-14
Batch	R2815468							
WG1850938-2 DUP		L1437205-1						
Aluminum (Al)-Total		0.0244	0.0233		mg/L	4.6	20	02-APR-14
Antimony (Sb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Arsenic (As)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Cadmium (Cd)-Total		0.000013	0.000013		mg/L	0.1	20	02-APR-14
Chromium (Cr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Cobalt (Co)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	02-APR-14
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Lead (Pb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Lithium (Li)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-APR-14
Manganese (Mn)-Total		0.00288	0.00284		mg/L	1.3	20	02-APR-14
Molybdenum (Mo)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Nickel (Ni)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
Selenium (Se)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-APR-14
Silver (Ag)-Total		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	02-APR-14
Thallium (Tl)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-APR-14
Tin (Sn)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-APR-14
Uranium (U)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-APR-14
Vanadium (V)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-APR-14
WG1850938-4 MS		L1437205-7						
Aluminum (Al)-Total			94.0		%		70-130	02-APR-14
Antimony (Sb)-Total			100.3		%		70-130	02-APR-14
Arsenic (As)-Total			94.1		%		70-130	02-APR-14
Beryllium (Be)-Total			94.7		%		70-130	02-APR-14
Cadmium (Cd)-Total			98.4		%		70-130	02-APR-14
Chromium (Cr)-Total			92.9		%		70-130	02-APR-14

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MET-T-CCMS-VA								
	Water							
Batch	R2815468							
WG1850938-4 MS		L1437205-7						
Cobalt (Co)-Total			95.5		%		70-130	02-APR-14
Copper (Cu)-Total			96.1		%		70-130	02-APR-14
Lead (Pb)-Total			97.5		%		70-130	02-APR-14
Lithium (Li)-Total			96.4		%		70-130	02-APR-14
Manganese (Mn)-Total			93.4		%		70-130	02-APR-14
Molybdenum (Mo)-Total			93.7		%		70-130	02-APR-14
Nickel (Ni)-Total			98.2		%		70-130	02-APR-14
Selenium (Se)-Total			95.4		%		70-130	02-APR-14
Silver (Ag)-Total			96.5		%		70-130	02-APR-14
Thallium (Tl)-Total			95.9		%		70-130	02-APR-14
Tin (Sn)-Total			99.3		%		70-130	02-APR-14
Uranium (U)-Total			100.7		%		70-130	02-APR-14
Vanadium (V)-Total			95.9		%		70-130	02-APR-14
MET-TOT-ICP-VA								
	Water							
Batch	R2812420							
WG1850938-3 CRM		VA-HIGH-WATRM						
Barium (Ba)-Total			102.8		%		80-120	28-MAR-14
Boron (B)-Total			102.8		%		80-120	28-MAR-14
Calcium (Ca)-Total			105.8		%		80-120	28-MAR-14
Iron (Fe)-Total			98.5		%		80-120	28-MAR-14
Magnesium (Mg)-Total			104.1		%		80-120	28-MAR-14
Potassium (K)-Total			105.1		%		80-120	28-MAR-14
Sodium (Na)-Total			99.2		%		80-120	28-MAR-14
Titanium (Ti)-Total			106.8		%		80-120	28-MAR-14
Zinc (Zn)-Total			97.9		%		80-120	28-MAR-14
WG1850938-1 MB								
Barium (Ba)-Total			<0.010		mg/L		0.01	28-MAR-14
Boron (B)-Total			<0.10		mg/L		0.1	28-MAR-14
Calcium (Ca)-Total			<0.050		mg/L		0.05	28-MAR-14
Iron (Fe)-Total			<0.030		mg/L		0.03	28-MAR-14
Magnesium (Mg)-Total			<0.10		mg/L		0.1	28-MAR-14
Potassium (K)-Total			<2.0		mg/L		2	28-MAR-14
Sodium (Na)-Total			<2.0		mg/L		2	28-MAR-14
Titanium (Ti)-Total			<0.010		mg/L		0.01	28-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-ICP-VA								
	Water							
Batch	R2812420							
WG1850938-1	MB							
Zinc (Zn)-Total			<0.0050		mg/L		0.005	28-MAR-14
Batch								
	R2814975							
WG1850938-2	DUP	L1437205-1						
Barium (Ba)-Total		<0.020	<0.020	RPD-NA	mg/L	N/A	20	01-APR-14
Boron (B)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	01-APR-14
Calcium (Ca)-Total		1.94	1.88		mg/L	3.2	20	01-APR-14
Iron (Fe)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	01-APR-14
Magnesium (Mg)-Total		0.23	0.22		mg/L	5.9	20	01-APR-14
Potassium (K)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	01-APR-14
Sodium (Na)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	01-APR-14
Titanium (Ti)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-APR-14
Zinc (Zn)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-APR-14
WG1850938-4	MS	L1437205-7						
Boron (B)-Total			98.2		%		70-130	01-APR-14
Calcium (Ca)-Total			103.8		%		70-130	01-APR-14
Iron (Fe)-Total			97.6		%		70-130	01-APR-14
Magnesium (Mg)-Total			104.6		%		70-130	01-APR-14
Potassium (K)-Total			105.4		%		70-130	01-APR-14
Sodium (Na)-Total			101.9		%		70-130	01-APR-14
Titanium (Ti)-Total			108.2		%		70-130	01-APR-14
Zinc (Zn)-Total			93.4		%		70-130	01-APR-14
N-T-COL-VA								
	Water							
Batch	R2813540							
WG1851666-9	DUP	L1437205-1						
Total Nitrogen		0.249	0.241		mg/L	3.1	20	31-MAR-14
WG1851666-2	LCS							
Total Nitrogen			104.5		%		75-125	31-MAR-14
WG1851666-6	LCS							
Total Nitrogen			103.0		%		75-125	31-MAR-14
WG1851666-8	LCS							
Total Nitrogen			104.1		%		75-125	31-MAR-14
WG1851666-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	31-MAR-14
WG1851666-5	MB							
Total Nitrogen			<0.050		mg/L		0.05	31-MAR-14

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N-T-COL-VA		Water						
Batch	R2813540							
WG1851666-7 MB								
Total Nitrogen			<0.050		mg/L		0.05	31-MAR-14
WG1851666-10 MS		L1437205-1						
Total Nitrogen			97.7		%		70-130	31-MAR-14
WG1851666-12 MS		L1437631-3						
Total Nitrogen			N/A	MS-B	%		-	31-MAR-14
WG1851666-4 MS		L1436888-1						
Total Nitrogen			N/A	MS-B	%		-	31-MAR-14
NH3-F-VA		Water						
Batch	R2815577							
WG1853181-2 CRM		VA-NH3-F						
Ammonia, Total (as N)			102.4		%		85-115	03-APR-14
WG1853181-4 CRM		VA-NH3-F						
Ammonia, Total (as N)			102.9		%		85-115	03-APR-14
WG1853181-7 DUP		L1437205-6						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	03-APR-14
WG1853181-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	03-APR-14
WG1853181-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	03-APR-14
WG1853181-10 MS		L1438936-1						
Ammonia, Total (as N)			N/A	MS-B	%		-	03-APR-14
WG1853181-6 MS		L1436886-1						
Ammonia, Total (as N)			100.2		%		75-125	03-APR-14
WG1853181-8 MS		L1437205-6						
Ammonia, Total (as N)			100.3		%		75-125	03-APR-14
Batch	R2815595							
WG1853758-2 CRM		VA-NH3-F						
Ammonia, Total (as N)			103.9		%		85-115	03-APR-14
WG1853758-4 CRM		VA-NH3-F						
Ammonia, Total (as N)			96.3		%		85-115	03-APR-14
WG1853758-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	03-APR-14
WG1853758-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	03-APR-14
WG1853758-6 MS		L1436904-3						
Ammonia, Total (as N)			95.4		%		75-125	03-APR-14
P-T-COL-VA		Water						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA		Water						
Batch	R2813007							
WG1851199-10 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			104.8		%		80-120	29-MAR-14
WG1851199-14 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.3		%		80-120	29-MAR-14
WG1851199-18 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			104.1		%		80-120	29-MAR-14
WG1851199-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			99.7		%		80-120	29-MAR-14
WG1851199-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.3		%		80-120	29-MAR-14
WG1851199-7 DUP		L1437205-1						
Phosphorus (P)-Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	29-MAR-14
WG1851199-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	29-MAR-14
WG1851199-13 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	29-MAR-14
WG1851199-17 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	29-MAR-14
WG1851199-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	29-MAR-14
WG1851199-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	29-MAR-14
WG1851199-12 MS		L1437437-4						
Phosphorus (P)-Total			103.1		%		70-130	29-MAR-14
WG1851199-16 MS		L1437456-7						
Phosphorus (P)-Total			104.2		%		70-130	29-MAR-14
WG1851199-20 MS		L1437463-2						
Phosphorus (P)-Total			100.4		%		70-130	29-MAR-14
WG1851199-4 MS		L1436703-2						
Phosphorus (P)-Total			100.8		%		70-130	29-MAR-14
WG1851199-8 MS		L1437205-2						
Phosphorus (P)-Total			104.4		%		70-130	29-MAR-14
PAH-LL-SF-MS-VA		Water						
Batch	R2815362							
WG1853634-2 LCS								
Acenaphthene			88.4		%		60-130	03-APR-14
Acenaphthylene			102.1		%		60-130	03-APR-14
Acridine			118.2		%		60-130	03-APR-14

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PAH-LL-SF-MS-VA		Water						
Batch	R2815362							
WG1853634-2	LCS							
Anthracene			107.5		%		60-130	03-APR-14
Benz(a)anthracene			117.1		%		60-130	03-APR-14
Benzo(a)pyrene			110.1		%		60-130	03-APR-14
Benzo(b)fluoranthene			119.1		%		60-130	03-APR-14
Benzo(g,h,i)perylene			119.2		%		60-130	03-APR-14
Benzo(k)fluoranthene			117.2		%		60-130	03-APR-14
Chrysene			115.0		%		60-130	03-APR-14
Dibenz(a,h)anthracene			114.2		%		60-130	03-APR-14
Fluoranthene			118.1		%		60-130	03-APR-14
Fluorene			98.6		%		60-130	03-APR-14
Indeno(1,2,3-c,d)pyrene			119.4		%		60-130	03-APR-14
Naphthalene			82.1		%		50-130	03-APR-14
Phenanthrene			113.3		%		60-130	03-APR-14
Pyrene			127.1		%		60-130	03-APR-14
Quinoline			111.3		%		60-130	03-APR-14
WG1853634-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	03-APR-14
Acenaphthylene			<0.000010		mg/L		0.00001	03-APR-14
Acridine			<0.000010		mg/L		0.00001	03-APR-14
Anthracene			<0.000010		mg/L		0.00001	03-APR-14
Benz(a)anthracene			<0.000010		mg/L		0.00001	03-APR-14
Benzo(a)pyrene			<0.000010		mg/L		0.00001	03-APR-14
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	03-APR-14
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	03-APR-14
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	03-APR-14
Chrysene			<0.000010		mg/L		0.00001	03-APR-14
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	03-APR-14
Fluoranthene			<0.000010		mg/L		0.00001	03-APR-14
Fluorene			<0.000010		mg/L		0.00001	03-APR-14
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	03-APR-14
Naphthalene			<0.000050		mg/L		0.00005	03-APR-14
Phenanthrene			<0.000020		mg/L		0.00002	03-APR-14
Pyrene			<0.000010		mg/L		0.00001	03-APR-14
Quinoline			<0.000010		mg/L		0.00001	03-APR-14



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PH-PCT-VA		Water						
Batch	R2812273							
WG1850674-25	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	28-MAR-14
WG1850674-26	CRM	VA-PH7-BUF						
pH			7.04		pH		6.9-7.1	28-MAR-14
WG1850674-27	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	28-MAR-14
WG1850674-28	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	28-MAR-14
WG1850674-29	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	28-MAR-14
WG1850674-30	CRM	VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	28-MAR-14
WG1850674-37	DUP	L1437205-7						
pH		6.93	6.92	J	pH	0.01	0.3	28-MAR-14
PO4-DO-COL-VA		Water						
Batch	R2812399							
WG1850559-11	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			101.2		%		80-120	27-MAR-14
WG1850559-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			97.0		%		80-120	27-MAR-14
WG1850559-9	DUP	L1437205-7						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	27-MAR-14
WG1850559-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	27-MAR-14
WG1850559-10	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	27-MAR-14
WG1850559-4	MS	L1435601-2						
Orthophosphate-Dissolved (as P)			103.4		%		70-130	27-MAR-14
WG1850559-6	MS	L1436913-2						
Orthophosphate-Dissolved (as P)			92.2		%		70-130	27-MAR-14
WG1850559-8	MS	L1436888-5						
Orthophosphate-Dissolved (as P)			88.1		%		70-130	27-MAR-14
TDS-VA		Water						
Batch	R2814342							
WG1852034-3	DUP	L1437205-5						
Total Dissolved Solids		1020	1030		mg/L	0.5	20	31-MAR-14
WG1852034-2	LCS							
Total Dissolved Solids			100.9		%		85-115	31-MAR-14



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TDS-VA		Water						
Batch	R2814342							
WG1852034-5	LCS							
Total Dissolved Solids			101.3		%		85-115	31-MAR-14
WG1852034-1	MB							
Total Dissolved Solids			<10		mg/L		10	31-MAR-14
WG1852034-4	MB							
Total Dissolved Solids			<10		mg/L		10	31-MAR-14
TKN-F-VA		Water						
Batch	R2817111							
WG1854296-7	DUP	L1437205-3						
Total Kjeldahl Nitrogen		0.061	0.054		mg/L	13	20	05-APR-14
WG1854296-2	LCS							
Total Kjeldahl Nitrogen			102.1		%		75-125	05-APR-14
WG1854296-6	LCS							
Total Kjeldahl Nitrogen			104.2		%		75-125	05-APR-14
WG1854296-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	05-APR-14
WG1854296-5	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	05-APR-14
WG1854296-4	MS	L1436432-2						
Total Kjeldahl Nitrogen			110.7		%		70-130	05-APR-14
WG1854296-8	MS	L1437205-5						
Total Kjeldahl Nitrogen			100.9		%		70-130	05-APR-14
TSS-VA		Water						
Batch	R2812297							
WG1850600-9	DUP	L1437205-6						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	27-MAR-14
WG1850600-2	LCS							
Total Suspended Solids			90.9		%		85-115	27-MAR-14
WG1850600-5	LCS							
Total Suspended Solids			111.9		%		85-115	27-MAR-14
WG1850600-8	LCS							
Total Suspended Solids			109.6		%		85-115	27-MAR-14
WG1850600-1	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14
WG1850600-4	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14
WG1850600-7	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14



Quality Control Report

Workorder: L1437205

Report Date: 07-APR-14

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-VA		Water						
Batch	R2811829							
WG1850575-2	CRM	VA-FORM-40						
Turbidity			98.3		%		85-115	28-MAR-14
WG1850575-5	CRM	VA-FORM-40						
Turbidity			98.8		%		85-115	28-MAR-14
WG1850575-8	CRM	VA-FORM-40						
Turbidity			99.3		%		85-115	28-MAR-14
WG1850575-6	DUP	L1437205-3						
Turbidity		0.46	0.45		NTU	1.5	15	28-MAR-14
WG1850575-1	MB							
Turbidity			<0.10		NTU		0.1	28-MAR-14
WG1850575-4	MB							
Turbidity			<0.10		NTU		0.1	28-MAR-14
WG1850575-7	MB							
Turbidity			<0.10		NTU		0.1	28-MAR-14

Quality Control Report

Workorder: L1437205

Report Date: 07-APR-14

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
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

Workorder: L1437205

Report Date: 07-APR-14

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	27-MAR-14 13:40	28-MAR-14 23:00	0.25	33	hours	EHTR-FM
	2	27-MAR-14 10:10	28-MAR-14 23:00	0.25	37	hours	EHTR-FM
	3	27-MAR-14 14:15	28-MAR-14 23:00	0.25	33	hours	EHTR-FM
	4	27-MAR-14 10:45	28-MAR-14 23:00	0.25	36	hours	EHTR-FM
	5	27-MAR-14 12:37	28-MAR-14 23:00	0.25	34	hours	EHTR-FM
	6	27-MAR-14 12:00	28-MAR-14 23:00	0.25	35	hours	EHTR-FM
	7	27-MAR-14 12:07	28-MAR-14 23:00	0.25	35	hours	EHTR-FM

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 L1437205 were received on 27-MAR-14 19:20.

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.

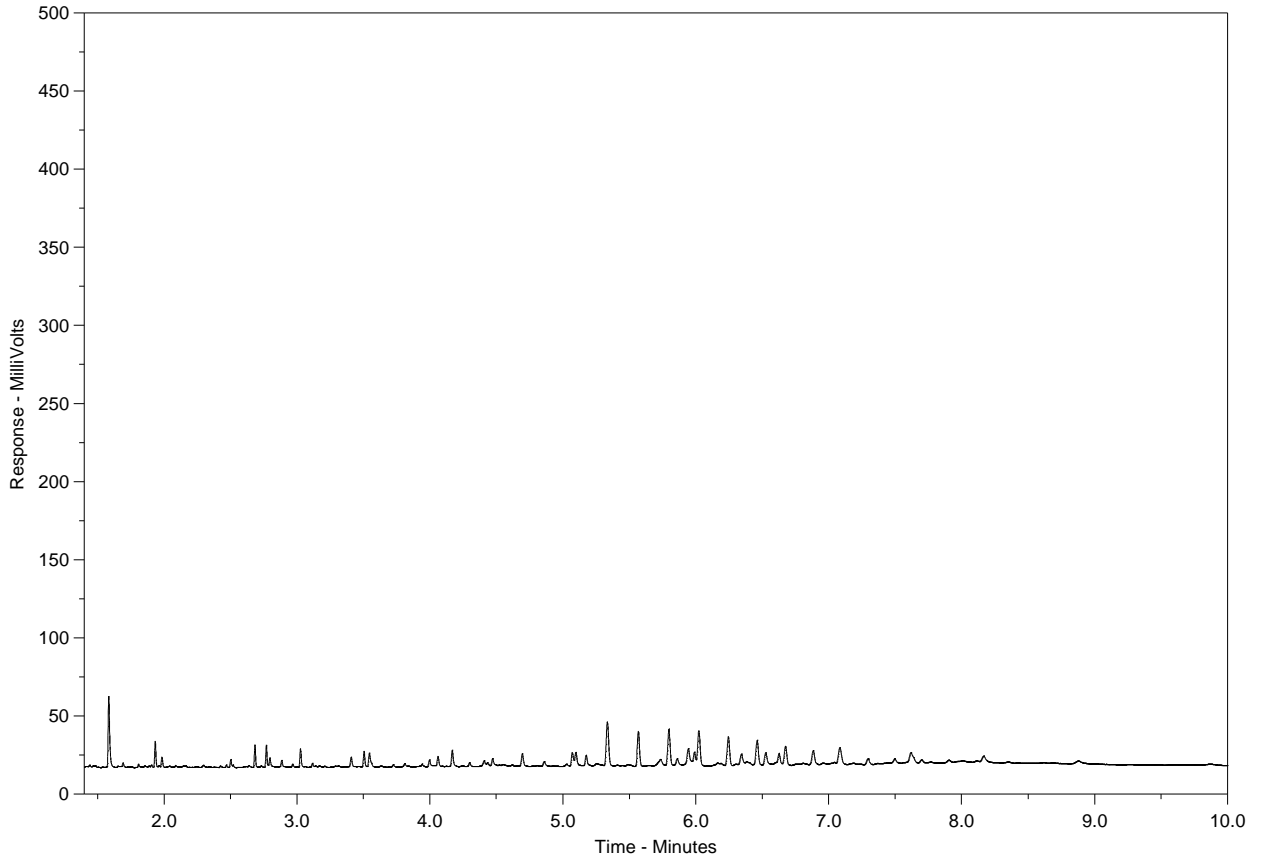
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1437205-3
 Client Sample ID: MCF12



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

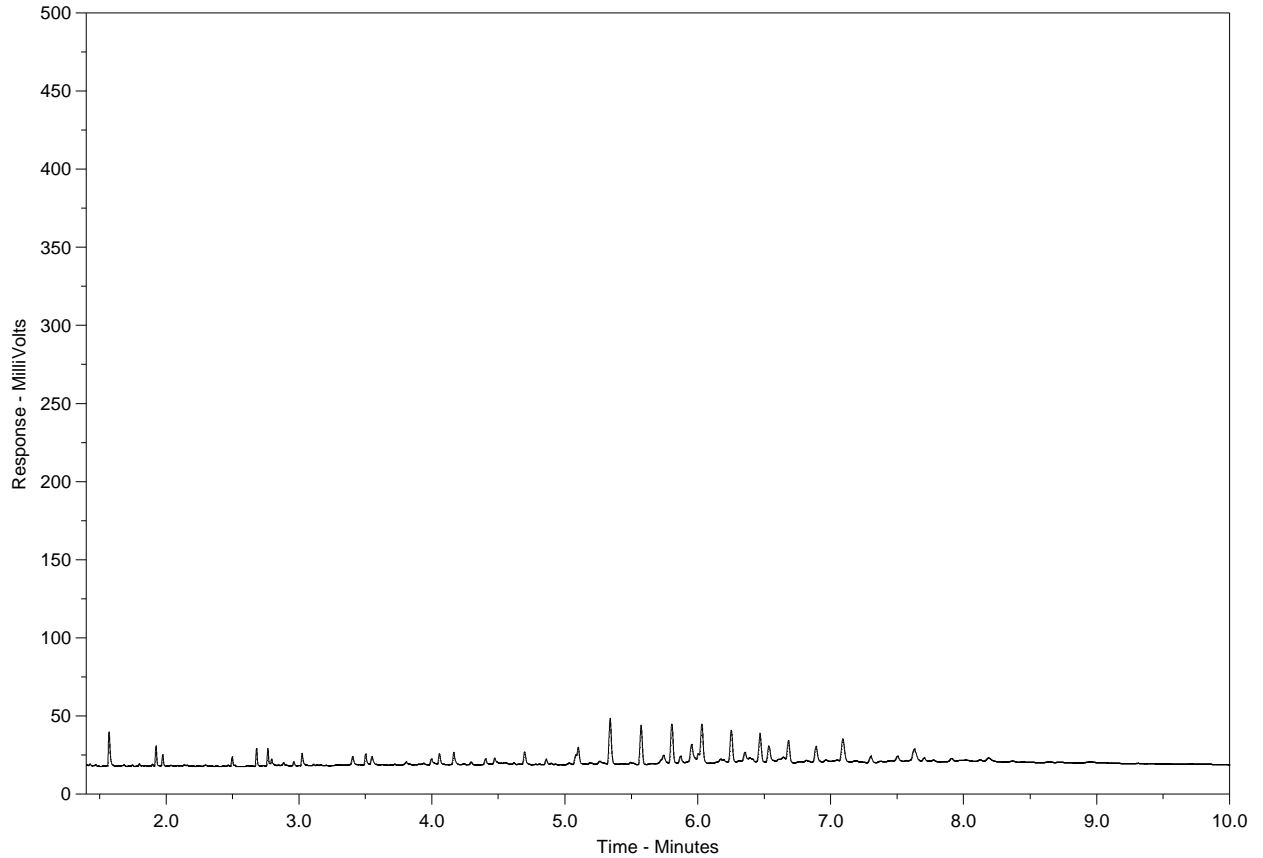
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1437205-4
Client Sample ID: MCF13



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



L1437205-COFC

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To: Golder Associates Ltd
Report Format / Distribution: Standard [checked] Other (specify):
Service Request: Regular (Standard Turnaround Times - Business Days) [checked]

Invoice To: Same as Report? (circle) Yes or No (if No, provide details)
Client / Project Information: Job #: 11-1422-0046 Phase 4400
Analysis Request: (Indicate Filtered or Preserved, F/P)

Table with columns: Sample #, Sample Identification, Date, Time, Sample Type, PAH, LEPA/HEPH, Total Metals (CCME), TOC, Ammonia, nitrate, nitrite, Total Nitrogen, Total Phosphorus, Dissolved Orthophosphate, Chloride, Fluoride, Sulfate, TDS and TSS, Acidity (alkalinity and hardness), pH, turbidity, Conductivity, Colour, Number of Containers.

Short Holding Time
Rush Processing

Special Ins: 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use) / SHIPMENT RECEPTION (lab use only) / SHIPMENT VERIFICATION (lab use only)
Released by: [Signature] Date: 27 Mar/14 Time: 19:20
Received by: [Signature] Date: Mar 27 Time: 19:20 Temperature: 4.5/5.9 °C



GOLDER ASSOCIATES LTD.
ATTN: Arman Kaltayev
3795 Carey Road
Victoria BC V8Z 6T8

Date Received: 25-MAR-14
Report Date: 23-APR-14 10:47 (MT)
Version: FINAL REV. 2

Client Phone: 250-881-7372

Certificate of Analysis

Lab Work Order #: L1436333
Project P.O. #: NOT SUBMITTED
Job Reference: 1114220046
C of C Numbers: 10-368664
Legal Site Desc:

Comments:

23-APR-2014 Ortho-phosphate data has been added for all samples.

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1436333-1 Water 25-MAR-14 11:24 MCF 1	L1436333-2 Water 25-MAR-14 12:32 MCF 3	L1436333-3 Water 25-MAR-14 13:00 MCF 4	L1436333-4 Water 25-MAR-14 13:22 MCF 5	L1436333-5 Water 25-MAR-14 13:56 MCF 9
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	6.8	<5.0	<5.0	<5.0	9.6
	Conductivity (uS/cm)	9.1	13.0	20.4	17.3	17.8
	Hardness (as CaCO3) (mg/L)		3.53	6.63	5.15	5.11
	Hardness (as CaCO3)	2.67				
	pH (pH)	6.62	7.03	7.22	6.88	7.24
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	4.5
	Total Dissolved Solids (mg/L)	<10	21	26	21	22
	Turbidity (NTU)	1.17	0.61	0.30	<0.10	1.46
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.9	1.8	1.7	2.4	1.7
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	2.9	4.4	3.8	5.4
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	0.57	0.68	0.67	0.64
	Fluoride (F) (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Nitrate (as N) (mg/L)	0.0907	0.0705	0.0090	0.228	0.0427
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.069	0.051	0.050	<0.050	0.094
	Total Nitrogen (mg/L)	0.133	0.101	<0.050	0.244	0.099
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010 ^{PEHT}	<0.0010 ^{PEHT}	<0.0010 ^{PEHT}	<0.0010 ^{PEHT}	<0.0010 ^{PEHT}
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	0.0025
	Phosphorus (P)-Total (mg/L)	0.0030	0.0028	0.0024	<0.0020	0.0085
	Sulfate (SO4) (mg/L)	0.93	1.67	2.95	1.55	1.68
	Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.83	0.89	1.29	0.52
Total Metals	Aluminum (Al)-Total (mg/L)	0.169	0.0750	0.0515	0.0307	0.176
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Total (mg/L)	<0.000010	0.000012	0.000015	<0.000010	0.000059
	Calcium (Ca)-Total (mg/L)	0.90	1.17	2.36	1.79	1.80
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Total (mg/L)	0.073	0.039	<0.030	<0.030	0.130
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1436333-6 Water 25-MAR-14 14:19 MCF 8	L1436333-7 Water 25-MAR-14 14:49 MCF 10	L1436333-8 Water 25-MAR-14 15:15 MCF 11	
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	18.2	<5.0	<5.0	
	Conductivity (uS/cm)	17.3	27.5	10.6	
	Hardness (as CaCO3) (mg/L)	5.15	7.59	2.52	
	Hardness (as CaCO3)				
	pH (pH)	6.89	7.20	6.64	
	Total Suspended Solids (mg/L)	39.1	5.5	<3.0	
	Total Dissolved Solids (mg/L)	39	32	20	
	Turbidity (NTU)	58.5	0.93	0.36	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.6	1.9	2.1	
	Alkalinity, Total (as CaCO3) (mg/L)	2.9	6.3	<2.0	
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	0.62	0.67	0.65	
	Fluoride (F) (mg/L)	0.028	0.023	<0.020	
	Nitrate (as N) (mg/L)	0.0341	0.0580	0.293	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	
	Total Kjeldahl Nitrogen (mg/L)	0.429	0.062	0.086	
	Total Nitrogen (mg/L)	0.418	0.089	0.327	
	Orthophosphate-Dissolved (as P) (mg/L)	0.0018 ^{PEHT}	<0.0010 ^{PEHT}	<0.0010 ^{PEHT}	
	Phosphorus (P)-Total Dissolved (mg/L)	0.0067	0.0052	<0.0020	
	Phosphorus (P)-Total (mg/L)	0.124	0.0088	0.0030	
	Sulfate (SO4) (mg/L)	1.77	5.23	1.19	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	9.28	0.83	1.40	
Total Metals	Aluminum (Al)-Total (mg/L)	3.27	0.131	0.0954	
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Total (mg/L)	0.00267	<0.00050	<0.00050	
	Barium (Ba)-Total (mg/L)	<0.020	<0.020	<0.020	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Total (mg/L)	0.000071	0.000168	0.000032	
	Calcium (Ca)-Total (mg/L)	2.04	2.63	0.79	
	Chromium (Cr)-Total (mg/L)	0.0032	<0.0010	<0.0010	
	Cobalt (Co)-Total (mg/L)	0.00101	<0.00030	<0.00030	
	Copper (Cu)-Total (mg/L)	0.0058	<0.0010	<0.0010	
	Iron (Fe)-Total (mg/L)	2.64	0.108	<0.030	
	Lead (Pb)-Total (mg/L)	0.00224	<0.00050	<0.00050	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1436333-1 Water 25-MAR-14 11:24 MCF 1	L1436333-2 Water 25-MAR-14 12:32 MCF 3	L1436333-3 Water 25-MAR-14 13:00 MCF 4	L1436333-4 Water 25-MAR-14 13:22 MCF 5	L1436333-5 Water 25-MAR-14 13:56 MCF 9
Grouping	Analyte					
WATER						
Total Metals	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	0.13	0.19	0.25	0.22	0.23
	Manganese (Mn)-Total (mg/L)	0.00121	0.00116	0.00070	0.00645	0.00321
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.00024	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0105
Dissolved Metals	Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	LAB
	Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)	0.0741	0.0227	0.0237	0.0224	0.0330
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010	0.000011	0.000017	0.000011	0.000045
	Calcium (Ca)-Dissolved (mg/L)	0.88	1.12	2.27	1.71	1.71
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	0.11	0.18	0.23	0.21	0.21
	Manganese (Mn)-Dissolved (mg/L)	0.00040	0.00034	<0.00030	0.00643	0.00049
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1436333-6 Water 25-MAR-14 14:19 MCF 8	L1436333-7 Water 25-MAR-14 14:49 MCF 10	L1436333-8 Water 25-MAR-14 15:15 MCF 11	
Grouping	Analyte				
WATER					
Total Metals	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Total (mg/L)	0.75	0.34	0.16	
	Manganese (Mn)-Total (mg/L)	0.0348	0.00312	0.00331	
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Total (mg/L)	0.0029	<0.0010	<0.0010	
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	
	Selenium (Se)-Total (mg/L)	0.00013	0.00013	<0.00010	
	Silver (Ag)-Total (mg/L)	0.000023	<0.000020	<0.000020	
	Sodium (Na)-Total (mg/L)	<2.0	2.1	<2.0	
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Titanium (Ti)-Total (mg/L)	0.083	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Vanadium (V)-Total (mg/L)	0.0046	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	0.0180	0.0153	0.0052	
Dissolved Metals	Dissolved Mercury Filtration Location	LAB	LAB	LAB	
	Dissolved Metals Filtration Location	LAB	LAB	LAB	
	Aluminum (Al)-Dissolved (mg/L)	0.196	0.0088	0.0566	
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	
	Barium (Ba)-Dissolved (mg/L)	<0.020	<0.020	<0.020	
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)	0.000024	0.000133	0.000032	
	Calcium (Ca)-Dissolved (mg/L)	1.68	2.53	0.76	
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	0.0010	
	Iron (Fe)-Dissolved (mg/L)	0.142	<0.030	<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Dissolved (mg/L)	0.23	0.31	0.15	
	Manganese (Mn)-Dissolved (mg/L)	0.00863	0.00036	0.00243	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1436333-1 Water 25-MAR-14 11:24 MCF 1	L1436333-2 Water 25-MAR-14 12:32 MCF 3	L1436333-3 Water 25-MAR-14 13:00 MCF 4	L1436333-4 Water 25-MAR-14 13:22 MCF 5	L1436333-5 Water 25-MAR-14 13:56 MCF 9
Grouping	Analyte					
WATER						
Dissolved Metals	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00022	<0.00020	<0.00020	<0.00020	<0.00020
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0096
Hydrocarbons	EPH10-19 (mg/L)	<0.25				<0.25
	EPH19-32 (mg/L)	<0.25				<0.25
	LEPH (mg/L)	<0.25				<0.25
	HEPH (mg/L)	<0.25				<0.25
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010				<0.000010
	Acenaphthylene (mg/L)	<0.000010				<0.000010
	Acridine (mg/L)	<0.000010				<0.000010
	Anthracene (mg/L)	<0.000010				<0.000010
	Benz(a)anthracene (mg/L)	<0.000010				<0.000010
	Benzo(a)pyrene (mg/L)	<0.000010				<0.000010
	Benzo(b)fluoranthene (mg/L)	<0.000010				<0.000010
	Benzo(g,h,i)perylene (mg/L)	<0.000010				<0.000010
	Benzo(k)fluoranthene (mg/L)	<0.000010				<0.000010
	Chrysene (mg/L)	<0.000010				<0.000010
	Dibenz(a,h)anthracene (mg/L)	<0.000010				<0.000010
	Fluoranthene (mg/L)	<0.000010				<0.000010
	Fluorene (mg/L)	<0.000010				<0.000010
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010				<0.000010
	Naphthalene (mg/L)	<0.000050				<0.000050
	Phenanthrene (mg/L)	<0.000020				<0.000020
	Pyrene (mg/L)	<0.000010				<0.000010
	Quinoline (mg/L)	<0.000010				<0.000010
	Surrogate: Acenaphthene d10 (%)	95.8				94.2
	Surrogate: Acridine d9 (%)	87.0				97.2
Surrogate: Chrysene d12 (%)	102.9				99.8	
Surrogate: Naphthalene d8 (%)	96.4				93.4	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1436333-6 Water 25-MAR-14 14:19 MCF 8	L1436333-7 Water 25-MAR-14 14:49 MCF 10	L1436333-8 Water 25-MAR-14 15:15 MCF 11		
Grouping	Analyte				
WATER					
Dissolved Metals	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	
	Selenium (Se)-Dissolved (mg/L)	<0.00010	0.00012	<0.00010	
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	
	Sodium (Na)-Dissolved (mg/L)	<2.0	2.1	<2.0	
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	
	Uranium (U)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	0.0135	0.0057	
Hydrocarbons	EPH10-19 (mg/L)				
	EPH19-32 (mg/L)				
	LEPH (mg/L)				
	HEPH (mg/L)				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)				
	Acenaphthylene (mg/L)				
	Acridine (mg/L)				
	Anthracene (mg/L)				
	Benz(a)anthracene (mg/L)				
	Benzo(a)pyrene (mg/L)				
	Benzo(b)fluoranthene (mg/L)				
	Benzo(g,h,i)perylene (mg/L)				
	Benzo(k)fluoranthene (mg/L)				
	Chrysene (mg/L)				
	Dibenz(a,h)anthracene (mg/L)				
	Fluoranthene (mg/L)				
	Fluorene (mg/L)				
	Indeno(1,2,3-c,d)pyrene (mg/L)				
	Naphthalene (mg/L)				
	Phenanthrene (mg/L)				
	Pyrene (mg/L)				
	Quinoline (mg/L)				
	Surrogate: Acenaphthene d10 (%)				
	Surrogate: Acridine d9 (%)				
	Surrogate: Chrysene d12 (%)				
	Surrogate: Naphthalene d8 (%)				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	Description	Sampled Date	Sampled Time	Client ID
	L1436333-1	Water	25-MAR-14	11:24	MCF 1
	L1436333-2	Water	25-MAR-14	12:32	MCF 3
	L1436333-3	Water	25-MAR-14	13:00	MCF 4
	L1436333-4	Water	25-MAR-14	13:22	MCF 5
	L1436333-5	Water	25-MAR-14	13:56	MCF 9
Grouping	Analyte				
WATER					
Polycyclic Aromatic Hydrocarbons	Surrogate: Phenanthrene d10 (%)				
	95.7				98.6

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1436333-6	L1436333-7	L1436333-8		
Description	Water	Water	Water	Water		
Sampled Date	25-MAR-14	25-MAR-14	25-MAR-14	25-MAR-14		
Sampled Time	14:19	14:49	14:49	15:15		
Client ID	MCF 8	MCF 10	MCF 10	MCF 11		
Grouping	Analyte					
WATER						
Polycyclic Aromatic Hydrocarbons	Surrogate: Phenanthrene d10 (%)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Samples Listed:

Sample Number	Client Sample ID	Qualifier	Description
L1436333-7	MCF 10	WSMD	Water sample(s) for dissolved mercury analysis was not submitted in glass container with HCl preservative. Results may be biased low.
L1436333-8	MCF 11	WSMD	Water sample(s) for dissolved mercury analysis was not submitted in glass container with HCl preservative. Results may be biased low.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bromide (Br)	DLM	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Method Blank	Arsenic (As)-Total	MB-LOR	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Method Blank	Chromium (Cr)-Total	MB-LOR	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Method Blank	Lead (Pb)-Total	MB-LOR	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Phosphorus (P)-Total Dissolved	MS-B	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Total	MS-B	L1436333-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Total	MS-B	L1436333-1, -2, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
		This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.	
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
		This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength

Reference Information

This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EPH-SF-FID-VA Water EPH in Water by Tumbler and GCFID BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Water by GC/FID", v2.1, July 1999. Whole water samples are extracted with DCM prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in water. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 20, 1999).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

N-T-COL-VA Water Total Nitrogen in water by Colour USGS - 03 - 4174 / NEMI 5735

This analysis is carried out using procedures adapted from the US Geological Survey (USGS) Method 03-4174 "Evaluation of Alkaline persulfate digestion as an alternative to kjeldahl digestion for determination of total and dissolved nitrogen and phosphorus in water." and National Environmental Methods Index Nemi method 5735. Nitrate via manual vanadium (III) reduction.

Reference Information

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
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-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
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.			
PAH-LL-SF-MS-VA	Water	PAH-Low Level in Water by GCMS	EPA 3510, 8270
The entire water sample is extracted with dichloromethane, prior to analysis by gas chromatography with mass spectrometric detection (GC/MS). Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.			
PAH-SURR-MS-VA	Water	PAH Surrogates for Waters	EPA 3510, 8270
Analysed as per the corresponding PAH test method. Known quantities of surrogate compounds are added prior to analysis to each sample to demonstrate analytical accuracy.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.			

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-368664

Reference Information

GLOSSARY OF REPORT TERMS

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

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 of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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: L1436333

Report Date: 23-APR-14

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Client: GOLDER ASSOCIATES LTD.
 3795 Carey Road
 Victoria BC V8Z 6T8
 Contact: Arman Kaltayev

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R2811612							
WG1850023-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			105.9		%		85-115	27-MAR-14
WG1850023-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.2		%		85-115	27-MAR-14
WG1850023-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.4		%		85-115	27-MAR-14
WG1850023-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			106.0		%		85-115	27-MAR-14
WG1850023-14 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			107.4		%		85-115	27-MAR-14
WG1850023-9 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			103.6		%		85-115	27-MAR-14
WG1850023-37 DUP		L1436333-5						
Acidity (as CaCO3)		1.7	1.7		mg/L	1.3	20	27-MAR-14
ALK-COL-VA		Water						
Batch	R2811880							
WG1850561-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO3)			97.4		%		85-115	27-MAR-14
WG1850561-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO3)			104.2		%		85-115	27-MAR-14
WG1850561-8 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO3)			101.2		%		85-115	27-MAR-14
WG1850561-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-10 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-12 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-14 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-16 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
WG1850561-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	27-MAR-14
ANIONS-BR-IC-VA		Water						



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ANIONS-BR-IC-VA								
	Water							
Batch	R2811712							
WG1849482-9	DUP	L1436333-2						
Bromide (Br)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	26-MAR-14
WG1849482-15	LCS							
Bromide (Br)			105.8		%		85-115	26-MAR-14
WG1849482-2	LCS							
Bromide (Br)			102.1		%		85-115	26-MAR-14
WG1849482-1	MB							
Bromide (Br)			<0.050		mg/L		0.05	26-MAR-14
WG1849482-10	MB							
Bromide (Br)			<0.050		mg/L		0.05	26-MAR-14
WG1849482-13	MB							
Bromide (Br)			<0.050		mg/L		0.05	26-MAR-14
WG1849482-4	MB							
Bromide (Br)			<0.050		mg/L		0.05	26-MAR-14
WG1849482-7	MB							
Bromide (Br)			<0.050		mg/L		0.05	26-MAR-14
WG1849482-11	MS	L1436121-8						
Bromide (Br)			104.0		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Bromide (Br)			110.4		%		75-125	26-MAR-14
ANIONS-CL-IC-VA								
	Water							
Batch	R2811712							
WG1849482-9	DUP	L1436333-2						
Chloride (Cl)		0.57	0.57		mg/L	0.3	20	26-MAR-14
WG1849482-15	LCS							
Chloride (Cl)			102.4		%		90-110	26-MAR-14
WG1849482-2	LCS							
Chloride (Cl)			102.2		%		90-110	26-MAR-14
WG1849482-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-10	MB							
Chloride (Cl)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-13	MB							
Chloride (Cl)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-4	MB							
Chloride (Cl)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-7	MB							
Chloride (Cl)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-11	MS	L1436121-8						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-VA								
Water								
Batch	R2811712							
WG1849482-11	MS	L1436121-8						
Chloride (Cl)			101.4		%		75-125	26-MAR-14
WG1849482-14	MS	L1436432-2						
Chloride (Cl)			101.1		%		75-125	26-MAR-14
WG1849482-5	MS	L1435966-2						
Chloride (Cl)			101.6		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Chloride (Cl)			99.9		%		75-125	26-MAR-14
ANIONS-F-IC-VA								
Water								
Batch	R2811712							
WG1849482-9	DUP	L1436333-2						
Fluoride (F)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	26-MAR-14
WG1849482-15	LCS							
Fluoride (F)			108.8		%		90-110	26-MAR-14
WG1849482-2	LCS							
Fluoride (F)			108.5		%		90-110	26-MAR-14
WG1849482-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAR-14
WG1849482-10	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAR-14
WG1849482-13	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAR-14
WG1849482-4	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAR-14
WG1849482-7	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-MAR-14
WG1849482-11	MS	L1436121-8						
Fluoride (F)			111.4		%		75-125	26-MAR-14
WG1849482-14	MS	L1436432-2						
Fluoride (F)			110.5		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Fluoride (F)			108.0		%		75-125	26-MAR-14
ANIONS-NO2-IC-VA								
Water								
Batch	R2811712							
WG1849482-9	DUP	L1436333-2						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	26-MAR-14
WG1849482-15	LCS							
Nitrite (as N)			102.0		%		90-110	26-MAR-14



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ANIONS-NO2-IC-VA								
	Water							
Batch	R2811712							
WG1849482-2	LCS							
Nitrite (as N)			101.6		%		90-110	26-MAR-14
WG1849482-1	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	26-MAR-14
WG1849482-10	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	26-MAR-14
WG1849482-13	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	26-MAR-14
WG1849482-4	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	26-MAR-14
WG1849482-7	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	26-MAR-14
WG1849482-11	MS	L1436121-8						
Nitrite (as N)			100.3		%		75-125	26-MAR-14
WG1849482-14	MS	L1436432-2						
Nitrite (as N)			99.0		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Nitrite (as N)			100.2		%		75-125	26-MAR-14
ANIONS-NO3-IC-VA								
	Water							
Batch	R2811712							
WG1849482-9	DUP	L1436333-2						
Nitrate (as N)		0.0705	0.0711		mg/L	0.9	20	26-MAR-14
WG1849482-15	LCS							
Nitrate (as N)			102.3		%		90-110	26-MAR-14
WG1849482-2	LCS							
Nitrate (as N)			102.0		%		90-110	26-MAR-14
WG1849482-1	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAR-14
WG1849482-10	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAR-14
WG1849482-13	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAR-14
WG1849482-4	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAR-14
WG1849482-7	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	26-MAR-14
WG1849482-11	MS	L1436121-8						
Nitrate (as N)			98.9		%		75-125	26-MAR-14
WG1849482-14	MS	L1436432-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-VA								
Batch R2811712								
WG1849482-14	MS	L1436432-2						
Nitrate (as N)			97.5		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Nitrate (as N)			100.5		%		75-125	26-MAR-14
ANIONS-SO4-IC-VA								
Batch R2811712								
WG1849482-9	DUP	L1436333-2						
Sulfate (SO4)		1.67	1.75		mg/L	4.8	20	26-MAR-14
WG1849482-15	LCS							
Sulfate (SO4)			103.0		%		90-110	26-MAR-14
WG1849482-2	LCS							
Sulfate (SO4)			102.7		%		90-110	26-MAR-14
WG1849482-1	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-10	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-13	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-4	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-7	MB							
Sulfate (SO4)			<0.50		mg/L		0.5	26-MAR-14
WG1849482-11	MS	L1436121-8						
Sulfate (SO4)			101.6		%		75-125	26-MAR-14
WG1849482-14	MS	L1436432-2						
Sulfate (SO4)			101.6		%		75-125	26-MAR-14
WG1849482-5	MS	L1435966-2						
Sulfate (SO4)			100.4		%		75-125	26-MAR-14
WG1849482-8	MS	L1436096-10						
Sulfate (SO4)			92.8		%		75-125	26-MAR-14
CARBONS-TOC-VA								
Batch R2812798								
WG1850802-7	DUP	L1436333-8						
Total Organic Carbon		1.40	1.26		mg/L	11	20	28-MAR-14
WG1850802-1	LCS							
Total Organic Carbon			97.7		%		80-120	28-MAR-14
WG1850802-10	LCS							
Total Organic Carbon			97.5		%		80-120	28-MAR-14

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
	Water							
Batch	R2812798							
WG1850802-15	LCS							
Total Organic Carbon			103.4		%		80-120	28-MAR-14
WG1850802-18	LCS							
Total Organic Carbon			98.8		%		80-120	28-MAR-14
WG1850802-5	LCS							
Total Organic Carbon			99.0		%		80-120	28-MAR-14
WG1850802-14	MB							
Total Organic Carbon			<0.50		mg/L		0.5	28-MAR-14
WG1850802-17	MB							
Total Organic Carbon			<0.50		mg/L		0.5	28-MAR-14
WG1850802-4	MB							
Total Organic Carbon			<0.50		mg/L		0.5	28-MAR-14
WG1850802-9	MB							
Total Organic Carbon			<0.50		mg/L		0.5	28-MAR-14
WG1850802-13	MS	L1436273-2						
Total Organic Carbon			104.2		%		70-130	28-MAR-14
WG1850802-20	MS	L1436273-14						
Total Organic Carbon			103.1		%		70-130	28-MAR-14
WG1850802-8	MS	L1436396-4						
Total Organic Carbon			94.7		%		70-130	28-MAR-14
Batch	R2813452							
WG1851453-10	DUP	L1436333-3						
Total Organic Carbon		1.29	1.14		mg/L	12	20	30-MAR-14
WG1851453-1	LCS							
Total Organic Carbon			97.5		%		80-120	30-MAR-14
WG1851453-13	LCS							
Total Organic Carbon			98.8		%		80-120	30-MAR-14
WG1851453-5	LCS							
Total Organic Carbon			100.4		%		80-120	30-MAR-14
WG1851453-9	LCS							
Total Organic Carbon			99.5		%		80-120	30-MAR-14
WG1851453-12	MB							
Total Organic Carbon			<0.50		mg/L		0.5	30-MAR-14
WG1851453-4	MB							
Total Organic Carbon			<0.50		mg/L		0.5	30-MAR-14
WG1851453-8	MB							
Total Organic Carbon			<0.50		mg/L		0.5	30-MAR-14
WG1851453-11	MS	L1434748-1						
Total Organic Carbon			99.7		%		70-130	30-MAR-14

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
	Water							
Batch	R2813452							
WG1851453-3 MS		L1436627-2						
Total Organic Carbon			91.8		%		70-130	30-MAR-14
WG1851453-7 MS		L1435259-2						
Total Organic Carbon			109.1		%		70-130	30-MAR-14
COLOUR-TRUE-VA								
	Water							
Batch	R2811828							
WG1850576-2 CRM		VA-COL-C-25						
Colour, True			99.2		%		85-115	28-MAR-14
WG1850576-5 CRM		VA-COL-C-25						
Colour, True			97.9		%		85-115	28-MAR-14
WG1850576-8 CRM		VA-COL-C-25						
Colour, True			97.6		%		85-115	28-MAR-14
WG1850576-3 DUP		L1436333-1						
Colour, True		6.8	7.3		CU	6.2	20	28-MAR-14
WG1850576-1 MB								
Colour, True			<5.0		CU		5	28-MAR-14
WG1850576-4 MB								
Colour, True			<5.0		CU		5	28-MAR-14
WG1850576-7 MB								
Colour, True			<5.0		CU		5	28-MAR-14
EC-PCT-VA								
	Water							
Batch	R2811612							
WG1850023-17 CRM		VA-EC-PCT-CONTROL						
Conductivity			99.5		%		90-110	27-MAR-14
WG1850023-18 CRM		VA-EC-PCT-CONTROL						
Conductivity			97.8		%		90-110	27-MAR-14
WG1850023-19 CRM		VA-EC-PCT-CONTROL						
Conductivity			98.8		%		90-110	27-MAR-14
WG1850023-20 CRM		VA-EC-PCT-CONTROL						
Conductivity			99.4		%		90-110	27-MAR-14
WG1850023-21 CRM		VA-EC-PCT-CONTROL						
Conductivity			99.3		%		90-110	27-MAR-14
WG1850023-22 CRM		VA-EC-PCT-CONTROL						
Conductivity			99.8		%		90-110	27-MAR-14
WG1850023-37 DUP		L1436333-5						
Conductivity		17.8	17.8		uS/cm	0.1	10	27-MAR-14
WG1850023-1 MB								
Conductivity			<2.0		uS/cm		2	27-MAR-14



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EC-PCT-VA		Water						
Batch	R2811612							
WG1850023-2	MB							
Conductivity			<2.0		uS/cm		2	27-MAR-14
WG1850023-3	MB							
Conductivity			<2.0		uS/cm		2	27-MAR-14
WG1850023-4	MB							
Conductivity			<2.0		uS/cm		2	27-MAR-14
WG1850023-5	MB							
Conductivity			<2.0		uS/cm		2	27-MAR-14
WG1850023-6	MB							
Conductivity			<2.0		uS/cm		2	27-MAR-14
EPH-SF-FID-VA		Water						
Batch	R2813544							
WG1852095-1	MB							
EPH10-19			<0.25		mg/L		0.25	01-APR-14
EPH19-32			<0.25		mg/L		0.25	01-APR-14
Batch	R2814041							
WG1852095-3	MB							
EPH10-19			<0.25		mg/L		0.25	02-APR-14
EPH19-32			<0.25		mg/L		0.25	02-APR-14
HG-DIS-LOW-CVAFS-VA		Water						
Batch	R2811762							
WG1850278-2	LCS							
Mercury (Hg)-Dissolved			99.1		%		80-120	27-MAR-14
Batch	R2811810							
WG1850278-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	27-MAR-14
WG1850278-4	MS	L1434921-1						
Mercury (Hg)-Dissolved			89.4		%		70-130	27-MAR-14
Batch	R2812866							
WG1851188-3	LCS							
Mercury (Hg)-Dissolved			98.7		%		80-120	30-MAR-14
WG1851188-1	MB							
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	30-MAR-14
Batch	R2813571							
WG1851188-5	MS	L1435746-2						
Mercury (Hg)-Dissolved			108.0		%		70-130	31-MAR-14



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HG-TOT-LOW-CVAFS-VA								
Water								
Batch	R2813571							
WG1851986-5	DUP	L1436333-8						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	31-MAR-14
WG1851986-2	LCS							
Mercury (Hg)-Total			95.9		%		80-120	31-MAR-14
WG1851986-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	31-MAR-14
WG1851986-6	MS	L1436564-1						
Mercury (Hg)-Total			103.5		%		70-130	31-MAR-14
MET-D-CCMS-VA								
Water								
Batch	R2812166							
WG1850373-2	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			96.1		%		80-120	27-MAR-14
Antimony (Sb)-Dissolved			95.6		%		80-120	27-MAR-14
Arsenic (As)-Dissolved			94.5		%		80-120	27-MAR-14
Beryllium (Be)-Dissolved			95.0		%		80-120	27-MAR-14
Cadmium (Cd)-Dissolved			95.1		%		80-120	27-MAR-14
Chromium (Cr)-Dissolved			95.4		%		80-120	27-MAR-14
Cobalt (Co)-Dissolved			94.1		%		80-120	27-MAR-14
Copper (Cu)-Dissolved			90.9		%		80-120	27-MAR-14
Lead (Pb)-Dissolved			94.9		%		80-120	27-MAR-14
Lithium (Li)-Dissolved			95.6		%		80-120	27-MAR-14
Manganese (Mn)-Dissolved			97.3		%		80-120	27-MAR-14
Molybdenum (Mo)-Dissolved			94.0		%		80-120	27-MAR-14
Nickel (Ni)-Dissolved			93.3		%		80-120	27-MAR-14
Selenium (Se)-Dissolved			97.2		%		80-120	27-MAR-14
Silver (Ag)-Dissolved			97.0		%		80-120	27-MAR-14
Thallium (Tl)-Dissolved			95.5		%		80-120	27-MAR-14
Tin (Sn)-Dissolved			95.2		%		80-120	27-MAR-14
Uranium (U)-Dissolved			97.8		%		80-120	27-MAR-14
Vanadium (V)-Dissolved			97.1		%		80-120	27-MAR-14
WG1850373-1	MB							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	27-MAR-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	27-MAR-14



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MET-D-CCMS-VA								
	Water							
Batch	R2812166							
WG1850373-1	MB							
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	27-MAR-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	27-MAR-14
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	27-MAR-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	27-MAR-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	27-MAR-14
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	27-MAR-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	27-MAR-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	27-MAR-14
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	27-MAR-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	27-MAR-14
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	27-MAR-14
Batch	R2813318							
WG1851188-2	CRM	VA-HIGH-WATRM						
Aluminum (Al)-Dissolved			103.4		%		80-120	29-MAR-14
Antimony (Sb)-Dissolved			96.2		%		80-120	29-MAR-14
Arsenic (As)-Dissolved			98.9		%		80-120	29-MAR-14
Beryllium (Be)-Dissolved			96.8		%		80-120	29-MAR-14
Cadmium (Cd)-Dissolved			100.5		%		80-120	29-MAR-14
Chromium (Cr)-Dissolved			101.0		%		80-120	29-MAR-14
Cobalt (Co)-Dissolved			98.1		%		80-120	29-MAR-14
Copper (Cu)-Dissolved			97.8		%		80-120	29-MAR-14
Lead (Pb)-Dissolved			97.5		%		80-120	29-MAR-14
Lithium (Li)-Dissolved			95.9		%		80-120	29-MAR-14
Manganese (Mn)-Dissolved			101.4		%		80-120	29-MAR-14
Molybdenum (Mo)-Dissolved			99.0		%		80-120	29-MAR-14
Nickel (Ni)-Dissolved			98.3		%		80-120	29-MAR-14
Selenium (Se)-Dissolved			98.8		%		80-120	29-MAR-14
Silver (Ag)-Dissolved			100.0		%		80-120	29-MAR-14
Thallium (Tl)-Dissolved			93.2		%		80-120	29-MAR-14
Tin (Sn)-Dissolved			98.6		%		80-120	29-MAR-14
Uranium (U)-Dissolved			99.2		%		80-120	29-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
	Water							
Batch	R2813318							
WG1851188-2	CRM	VA-HIGH-WATRM						
Vanadium (V)-Dissolved			101.5		%		80-120	29-MAR-14
WG1851188-1	MB							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	29-MAR-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	29-MAR-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	29-MAR-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	29-MAR-14
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	29-MAR-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	29-MAR-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	29-MAR-14
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	29-MAR-14
WG1850373-5	MS	L1436333-4						
Aluminum (Al)-Dissolved			95.4		%		70-130	29-MAR-14
Antimony (Sb)-Dissolved			101.8		%		70-130	29-MAR-14
Arsenic (As)-Dissolved			95.1		%		70-130	29-MAR-14
Beryllium (Be)-Dissolved			92.2		%		70-130	29-MAR-14
Cadmium (Cd)-Dissolved			98.2		%		70-130	29-MAR-14
Chromium (Cr)-Dissolved			97.7		%		70-130	29-MAR-14
Cobalt (Co)-Dissolved			98.4		%		70-130	29-MAR-14
Copper (Cu)-Dissolved			97.5		%		70-130	29-MAR-14
Lead (Pb)-Dissolved			97.3		%		70-130	29-MAR-14
Lithium (Li)-Dissolved			96.2		%		70-130	29-MAR-14
Manganese (Mn)-Dissolved			95.0		%		70-130	29-MAR-14
Molybdenum (Mo)-Dissolved			93.4		%		70-130	29-MAR-14
Nickel (Ni)-Dissolved			98.8		%		70-130	29-MAR-14



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MET-D-CCMS-VA								
	Water							
Batch	R2813318							
WG1850373-5 MS		L1436333-4						
Selenium (Se)-Dissolved			94.2		%		70-130	29-MAR-14
Silver (Ag)-Dissolved			99.5		%		70-130	29-MAR-14
Thallium (Tl)-Dissolved			97.7		%		70-130	29-MAR-14
Tin (Sn)-Dissolved			101.8		%		70-130	29-MAR-14
Uranium (U)-Dissolved			99.9		%		70-130	29-MAR-14
Vanadium (V)-Dissolved			95.5		%		70-130	29-MAR-14
MET-DIS-ICP-VA								
	Water							
Batch	R2812386							
WG1850373-2 CRM		VA-HIGH-WATRM						
Barium (Ba)-Dissolved			93.8		%		80-120	28-MAR-14
Boron (B)-Dissolved			97.7		%		80-120	28-MAR-14
Calcium (Ca)-Dissolved			100.8		%		80-120	28-MAR-14
Iron (Fe)-Dissolved			95.9		%		80-120	28-MAR-14
Magnesium (Mg)-Dissolved			100.7		%		80-120	28-MAR-14
Potassium (K)-Dissolved			96.8		%		80-120	28-MAR-14
Sodium (Na)-Dissolved			99.3		%		80-120	28-MAR-14
Titanium (Ti)-Dissolved			99.8		%		80-120	28-MAR-14
Zinc (Zn)-Dissolved			94.4		%		80-120	28-MAR-14
WG1850373-1 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	28-MAR-14
Boron (B)-Dissolved			<0.10		mg/L		0.1	28-MAR-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	28-MAR-14
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	28-MAR-14
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	28-MAR-14
Potassium (K)-Dissolved			<2.0		mg/L		2	28-MAR-14
Sodium (Na)-Dissolved			<2.0		mg/L		2	28-MAR-14
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	28-MAR-14
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	28-MAR-14
Batch	R2813526							
WG1851188-2 CRM		VA-HIGH-WATRM						
Barium (Ba)-Dissolved			98.2		%		80-120	29-MAR-14
Boron (B)-Dissolved			98.6		%		80-120	29-MAR-14
Calcium (Ca)-Dissolved			102.3		%		80-120	29-MAR-14
Iron (Fe)-Dissolved			97.3		%		80-120	29-MAR-14
Magnesium (Mg)-Dissolved			102.1		%		80-120	29-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA								
	Water							
Batch	R2813526							
WG1851188-2 CRM		VA-HIGH-WATRM						
Potassium (K)-Dissolved			98.7		%		80-120	29-MAR-14
Sodium (Na)-Dissolved			99.5		%		80-120	29-MAR-14
Titanium (Ti)-Dissolved			103.9		%		80-120	29-MAR-14
Zinc (Zn)-Dissolved			98.2		%		80-120	29-MAR-14
WG1851188-1 MB								
Barium (Ba)-Dissolved			<0.010		mg/L		0.01	29-MAR-14
Boron (B)-Dissolved			<0.10		mg/L		0.1	29-MAR-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	29-MAR-14
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	29-MAR-14
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	29-MAR-14
Potassium (K)-Dissolved			<2.0		mg/L		2	29-MAR-14
Sodium (Na)-Dissolved			<2.0		mg/L		2	29-MAR-14
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	29-MAR-14
Zinc (Zn)-Dissolved			<0.0050		mg/L		0.005	29-MAR-14
WG1850373-5 MS		L1436333-4						
Boron (B)-Dissolved			93.7		%		70-130	29-MAR-14
Calcium (Ca)-Dissolved			101.0		%		70-130	29-MAR-14
Iron (Fe)-Dissolved			94.9		%		70-130	29-MAR-14
Magnesium (Mg)-Dissolved			97.8		%		70-130	29-MAR-14
Potassium (K)-Dissolved			99.0		%		70-130	29-MAR-14
Sodium (Na)-Dissolved			100.0		%		70-130	29-MAR-14
Titanium (Ti)-Dissolved			104.1		%		70-130	29-MAR-14
Zinc (Zn)-Dissolved			91.8		%		70-130	29-MAR-14
MET-T-CCMS-VA								
	Water							
Batch	R2812413							
WG1850605-3 CRM		VA-HIGH-WATRM						
Aluminum (Al)-Total			100.1		%		80-120	28-MAR-14
Antimony (Sb)-Total			98.9		%		80-120	28-MAR-14
Arsenic (As)-Total			97.6		%		80-120	28-MAR-14
Beryllium (Be)-Total			97.8		%		80-120	28-MAR-14
Cadmium (Cd)-Total			98.4		%		80-120	28-MAR-14
Chromium (Cr)-Total			97.8		%		80-120	28-MAR-14
Cobalt (Co)-Total			98.7		%		80-120	28-MAR-14
Copper (Cu)-Total			96.5		%		80-120	28-MAR-14
Lead (Pb)-Total			98.8		%		80-120	28-MAR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA								
	Water							
Batch	R2812413							
WG1850605-3	CRM	VA-HIGH-WATRM						
Lithium (Li)-Total			98.0		%		80-120	28-MAR-14
Manganese (Mn)-Total			98.5		%		80-120	28-MAR-14
Molybdenum (Mo)-Total			99.2		%		80-120	28-MAR-14
Nickel (Ni)-Total			99.4		%		80-120	28-MAR-14
Selenium (Se)-Total			100.1		%		80-120	28-MAR-14
Silver (Ag)-Total			99.6		%		80-120	28-MAR-14
Thallium (Tl)-Total			98.9		%		80-120	28-MAR-14
Tin (Sn)-Total			99.8		%		80-120	28-MAR-14
Uranium (U)-Total			100.4		%		80-120	28-MAR-14
Vanadium (V)-Total			99.6		%		80-120	28-MAR-14
WG1850605-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	28-MAR-14
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Copper (Cu)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Lithium (Li)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	28-MAR-14
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	28-MAR-14
Selenium (Se)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Silver (Ag)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Tin (Sn)-Total			<0.00010		mg/L		0.0001	28-MAR-14
Uranium (U)-Total			<0.000010		mg/L		0.00001	28-MAR-14
Vanadium (V)-Total			<0.0010		mg/L		0.001	28-MAR-14
Batch	R2813318							
WG1850605-2	DUP	L1436333-2						
Aluminum (Al)-Total		0.0750	0.0783		mg/L	4.3	20	29-MAR-14
Antimony (Sb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	29-MAR-14
Arsenic (As)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	29-MAR-14
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
Cadmium (Cd)-Total		0.000012	0.000013		mg/L	6.3	20	29-MAR-14
Chromium (Cr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
Cobalt (Co)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	29-MAR-14

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MET-T-CCMS-VA								
	Water							
Batch	R2813318							
WG1850605-2	DUP	L1436333-2						
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
Lead (Pb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	29-MAR-14
Lithium (Li)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	29-MAR-14
Manganese (Mn)-Total		0.00116	0.00113		mg/L	2.2	20	29-MAR-14
Molybdenum (Mo)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
Nickel (Ni)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
Selenium (Se)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	29-MAR-14
Silver (Ag)-Total		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	29-MAR-14
Thallium (Tl)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	29-MAR-14
Tin (Sn)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	29-MAR-14
Uranium (U)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	29-MAR-14
Vanadium (V)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	29-MAR-14
WG1850605-1	MB							
Arsenic (As)-Total			0.00028	MB-LOR	mg/L		0.0001	29-MAR-14
Chromium (Cr)-Total			0.00062	MB-LOR	mg/L		0.0001	29-MAR-14
Lead (Pb)-Total			0.000066	MB-LOR	mg/L		0.00005	29-MAR-14
Manganese (Mn)-Total			<0.000050		mg/L		0.00005	29-MAR-14
MET-TOT-ICP-VA								
	Water							
Batch	R2813526							
WG1850605-3	CRM	VA-HIGH-WATRM						
Barium (Ba)-Total			96.2		%		80-120	29-MAR-14
Boron (B)-Total			101.4		%		80-120	29-MAR-14
Calcium (Ca)-Total			100.8		%		80-120	29-MAR-14
Iron (Fe)-Total			95.4		%		80-120	29-MAR-14
Magnesium (Mg)-Total			102.8		%		80-120	29-MAR-14
Potassium (K)-Total			96.5		%		80-120	29-MAR-14
Sodium (Na)-Total			98.0		%		80-120	29-MAR-14
Titanium (Ti)-Total			100.8		%		80-120	29-MAR-14
Zinc (Zn)-Total			97.8		%		80-120	29-MAR-14
WG1850605-2	DUP	L1436333-2						
Barium (Ba)-Total		<0.020	<0.020	RPD-NA	mg/L	N/A	20	29-MAR-14
Boron (B)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	29-MAR-14
Calcium (Ca)-Total		1.17	1.17		mg/L	0.0	20	29-MAR-14
Iron (Fe)-Total		0.039	0.041		mg/L	3.0	20	29-MAR-14
Magnesium (Mg)-Total		0.19	0.19		mg/L	0.7	20	29-MAR-14



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MET-TOT-ICP-VA								
	Water							
Batch	R2813526							
WG1850605-2	DUP	L1436333-2						
Potassium (K)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	29-MAR-14
Sodium (Na)-Total		<2.0	<2.0	RPD-NA	mg/L	N/A	20	29-MAR-14
Titanium (Ti)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	29-MAR-14
Zinc (Zn)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	29-MAR-14
WG1850605-1	MB							
Barium (Ba)-Total			<0.010		mg/L		0.01	29-MAR-14
Boron (B)-Total			<0.10		mg/L		0.1	29-MAR-14
Calcium (Ca)-Total			<0.050		mg/L		0.05	29-MAR-14
Iron (Fe)-Total			<0.030		mg/L		0.03	29-MAR-14
Magnesium (Mg)-Total			<0.10		mg/L		0.1	29-MAR-14
Potassium (K)-Total			<2.0		mg/L		2	29-MAR-14
Sodium (Na)-Total			<2.0		mg/L		2	29-MAR-14
Titanium (Ti)-Total			<0.010		mg/L		0.01	29-MAR-14
Zinc (Zn)-Total			<0.0050		mg/L		0.005	29-MAR-14
Batch	R2813726							
WG1850605-4	MS	L1436115-1						
Boron (B)-Total			89.8		%		70-130	30-MAR-14
Calcium (Ca)-Total			N/A	MS-B	%		-	30-MAR-14
Iron (Fe)-Total			86.6		%		70-130	30-MAR-14
Magnesium (Mg)-Total			94.0		%		70-130	30-MAR-14
Potassium (K)-Total			94.6		%		70-130	30-MAR-14
Sodium (Na)-Total			N/A	MS-B	%		-	30-MAR-14
Titanium (Ti)-Total			92.2		%		70-130	30-MAR-14
Zinc (Zn)-Total			82.2		%		70-130	30-MAR-14
N-T-COL-VA								
	Water							
Batch	R2812639							
WG1851066-3	DUP	L1436333-1						
Total Nitrogen		0.133	0.133		mg/L	0.5	20	29-MAR-14
WG1851066-2	LCS							
Total Nitrogen			107.0		%		75-125	29-MAR-14
WG1851066-6	LCS							
Total Nitrogen			106.2		%		75-125	29-MAR-14
WG1851066-1	MB							
Total Nitrogen			<0.050		mg/L		0.05	29-MAR-14
WG1851066-5	MB							

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N-T-COL-VA								
Water								
Batch	R2812639							
WG1851066-5 MB								
Total Nitrogen			<0.050		mg/L		0.05	29-MAR-14
WG1851066-4 MS		L1436333-1						
Total Nitrogen			100.2		%		70-130	29-MAR-14
NH3-F-VA								
Water								
Batch	R2814923							
WG1852609-2 CRM		VA-NH3-F						
Ammonia, Total (as N)			99.5		%		85-115	02-APR-14
WG1852609-4 CRM		VA-NH3-F						
Ammonia, Total (as N)			100.2		%		85-115	02-APR-14
WG1852609-6 CRM		VA-NH3-F						
Ammonia, Total (as N)			100.3		%		85-115	02-APR-14
WG1852609-8 CRM		VA-NH3-F						
Ammonia, Total (as N)			96.7		%		85-115	02-APR-14
WG1852609-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	02-APR-14
WG1852609-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	02-APR-14
WG1852609-5 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	02-APR-14
WG1852609-7 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	02-APR-14
WG1852609-10 MS		L1436503-1						
Ammonia, Total (as N)			105.4		%		75-125	02-APR-14
WG1852609-12 MS		L1435610-1						
Ammonia, Total (as N)			98.7		%		75-125	02-APR-14
WG1852609-14 MS		L1435715-1						
Ammonia, Total (as N)			100.1		%		75-125	02-APR-14
P-T-COL-VA								
Water								
Batch	R2812390							
WG1850616-10 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			104.0		%		80-120	28-MAR-14
WG1850616-14 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			105.9		%		80-120	28-MAR-14
WG1850616-18 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			103.8		%		80-120	28-MAR-14
WG1850616-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			101.4		%		80-120	28-MAR-14



Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-VA		Water						
Batch	R2812390							
WG1850616-22 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			107.7		%		80-120	28-MAR-14
WG1850616-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			104.0		%		80-120	28-MAR-14
WG1850616-11 DUP		L1436333-7						
Phosphorus (P)-Total		0.0088	0.0101		mg/L	14	20	28-MAR-14
WG1850616-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-13 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-17 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-21 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-9 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	28-MAR-14
WG1850616-12 MS		L1436333-8						
Phosphorus (P)-Total			98.3		%		70-130	28-MAR-14
WG1850616-20 MS		L1436913-4						
Phosphorus (P)-Total			104.6		%		70-130	28-MAR-14
WG1850616-4 MS		L1435601-2						
Phosphorus (P)-Total			123.2		%		70-130	28-MAR-14
WG1850616-8 MS		L1436273-9						
Phosphorus (P)-Total			103.0		%		70-130	28-MAR-14
P-TD-COL-VA		Water						
Batch	R2812390							
WG1850616-10 CRM		VA-ERA-PO4						
Phosphorus (P)-Total Dissolved			103.7		%		80-120	28-MAR-14
WG1850616-14 CRM		VA-ERA-PO4						
Phosphorus (P)-Total Dissolved			104.3		%		80-120	28-MAR-14
WG1850616-18 CRM		VA-ERA-PO4						
Phosphorus (P)-Total Dissolved			105.1		%		80-120	28-MAR-14
WG1850616-22 CRM		VA-ERA-PO4						
Phosphorus (P)-Total Dissolved			103.9		%		80-120	28-MAR-14
WG1850616-6 CRM		VA-ERA-PO4						
Phosphorus (P)-Total Dissolved			103.0		%		80-120	28-MAR-14
WG1850616-11 DUP		L1436333-7						



Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-VA								
	Water							
Batch	R2812390							
WG1850616-11	DUP	L1436333-7						
Phosphorus (P)-Total	Dissolved	0.0052	0.0053		mg/L	1.9	20	28-MAR-14
WG1850616-13	MB							
Phosphorus (P)-Total	Dissolved		<0.0020		mg/L		0.002	28-MAR-14
WG1850616-17	MB							
Phosphorus (P)-Total	Dissolved		<0.0020		mg/L		0.002	28-MAR-14
WG1850616-21	MB							
Phosphorus (P)-Total	Dissolved		<0.0020		mg/L		0.002	28-MAR-14
WG1850616-5	MB							
Phosphorus (P)-Total	Dissolved		<0.0020		mg/L		0.002	28-MAR-14
WG1850616-9	MB							
Phosphorus (P)-Total	Dissolved		<0.0020		mg/L		0.002	28-MAR-14
WG1850616-12	MS	L1436333-8						
Phosphorus (P)-Total	Dissolved		101.0		%		70-130	28-MAR-14
WG1850616-16	MS	L1436888-2						
Phosphorus (P)-Total	Dissolved		101.3		%		70-130	28-MAR-14
WG1850616-20	MS	L1436913-4						
Phosphorus (P)-Total	Dissolved		100.2		%		70-130	28-MAR-14
WG1850616-24	MS	L1436925-2						
Phosphorus (P)-Total	Dissolved		N/A	MS-B	%		-	28-MAR-14
PAH-LL-SF-MS-VA								
	Water							
Batch	R2813346							
WG1852095-2	LCS							
Acenaphthene			86.6		%		60-130	01-APR-14
Acenaphthylene			94.8		%		60-130	01-APR-14
Acridine			120.0		%		60-130	01-APR-14
Anthracene			108.3		%		60-130	01-APR-14
Benz(a)anthracene			107.8		%		60-130	01-APR-14
Benzo(a)pyrene			105.3		%		60-130	01-APR-14
Benzo(b)fluoranthene			110.9		%		60-130	01-APR-14
Benzo(g,h,i)perylene			112.9		%		60-130	01-APR-14
Benzo(k)fluoranthene			115.2		%		60-130	01-APR-14
Chrysene			108.2		%		60-130	01-APR-14
Dibenz(a,h)anthracene			109.6		%		60-130	01-APR-14
Fluoranthene			116.3		%		60-130	01-APR-14
Fluorene			100.4		%		60-130	01-APR-14
Indeno(1,2,3-c,d)pyrene			116.9		%		60-130	01-APR-14

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2813346							
WG1852095-2	LCS							
Naphthalene			83.3		%		50-130	01-APR-14
Phenanthrene			115.7		%		60-130	01-APR-14
Pyrene			124.1		%		60-130	01-APR-14
Quinoline			102.9		%		60-130	01-APR-14
WG1852095-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	01-APR-14
Acenaphthylene			<0.000010		mg/L		0.00001	01-APR-14
Acridine			<0.000010		mg/L		0.00001	01-APR-14
Anthracene			<0.000010		mg/L		0.00001	01-APR-14
Benz(a)anthracene			<0.000010		mg/L		0.00001	01-APR-14
Benzo(a)pyrene			<0.000010		mg/L		0.00001	01-APR-14
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	01-APR-14
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	01-APR-14
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	01-APR-14
Chrysene			<0.000010		mg/L		0.00001	01-APR-14
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	01-APR-14
Fluoranthene			<0.000010		mg/L		0.00001	01-APR-14
Fluorene			<0.000010		mg/L		0.00001	01-APR-14
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	01-APR-14
Naphthalene			<0.000050		mg/L		0.00005	01-APR-14
Phenanthrene			<0.000020		mg/L		0.00002	01-APR-14
Pyrene			<0.000010		mg/L		0.00001	01-APR-14
Quinoline			<0.000010		mg/L		0.00001	01-APR-14
Batch	R2814165							
WG1852095-3	MB							
Acenaphthene			<0.000010		mg/L		0.00001	02-APR-14
Acenaphthylene			<0.000010		mg/L		0.00001	02-APR-14
Acridine			<0.000010		mg/L		0.00001	02-APR-14
Anthracene			<0.000010		mg/L		0.00001	02-APR-14
Benz(a)anthracene			<0.000010		mg/L		0.00001	02-APR-14
Benzo(a)pyrene			<0.000010		mg/L		0.00001	02-APR-14
Benzo(b)fluoranthene			<0.000010		mg/L		0.00001	02-APR-14
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	02-APR-14
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	02-APR-14
Chrysene			<0.000010		mg/L		0.00001	02-APR-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-LL-SF-MS-VA		Water						
Batch	R2814165							
WG1852095-3	MB							
Dibenz(a,h)anthracene			<0.000010		mg/L		0.00001	02-APR-14
Fluoranthene			<0.000010		mg/L		0.00001	02-APR-14
Fluorene			<0.000010		mg/L		0.00001	02-APR-14
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	02-APR-14
Naphthalene			<0.000050		mg/L		0.00005	02-APR-14
Phenanthrene			<0.000020		mg/L		0.00002	02-APR-14
Pyrene			<0.000010		mg/L		0.00001	02-APR-14
Quinoline			<0.000010		mg/L		0.00001	02-APR-14
PH-PCT-VA		Water						
Batch	R2811612							
WG1850023-25	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	27-MAR-14
WG1850023-26	CRM	VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	27-MAR-14
WG1850023-27	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	27-MAR-14
WG1850023-28	CRM	VA-PH7-BUF						
pH			7.03		pH		6.9-7.1	27-MAR-14
WG1850023-29	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	27-MAR-14
WG1850023-30	CRM	VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	27-MAR-14
WG1850023-37	DUP	L1436333-5						
pH		7.24	7.23	J	pH	0.01	0.3	27-MAR-14
PO4-DO-COL-VA		Water						
Batch	R2825715							
WG1862083-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			90.2		%		80-120	22-APR-14
WG1862083-6	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			83.0		%		80-120	22-APR-14
WG1862083-3	DUP	L1436333-1						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-APR-14
WG1862083-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	22-APR-14
WG1862083-5	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	22-APR-14
WG1862083-4		L1436333-2						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA								
	Water							
Batch	R2825715							
WG1862083-4	MS	L1436333-2						
Orthophosphate-Dissolved (as P)			102.3		%		70-130	22-APR-14
TDS-VA								
	Water							
Batch	R2812230							
WG1850203-11	LCS							
Total Dissolved Solids			101.8		%		85-115	27-MAR-14
WG1850203-2	LCS							
Total Dissolved Solids			99.3		%		85-115	27-MAR-14
WG1850203-5	LCS							
Total Dissolved Solids			103.7		%		85-115	27-MAR-14
WG1850203-8	LCS							
Total Dissolved Solids			100.4		%		85-115	27-MAR-14
WG1850203-1	MB							
Total Dissolved Solids			<10		mg/L		10	27-MAR-14
WG1850203-10	MB							
Total Dissolved Solids			<10		mg/L		10	27-MAR-14
WG1850203-4	MB							
Total Dissolved Solids			<10		mg/L		10	27-MAR-14
WG1850203-7	MB							
Total Dissolved Solids			<10		mg/L		10	27-MAR-14
TKN-F-VA								
	Water							
Batch	R2816229							
WG1853700-2	LCS							
Total Kjeldahl Nitrogen			101.3		%		75-125	04-APR-14
WG1853700-6	LCS							
Total Kjeldahl Nitrogen			106.5		%		75-125	04-APR-14
WG1853700-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	04-APR-14
WG1853700-5	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	04-APR-14
WG1853700-4	MS	L1436333-3						
Total Kjeldahl Nitrogen			94.8		%		70-130	04-APR-14
WG1853700-8	MS	L1435715-2						
Total Kjeldahl Nitrogen			100.4		%		70-130	04-APR-14
TSS-VA								
	Water							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-VA								
Water								
Batch	R2812297							
WG1850600-3	DUP	L1436333-1						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	27-MAR-14
WG1850600-2	LCS							
Total Suspended Solids			90.9		%		85-115	27-MAR-14
WG1850600-5	LCS							
Total Suspended Solids			111.9		%		85-115	27-MAR-14
WG1850600-8	LCS							
Total Suspended Solids			109.6		%		85-115	27-MAR-14
WG1850600-1	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14
WG1850600-4	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14
WG1850600-7	MB							
Total Suspended Solids			<3.0		mg/L		3	27-MAR-14
TURBIDITY-VA								
Water								
Batch	R2811773							
WG1850294-2	CRM	VA-FORM-40						
Turbidity			98.5		%		85-115	27-MAR-14
WG1850294-5	CRM	VA-FORM-40						
Turbidity			99.5		%		85-115	27-MAR-14
WG1850294-3	DUP	L1436333-1						
Turbidity		1.17	1.22		NTU	4.2	15	27-MAR-14
WG1850294-1	MB							
Turbidity			<0.10		NTU		0.1	27-MAR-14
WG1850294-4	MB							
Turbidity			<0.10		NTU		0.1	27-MAR-14

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Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	25-MAR-14 11:24	27-MAR-14 21:00	0.25	58	hours	EHTR-FM
	2	25-MAR-14 12:32	27-MAR-14 21:00	0.25	56	hours	EHTR-FM
	3	25-MAR-14 13:00	27-MAR-14 21:00	0.25	56	hours	EHTR-FM
	4	25-MAR-14 13:22	27-MAR-14 21:00	0.25	56	hours	EHTR-FM
	5	25-MAR-14 13:56	27-MAR-14 21:00	0.25	55	hours	EHTR-FM
	6	25-MAR-14 14:19	27-MAR-14 21:00	0.25	55	hours	EHTR-FM
	7	25-MAR-14 14:49	27-MAR-14 21:00	0.25	54	hours	EHTR-FM
	8	25-MAR-14 15:15	27-MAR-14 21:00	0.25	54	hours	EHTR-FM

Anions and Nutrients

Diss. Orthophosphate in Water by Colour

	1	25-MAR-14 11:24	22-APR-14 21:30	3	28	days	EHT
	2	25-MAR-14 12:32	22-APR-14 21:30	3	28	days	EHT
	3	25-MAR-14 13:00	22-APR-14 21:30	3	28	days	EHT
	4	25-MAR-14 13:22	22-APR-14 21:30	3	28	days	EHT
	5	25-MAR-14 13:56	22-APR-14 21:30	3	28	days	EHT
	6	25-MAR-14 14:19	22-APR-14 21:30	3	28	days	EHT
	7	25-MAR-14 14:49	22-APR-14 21:33	3	28	days	EHT
	8	25-MAR-14 15:15	22-APR-14 21:33	3	28	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 L1436333 were received on 25-MAR-14 20:45.

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.

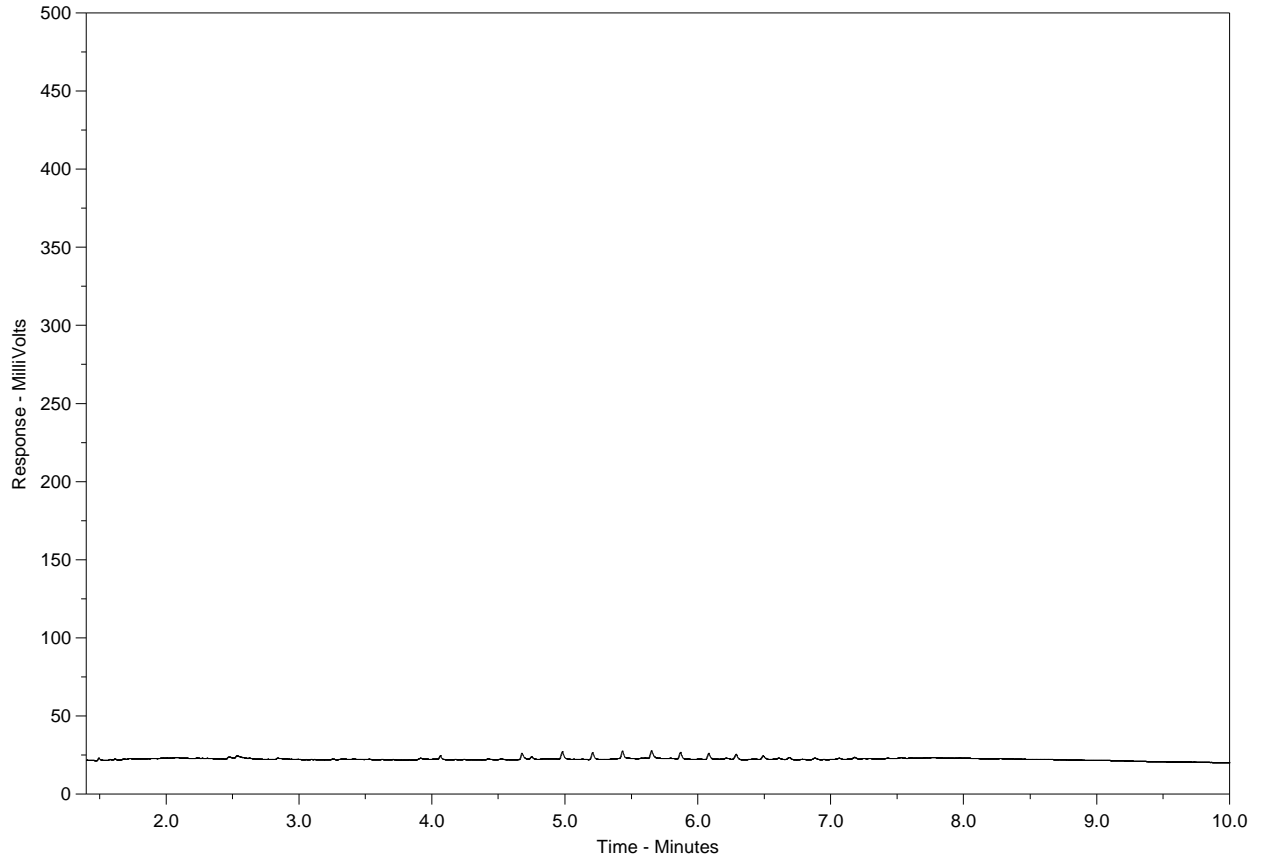
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report



ALS Sample ID: L1436333-1
Client Sample ID: MCF 1



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

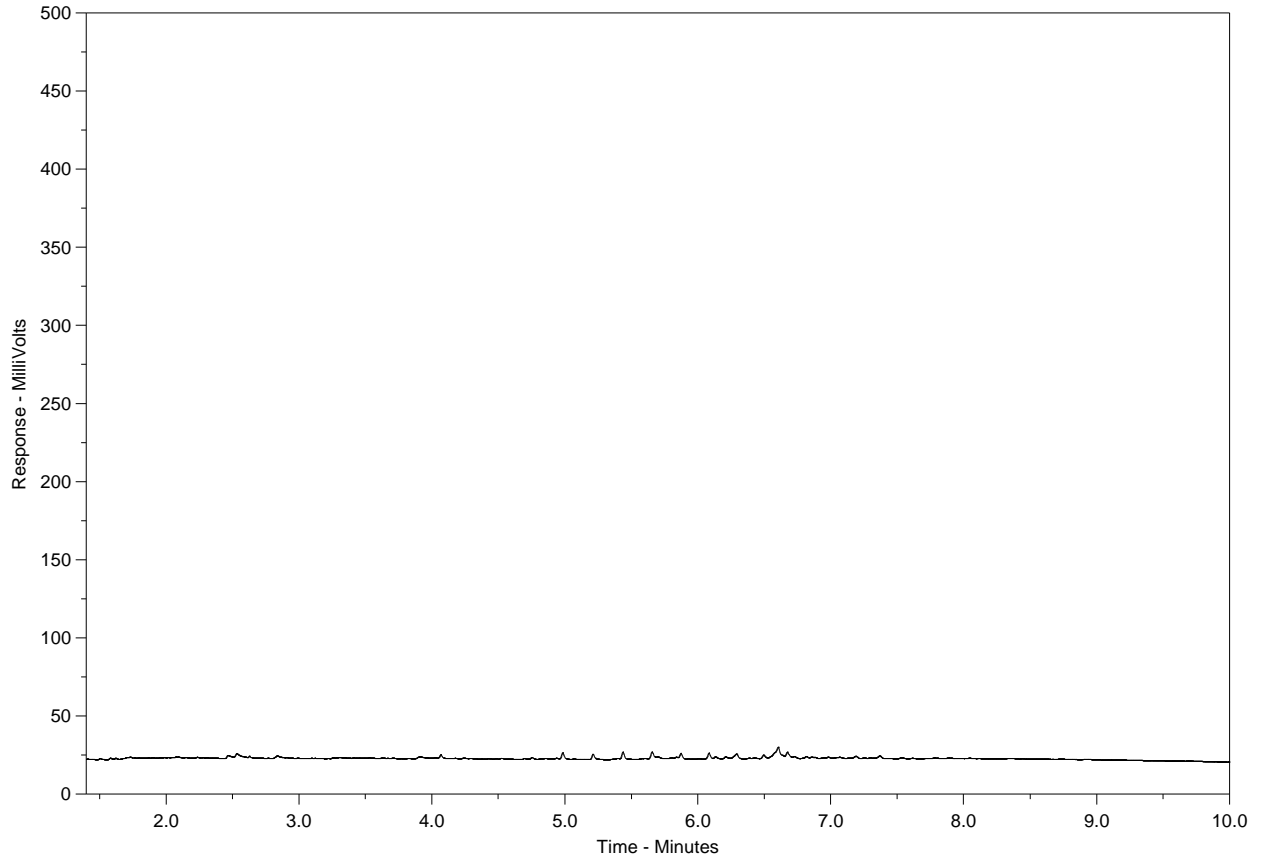
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report



ALS Sample ID: L1436333-5
Client Sample ID: MCF 9



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

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

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



Chain of Custody / Analytica
 Canada Toll Free: 1 800
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L1436333-COFC

10-368664

of

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: <i>Golden Associates Ltd.</i>	Standard: <input checked="" type="checkbox"/> Other (specify):	<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)
Contact: <i>Arman Kaltayev</i>	Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: <i>3795 Celcy Road, Victoria, BC V8Z 6T8</i>	Email 1: <i>Arman-Kaltayev@golden.com</i>	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: <i>1-250-881-7372</i> Fax: <i>1-250-881-7470</i>	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle) <input checked="" type="checkbox"/> Yes or No (if No, provide details)	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)																		
Copy of Invoice with Report? (circle) <input checked="" type="checkbox"/> Yes or No	Job #: <i>1114220046</i>																			
Company:	PO/A/E:																			
Contact:	LSD:																			
Address:																				
Phone: Fax:	Quote #:																			
Lab Work Order # (lab use only)	ALS Contact:	Sampler:																		
<i>L1436333</i>																				

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Metals + Mercury	NUT/TOC/CO ₂ /PH/NI/TP/NO ₃ /PHENOL	PAH/EPH/LEAH/HEAH	F2, F4, Acid Herbs	TOC											Number of Containers	
	MCF1	25-Mar-14	11:24	water	/	/	/	/	/	/												
	MCF3	25-Mar-14	12:37	↓	/	/	/	/	/	/												
	MCF4	25-Mar-14	13:00		/	/	/	/	/	/												
	MCF5	25-Mar-14	13:22		/	/	/	/	/	/												
	MCF9		13:56		/	/	/	/	/	/												
	MCF8		14:19		/	/	/	/	/	/												
	MCF10		14:49		/	/	/	/	/	/												
	MCF11		15:15		/	/	/	/	/	/												

Short Holding Time

Rush Processing

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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)				Observations: Yes / No ? If Yes add SIF
Released by: <i>Noel Moss</i>	Date: <i>25-Mar-14</i>	Time: <i>21:01</i>	Received by: <i>A. Weeks</i>	Date: <i>Mar 25</i>	Time: <i>20:45</i>	Temperature: <i>10.5 °C</i>	Verified by:	Date:	Time:		

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

GENF 18.01 Front

9.8 °C

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

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