CERTIFICATE OF ANALYSIS

Work Order	: **CG2104383**	Page	: 1 of 10
Client	: **Lotic Environmental Ltd.**	Laboratory	: Calgary - Environmental
Contact	: Mike Robinson	Account Manager	: Patryk Wojciak
Address	: 2193 Mazur Road Cranbrook BC Canada V1C 6V9	Address	: 2559 29th Street NE Calgary AB Canada T1Y 7B5
Telephone	: 250 426 0528	Telephone	: +1 403 407 1800
Project	: 21NORT02	Date Samples Received	: 24-Sep-2021 08:55
PO	: 15708	Date Analysis Commenced	: 24-Sep-2021
C-O-C number	: ----	Issue Date	: 15-Oct-2021 09:17
Sampler	: Mia Otto		
Site	: 18CANA02		
Quote number	: CG20-NOCL100-0001		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anthony Calero	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Claudia Droog		Inorganics, Calgary, Alberta
Daniel Ching	Lab Analyst	Metals, Calgary, Alberta
Dwayne Bennett	Supervisor - Inorganic	Inorganics, Calgary, Alberta
Elke Tabora		Inorganics, Calgary, Alberta
Erin Sanchez		Inorganics, Calgary, Alberta
Maria Tuguinay	Lab Assistant	Inorganics, Calgary, Alberta
Olivia Gu	Lab Analyst	Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Inorganics, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Sara Niroomand		Inorganics, Calgary, Alberta
Shirley Li		Metals, Calgary, Alberta
Victoria Piguing	Laboratory Analyst	Organics, Calgary, Alberta
Vladka Stamenova	Analyst	Inorganics, Calgary, Alberta

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
CU	colour units (1 CU = 1 mg/L Pt)
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior 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.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Physical Tests										
colour, true	----	E329	5.0	CU		<5.0	<5.0	<5.0	<5.0	<5.0
conductivity	----	E100	2.0	µS/cm		456	688	253	253	<2.0
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		246	380	134	136	<0.60
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		259	405	149	146	<0.60
pH	----	E108	0.10	pH units		8.28	8.30	8.27	8.24	4.62
solids, total dissolved [TDS]	----	E162	10	mg/L		306	463	151	153	<10
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		<3.0	4.2	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU		0.38	0.36	0.14	0.12	<0.10
alkalinity, total (as CaCO3)	----	E290	2.0	mg/L		160	187	121	118	<2.0
alkalinity, phenolphthalein (as CaCO3)	----	E290	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
alkalinity, hydroxide (as CaCO3)	----	E290	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
alkalinity, carbonate (as CaCO3)	----	E290	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
alkalinity, bicarbonate (as CaCO3)	----	E290	2.0	mg/L		160	187	121	118	<2.0
alkalinity, bicarbonate (as HCO3)	71-52-3	E290	2.0	mg/L		196	228	147	144	<2.0
alkalinity, carbonate (as CO3)	3812-32-6	E290	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
alkalinity, hydroxide (as OH)	14280-30-9	E290	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		0.0111	0.0103	<0.0050	<0.0050	0.0058 RRV
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		1.16	1.03	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L		0.134	0.200	0.326	0.329	<0.020
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		0.059	0.144	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.318	0.980	0.102	0.116	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	0.0016	<0.0010	<0.0010	<0.0010
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		0.0012	<0.0010	<0.0010	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		0.0063	0.0041	<0.0020	<0.0020	<0.0020
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		92.8	202	20.1	20.1	<0.30
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		1.35	1.08	0.83	0.85	<0.50
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		1.31	1.11	0.84	0.76	<0.50

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0062	0.0067	0.0046	0.0044	<0.0030
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00010	0.00013	0.00011	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.00027	0.00035	0.00057	0.00058	<0.00010
barium, total	7440-39-3	E420	0.00010	mg/L		0.153	0.0710	0.0171	0.0174	<0.00010
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	0.000039	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		0.014	0.022	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000256	0.0000228	0.0000112	0.0000125	<0.0000050
calcium, total	7440-70-2	E420	0.050	mg/L		66.6	96.6	44.5	42.9	<0.050
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L		0.012	0.011	<0.010	<0.010	<0.010
lead, total	7439-92-1	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0069	0.0108	0.0014	0.0015	<0.0010
magnesium, total	7439-95-4	E420	0.100	mg/L		22.5	39.7	9.31	9.58	<0.100
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00110	0.00196	<0.00010	0.00011	<0.00010
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000753	0.000839	0.000811	0.000796	<0.000050
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00102	0.00416	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.100	mg/L		0.743	0.992	0.199	0.205	<0.100
selenium, total	7782-49-2	E420	0.000050	mg/L		0.00235	0.00609	0.00206	0.00206	<0.000050
silicon, total	7440-21-3	E420	0.10	mg/L		2.30	1.91	1.34	1.36	<0.10
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		5.18	8.92	0.464	0.477	<0.050
strontium, total	7440-24-6	E420	0.00020	mg/L		0.202	0.320	0.134	0.134	<0.00020
sulfur, total	7704-34-9	E420	0.50	mg/L		34.6	78.0	7.25	7.43	<0.50
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	0.000021	0.000059	0.000057	<0.000010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Total Metals										
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000875	0.00200	0.000946	0.000939	<0.000010
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0016	0.0011	0.0022	0.0021	<0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00010	0.00012	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00022	0.00025	0.00054	0.00055	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.152	0.0721	0.0174	0.0175	<0.00010
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		0.012	0.020	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000290	0.0000187	0.0000124	0.0000135	<0.0000050
calcium, dissolved	7440-70-2	E421	0.050	mg/L		62.4	89.0	39.1	39.3	<0.050
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0074	0.0122	0.0015	0.0016	<0.0010
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		22.0	38.4	8.88	9.19	<0.100
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00054	0.00151	<0.00010	<0.00010	<0.00010
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000743	0.000816	0.000795	0.000803	<0.000050
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		0.00083	0.00392	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L		0.769	1.01	0.204	0.205	<0.100
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.00247	0.00660	0.00223	0.00224	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L		2.15	1.74	1.27	1.25	<0.050
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		5.31	8.92	0.478	0.483	<0.050

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Dissolved Metals										
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.202	0.308	0.128	0.132	<0.00020
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		34.5	77.3	7.99	7.74	<0.50
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	0.000017	0.000051	0.000051	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000822	0.00185	0.000892	0.000902	<0.000010
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0014	0.0014	0.0021	0.0024	<0.0010
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field
Aggregate Organics										
chemical oxygen demand [COD]	----	E559-L	10	mg/L		<10	<10	<10	<10	<10
Volatile Organic Compounds										
acetone	67-64-1	E611F	20	µg/L		<20	<20	<20	<20	<20
bromobenzene	108-86-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
bromochloromethane	74-97-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
bromomethane	74-83-9	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
butylbenzene, n-	104-51-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
butylbenzene, sec-	135-98-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
butylbenzene, tert-	98-06-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
carbon disulfide	75-15-0	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
chlorobenzene	108-90-7	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
chloromethane	74-87-3	E611F	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
chlorotoluene, 2-	95-49-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
chlorotoluene, 4-	106-43-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
cymene, p-	99-87-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dibromo-3-chloropropane, 1,2-	96-12-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dibromomethane	74-95-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichlorobenzene, 1,2-	95-50-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichlorobenzene, 1,3-	541-73-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
dichlorobenzene, 1,4-	106-46-7	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichlorodifluoromethane	75-71-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropane, 1,2-	78-87-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropane, 1,3-	142-28-9	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropane, 2,2-	594-20-7	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropylene, 1,1-	563-58-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropylene, cis+trans-1,3-	542-75-6	E611F	0.75	µg/L		<0.75	<0.75	<0.75	<0.75	<0.75
dichloropropylene, cis-1,3-	10061-01-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
hexachlorobutadiene	87-68-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
hexanone, 2-	591-78-6	E611F	20	µg/L		<20	<20	<20	<20	<20
methyl ethyl ketone [MEK]	78-93-3	E611F	20	µg/L		<20	<20	<20	<20	<20
methyl isobutyl ketone [MIBK]	108-10-1	E611F	20	µg/L		<20	<20	<20	<20	<20
propylbenzene, n-	103-65-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethane, 1,1,1,2-	630-20-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethane, 1,1,2,2-	79-34-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichlorobenzene, 1,2,3-	87-61-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichlorobenzene, 1,2,4-	120-82-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichloroethane, 1,1,2-	79-00-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichlorofluoromethane	75-69-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichloropropane, 1,2,3-	96-18-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds [Drycleaning]										
carbon tetrachloride	56-23-5	E611F	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
chloroethane	75-00-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethane, 1,1-	75-34-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethane, 1,2-	107-06-2	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, 1,1-	75-35-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, cis-1,2-	156-59-2	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, trans-1,2-	156-60-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dichloromethane	75-09-2	E611F	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropylene, trans-1,3-	10061-02-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethylene	127-18-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Drycleaning]										
trichloroethane, 1,1,1-	71-55-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trichloroethylene	79-01-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
vinyl chloride	75-01-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds [Fuels]										
benzene	71-43-2	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dibromoethane, 1,2-	106-93-4	E611F	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
ethylbenzene	100-41-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
hexane, n-	110-54-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
isopropylbenzene	98-82-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
naphthalene	91-20-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
styrene	100-42-5	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
toluene	108-88-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trimethylbenzene, 1,2,4-	95-63-6	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
trimethylbenzene, 1,3,5-	108-67-8	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
xylene, m+p-	179601-23-1	E611F	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
xylene, o-	95-47-6	E611F	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
xylenes, total	1330-20-7	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds [THMs]										
bromodichloromethane	75-27-4	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
bromoform	75-25-2	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
chloroform	67-66-3	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
dibromochloromethane	124-48-1	E611F	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611F	1.0	%		87.9	88.6	86.6	88.1	87.1
difluorobenzene, 1,4-	540-36-3	E611F	1.0	%		92.2	91.5	91.2	91.9	92.5
Hydrocarbons										
EPH (C10-C19)	----	E601A	250	µg/L		<250	<250	<250	<250	<250
EPH (C10-C32)	----	E601A	400	µg/L		<400	<400	<400	<400	<400
EPH (C19-C32)	----	E601A	250	µg/L		<250	<250	<250	<250	<250
TEH (C10-C30), BC	----	E601A	250	µg/L		<250	<250	<250	<250	<250

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	23-Sep-2021 07:45	23-Sep-2021 10:45	23-Sep-2021 13:30	23-Sep-2021 17:00	23-Sep-2021 08:00
						CG2104383-001	CG2104383-002	CG2104383-003	CG2104383-004	CG2104383-005
						Result	Result	Result	Result	Result
Hydrocarbons Surrogates										
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		86.3	85.6	83.7	85.6	84.8

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL REPORT

Work Order	: **CG2104383**	Page	: 1 of 25
Client	: Lotic Environmental Ltd.	Laboratory	: Calgary - Environmental
Contact	: Mike Robinson	Account Manager	: Patryk Wojciak
Address	: 652 F Sparwood Drive Sparwood BC Canada V0B 2G0	Address	: 2559 29th Street NE Calgary, Alberta Canada T1Y 7B5
Telephone	: 250 426 0528	Telephone	: +1 403 407 1800
Project	: 21NORT02	Date Samples Received	: 24-Sep-2021 08:55
PO	: 15708	Date Analysis Commenced	: 24-Sep-2021
C-O-C number	: ----	Issue Date	: 15-Oct-2021 09:17
Sampler	: Mia Otto		
Site	: 18CANA02		
Quote number	: CG20-NOCL100-0001		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anthony Calero	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Claudia Droog		Inorganics, Calgary, Alberta
Daniel Ching	Lab Analyst	Metals, Calgary, Alberta
Dwayne Bennett	Supervisor - Inorganic	Inorganics, Calgary, Alberta
Elke Tabora		Inorganics, Calgary, Alberta
Erin Sanchez		Inorganics, Calgary, Alberta
Maria Tuguinay	Lab Assistant	Inorganics, Calgary, Alberta
Olivia Gu	Lab Analyst	Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Inorganics, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Sara Niroomand		Inorganics, Calgary, Alberta
Shirley Li		Metals, Calgary, Alberta
Victoria Piguing	Laboratory Analyst	Organics, Calgary, Alberta
Vladka Stamenova	Analyst	Inorganics, Calgary, Alberta

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 302488)											
CG2104367-001	Anonymous	colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 303018)											
CG2104383-001	MICH-13.0	turbidity	----	E121	0.10	NTU	0.38	0.39	0.007	Diff <2x LOR	----
Physical Tests (QC Lot: 303091)											
CG2104383-003	AND1	turbidity	----	E121	0.10	NTU	0.14	0.14	0.008	Diff <2x LOR	----
Physical Tests (QC Lot: 304953)											
CG2104374-001	Anonymous	solids, total dissolved [TDS]	----	E162	40	mg/L	1920	1890	1.10%	20%	----
Physical Tests (QC Lot: 304954)											
CG2104383-004	DUPLICATE	solids, total dissolved [TDS]	----	E162	20	mg/L	153	148	5	Diff <2x LOR	----
Physical Tests (QC Lot: 306841)											
CG2104383-001	MICH-13.0	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 309195)											
CG2103857-001	Anonymous	pH	----	E108	0.10	pH units	8.43	8.43	0.00%	4%	----
Physical Tests (QC Lot: 309196)											
CG2103857-001	Anonymous	alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	243	234	3.56%	20%	----
		alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	17.8	16.6	6.98%	20%	----
		alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	8.9	8.3	0.6	Diff <2x LOR	----
		alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	260	251	3.79%	20%	----
Physical Tests (QC Lot: 309197)											
CG2103857-001	Anonymous	conductivity	----	E100	2.0	µS/cm	972	975	0.308%	10%	----
Anions and Nutrients (QC Lot: 301877)											
CG2104374-010	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 302449)											
CG2104363-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.047	0.047	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 302452)											
CG2104363-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	3.72	3.66	0.06	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 302453)											
CG2104363-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	86.0	86.0	0.0200%	20%	----
Anions and Nutrients (QC Lot: 302454)											
CG2104374-012	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	2.22	2.20	0.925%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 302456)											
CG2104374-012	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.140	0.140	0.357%	20%	----
Anions and Nutrients (QC Lot: 302457)											
CG2104374-012	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 304414)											
CG2104374-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	0.0026	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 304415)											
CG2104383-004	DUPLICATE	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 305651)											
CG2104317-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.904	0.968	6.82%	20%	----
Anions and Nutrients (QC Lot: 318216)											
CG2104383-001	MICH-13.0	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0111	0.0095	0.0016	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 309369)											
CG2104374-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.65	0.63	0.02	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 309373)											
CG2104381-001	Anonymous	carbon, total organic [TOC]	----	E355-L	10.0	mg/L	258	266	3.28%	20%	----
Total Metals (QC Lot: 302822)											
CG2104383-001	MICH-13.0	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 306382)											
CG2104367-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.189	0.185	1.73%	20%	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	0.00022	0.00022	0.000004	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00018	0.00023	0.00005	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0597	0.0582	2.64%	20%	----
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	47.2	46.9	0.766%	20%	----
		chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, total	7440-50-8	E420	0.00050	mg/L	0.0872	0.0871	0.0458%	20%	----
		iron, total	7439-89-6	E420	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000982	0.000978	0.492%	20%	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0034	0.0036	0.0002	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.100	mg/L	17.9	17.6	1.85%	20%	----
		manganese, total	7439-96-5	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 306382) - continued											
CG2104367-001	Anonymous	molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000710	0.000714	0.570%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00280	0.00282	0.00002	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----
		selenium, total	7782-49-2	E420	0.000050	mg/L	0.000525	0.000534	1.73%	20%	----
		silicon, total	7440-21-3	E420	0.10	mg/L	1.86	1.84	1.26%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	2.00	mg/L	8.37	8.24	0.127	Diff <2x LOR	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.389	0.385	1.24%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	24.5	24.9	1.55%	20%	----
		thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00010	mg/L	0.00026	0.00025	0.000007	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000414	0.000415	0.205%	20%	----
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.0119	0.0120	0.0002	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 302823)											
CG2104383-001	MICH-13.0	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 307498)											
CG2104383-001	MICH-13.0	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0016	0.0011	0.0005	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	<0.00010	0.00000004	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00022	0.00020	0.00002	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.152	0.151	0.215%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	0.012	0.012	0.0003	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000290	0.0000262	0.0000028	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	62.4	63.3	1.45%	20%	----
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.00020	0.000004	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0074	0.0075	0.00009	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 307498) - continued											
CG2104383-001	MICH-13.0	magnesium, dissolved	7439-95-4	E421	0.100	mg/L	22.0	21.6	1.74%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00054	0.00055	0.000006	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000743	0.000749	0.834%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00083	0.00083	0.000006	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.769	0.763	0.006	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00247	0.00246	0.396%	20%	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.15	2.15	0.188%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	5.31	5.30	0.172%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.202	0.199	1.68%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	34.5	34.0	1.58%	20%	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000822	0.000817	0.600%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0014	<0.0010	0.0004	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 304986)											
CG2104374-009	Anonymous	chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	<10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 303358)											
CG2104383-001	MICH-13.0	acetone	67-64-1	E611F	20	µg/L	<20	<20	0	Diff <2x LOR	----
		benzene	71-43-2	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromobenzene	108-86-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromochloromethane	74-97-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromodichloromethane	75-27-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromoform	75-25-2	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromomethane	74-83-9	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		butylbenzene, n-	104-51-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		butylbenzene, sec-	135-98-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		butylbenzene, tert-	98-06-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		carbon disulfide	75-15-0	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		carbon tetrachloride	56-23-5	E611F	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		chlorobenzene	108-90-7	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 303358) - continued											
CG2104383-001	MICH-13.0	chloroethane	75-00-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		chloroform	67-66-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		chloromethane	74-87-3	E611F	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		chlorotoluene, 2-	95-49-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		chlorotoluene, 4-	106-43-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		cymene, p-	99-87-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dibromo-3-chloropropane, 1,2-	96-12-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dibromochloromethane	124-48-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dibromoethane, 1,2-	106-93-4	E611F	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		dibromomethane	74-95-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorobenzene, 1,2-	95-50-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorobenzene, 1,3-	541-73-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorobenzene, 1,4-	106-46-7	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorodifluoromethane	75-71-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethane, 1,1-	75-34-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethane, 1,2-	107-06-2	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, 1,1-	75-35-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, cis-1,2-	156-59-2	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, trans-1,2-	156-60-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloromethane	75-09-2	E611F	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		dichloropropane, 1,2-	78-87-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropane, 1,3-	142-28-9	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropane, 2,2-	594-20-7	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropylene, 1,1-	563-58-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropylene, cis-1,3-	10061-01-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropylene, trans-1,3-	10061-02-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		hexachlorobutadiene	87-68-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		hexane, n-	110-54-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		hexanone, 2-	591-78-6	E611F	20	µg/L	<20	<20	0	Diff <2x LOR	----
		isopropylbenzene	98-82-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl ethyl ketone [MEK]	78-93-3	E611F	20	µg/L	<20	<20	0	Diff <2x LOR	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611F	20	µg/L	<20	<20	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		naphthalene	91-20-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 303358) - continued											
CG2104383-001	MICH-13.0	propylbenzene, n-	103-65-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethylene	127-18-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichlorobenzene, 1,2,3-	87-61-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichlorobenzene, 1,2,4-	120-82-1	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethane, 1,1,1-	71-55-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethane, 1,1,2-	79-00-5	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethylene	79-01-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichlorofluoromethane	75-69-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloropropane, 1,2,3-	96-18-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trimethylbenzene, 1,2,4-	95-63-6	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trimethylbenzene, 1,3,5-	108-67-8	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		vinyl chloride	75-01-4	E611F	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611F	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611F	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 302488)						
colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 303018)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 303091)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 304953)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 304954)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 306841)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 309196)						
alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 309197)						
conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 301877)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 302449)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 302452)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 302453)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 302454)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 302456)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 302457)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 304414)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 304415)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 305651)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 318216)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 309369)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 309373)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 302822)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 306382)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 306382) - continued						
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 302823)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 307498)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 307498) - continued						
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Aggregate Organics (QCLot: 304986)						
chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Volatile Organic Compounds (QCLot: 303358)						
acetone	67-64-1	E611F	20	µg/L	<20	----
benzene	71-43-2	E611F	0.5	µg/L	<0.50	----
bromobenzene	108-86-1	E611F	0.5	µg/L	<0.50	----
bromochloromethane	74-97-5	E611F	0.5	µg/L	<0.50	----
bromodichloromethane	75-27-4	E611F	0.5	µg/L	<0.50	----
bromoform	75-25-2	E611F	0.5	µg/L	<0.50	----
bromomethane	74-83-9	E611F	0.5	µg/L	<0.50	----
butylbenzene, n-	104-51-8	E611F	0.5	µg/L	<0.50	----
butylbenzene, sec-	135-98-8	E611F	0.5	µg/L	<0.50	----
butylbenzene, tert-	98-06-6	E611F	0.5	µg/L	<0.50	----
carbon disulfide	75-15-0	E611F	0.5	µg/L	<0.50	----
carbon tetrachloride	56-23-5	E611F	0.2	µg/L	<0.20	----
chlorobenzene	108-90-7	E611F	0.5	µg/L	<0.50	----
chloroethane	75-00-3	E611F	0.5	µg/L	<0.50	----
chloroform	67-66-3	E611F	0.5	µg/L	<0.50	----
chloromethane	74-87-3	E611F	2	µg/L	<2.0	----
chlorotoluene, 2-	95-49-8	E611F	0.5	µg/L	<0.50	----
chlorotoluene, 4-	106-43-4	E611F	0.5	µg/L	<0.50	----
cymene, p-	99-87-6	E611F	0.5	µg/L	<0.50	----
dibromo-3-chloropropane, 1,2-	96-12-8	E611F	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 303358) - continued						
dibromochloromethane	124-48-1	E611F	0.5	µg/L	<0.50	----
dibromoethane, 1,2-	106-93-4	E611F	0.2	µg/L	<0.20	----
dibromomethane	74-95-3	E611F	0.5	µg/L	<0.50	----
dichlorobenzene, 1,2-	95-50-1	E611F	0.5	µg/L	<0.50	----
dichlorobenzene, 1,3-	541-73-1	E611F	0.5	µg/L	<0.50	----
dichlorobenzene, 1,4-	106-46-7	E611F	0.5	µg/L	<0.50	----
dichlorodifluoromethane	75-71-8	E611F	0.5	µg/L	<0.50	----
dichloroethane, 1,1-	75-34-3	E611F	0.5	µg/L	<0.50	----
dichloroethane, 1,2-	107-06-2	E611F	0.5	µg/L	<0.50	----
dichloroethylene, 1,1-	75-35-4	E611F	0.5	µg/L	<0.50	----
dichloroethylene, cis-1,2-	156-59-2	E611F	0.5	µg/L	<0.50	----
dichloroethylene, trans-1,2-	156-60-5	E611F	0.5	µg/L	<0.50	----
dichloromethane	75-09-2	E611F	1	µg/L	<1.0	----
dichloropropane, 1,2-	78-87-5	E611F	0.5	µg/L	<0.50	----
dichloropropane, 1,3-	142-28-9	E611F	0.5	µg/L	<0.50	----
dichloropropane, 2,2-	594-20-7	E611F	0.5	µg/L	<0.50	----
dichloropropylene, 1,1-	563-58-6	E611F	0.5	µg/L	<0.50	----
dichloropropylene, cis-1,3-	10061-01-5	E611F	0.5	µg/L	<0.50	----
dichloropropylene, trans-1,3-	10061-02-6	E611F	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611F	0.5	µg/L	<0.50	----
hexachlorobutadiene	87-68-3	E611F	0.5	µg/L	<0.50	----
hexane, n-	110-54-3	E611F	0.5	µg/L	<0.50	----
hexanone, 2-	591-78-6	E611F	20	µg/L	<20	----
isopropylbenzene	98-82-8	E611F	0.5	µg/L	<0.50	----
methyl ethyl ketone [MEK]	78-93-3	E611F	20	µg/L	<20	----
methyl isobutyl ketone [MIBK]	108-10-1	E611F	20	µg/L	<20	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	0.5	µg/L	<0.50	----
naphthalene	91-20-3	E611F	0.5	µg/L	<0.50	----
propylbenzene, n-	103-65-1	E611F	0.5	µg/L	<0.50	----
styrene	100-42-5	E611F	0.5	µg/L	<0.50	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611F	0.5	µg/L	<0.50	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611F	0.5	µg/L	<0.50	----
tetrachloroethylene	127-18-4	E611F	0.5	µg/L	<0.50	----
toluene	108-88-3	E611F	0.5	µg/L	<0.50	----
trichlorobenzene, 1,2,3-	87-61-6	E611F	0.5	µg/L	<0.50	----
trichlorobenzene, 1,2,4-	120-82-1	E611F	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 303358) - continued						
trichloroethane, 1,1,1-	71-55-6	E611F	0.5	µg/L	<0.50	----
trichloroethane, 1,1,2-	79-00-5	E611F	0.5	µg/L	<0.50	----
trichloroethylene	79-01-6	E611F	0.5	µg/L	<0.50	----
trichlorofluoromethane	75-69-4	E611F	0.5	µg/L	<0.50	----
trichloropropane, 1,2,3-	96-18-4	E611F	0.5	µg/L	<0.50	----
trimethylbenzene, 1,2,4-	95-63-6	E611F	0.5	µg/L	<0.50	----
trimethylbenzene, 1,3,5-	108-67-8	E611F	0.5	µg/L	<0.50	----
vinyl chloride	75-01-4	E611F	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611F	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611F	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 304374)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
TEH (C10-C30), BC	----	E601A	250	µg/L	<250	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 302488)									
colour, true	----	E329	5	CU	100 CU	104	85.0	115	----
Physical Tests (QCLot: 303018)									
turbidity	----	E121	0.1	NTU	200 NTU	98.5	85.0	115	----
Physical Tests (QCLot: 303091)									
turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 304953)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.3	85.0	115	----
Physical Tests (QCLot: 304954)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.4	85.0	115	----
Physical Tests (QCLot: 306841)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	99.3	85.0	115	----
Physical Tests (QCLot: 309195)									
pH	----	E108	----	pH units	7 pH units	101	98.6	101	----
Physical Tests (QCLot: 309196)									
alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	92.2	85.0	115	----
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 309197)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	98.9	90.0	110	----
Anions and Nutrients (QCLot: 301877)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.02 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 302449)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	109	90.0	110	----
Anions and Nutrients (QCLot: 302452)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 302453)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 302454)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 302456)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 302457)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 304414)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	8.32 mg/L	95.6	80.0	120	----
Anions and Nutrients (QCLot: 304415)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	8.32 mg/L	93.6	80.0	120	----
Anions and Nutrients (QCLot: 305651)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	98.1	75.0	125	----
Anions and Nutrients (QCLot: 318216)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	105	85.0	115	----
Organic / Inorganic Carbon (QCLot: 309369)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	10 mg/L	103	80.0	120	----
Organic / Inorganic Carbon (QCLot: 309373)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	10 mg/L	105	80.0	120	----
Total Metals (QCLot: 302822)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	94.2	80.0	120	----
Total Metals (QCLot: 306382)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.0	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.6	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.5	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	89.2	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	115	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.7	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	110	70.0	130	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Total Metals (QCLot: 306382) - continued									
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	101	60.0	140	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	99.6	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	110	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	106	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	106	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	104	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.2	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	99.5	80.0	120	----
Dissolved Metals (QCLot: 307498)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.3	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	103	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	116	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	116	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	115	70.0	130	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.4	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 307498) - continued									
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	101	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	99.6	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	109	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	107	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	116	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.0	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	106	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	98.2	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Aggregate Organics (QCLot: 304986)									
chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	99.7	85.0	115	----
Volatile Organic Compounds (QCLot: 303358)									
acetone	67-64-1	E611F	20	µg/L	2000 µg/L	92.3	70.0	130	----
benzene	71-43-2	E611F	0.5	µg/L	100 µg/L	88.6	70.0	130	----
bromobenzene	108-86-1	E611F	0.5	µg/L	100 µg/L	115	70.0	130	----
bromochloromethane	74-97-5	E611F	0.5	µg/L	100 µg/L	106	70.0	130	----
bromodichloromethane	75-27-4	E611F	0.5	µg/L	100 µg/L	96.2	70.0	130	----
bromoform	75-25-2	E611F	0.5	µg/L	100 µg/L	120	70.0	130	----
bromomethane	74-83-9	E611F	0.5	µg/L	100 µg/L	103	60.0	140	----
butylbenzene, n-	104-51-8	E611F	0.5	µg/L	100 µg/L	108	70.0	130	----
butylbenzene, sec-	135-98-8	E611F	0.5	µg/L	100 µg/L	122	70.0	130	----
butylbenzene, tert-	98-06-6	E611F	0.5	µg/L	100 µg/L	112	70.0	130	----
carbon disulfide	75-15-0	E611F	0.5	µg/L	140 µg/L	71.2	70.0	130	----
carbon tetrachloride	56-23-5	E611F	0.2	µg/L	100 µg/L	104	70.0	130	----
chlorobenzene	108-90-7	E611F	0.5	µg/L	100 µg/L	108	70.0	130	----
chloroethane	75-00-3	E611F	0.5	µg/L	100 µg/L	101	60.0	140	----
chloroform	67-66-3	E611F	0.5	µg/L	100 µg/L	98.4	70.0	130	----
chloromethane	74-87-3	E611F	2	µg/L	100 µg/L	123	60.0	140	----
chlorotoluene, 2-	95-49-8	E611F	0.5	µg/L	100 µg/L	109	70.0	130	----
chlorotoluene, 4-	106-43-4	E611F	0.5	µg/L	100 µg/L	102	70.0	130	----
cymene, p-	99-87-6	E611F	0.5	µg/L	100 µg/L	103	70.0	130	----
dibromo-3-chloropropane, 1,2-	96-12-8	E611F	0.5	µg/L	100 µg/L	101	70.0	130	----
dibromochloromethane	124-48-1	E611F	0.5	µg/L	100 µg/L	99.4	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 303358) - continued									
dibromoethane, 1,2-	106-93-4	E611F	0.2	µg/L	100 µg/L	81.8	70.0	130	----
dibromomethane	74-95-3	E611F	0.5	µg/L	100 µg/L	104	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611F	0.5	µg/L	100 µg/L	113	70.0	130	----
dichlorobenzene, 1,3-	541-73-1	E611F	0.5	µg/L	100 µg/L	111	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611F	0.5	µg/L	100 µg/L	119	70.0	130	----
dichlorodifluoromethane	75-71-8	E611F	0.5	µg/L	100 µg/L	121	60.0	140	----
dichloroethane, 1,1-	75-34-3	E611F	0.5	µg/L	100 µg/L	94.6	70.0	130	----
dichloroethane, 1,2-	107-06-2	E611F	0.5	µg/L	100 µg/L	99.8	70.0	130	----
dichloroethylene, 1,1-	75-35-4	E611F	0.5	µg/L	100 µg/L	90.9	70.0	130	----
dichloroethylene, cis-1,2-	156-59-2	E611F	0.5	µg/L	100 µg/L	88.2	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611F	0.5	µg/L	100 µg/L	93.4	70.0	130	----
dichloromethane	75-09-2	E611F	1	µg/L	100 µg/L	93.7	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611F	0.5	µg/L	100 µg/L	80.4	70.0	130	----
dichloropropane, 1,3-	142-28-9	E611F	0.5	µg/L	100 µg/L	90.8	70.0	130	----
dichloropropane, 2,2-	594-20-7	E611F	0.5	µg/L	100 µg/L	75.8	70.0	130	----
dichloropropylene, 1,1-	563-58-6	E611F	0.5	µg/L	100 µg/L	78.5	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611F	0.5	µg/L	100 µg/L	75.0	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611F	0.5	µg/L	100 µg/L	71.0	70.0	130	----
ethylbenzene	100-41-4	E611F	0.5	µg/L	100 µg/L	93.4	70.0	130	----
hexachlorobutadiene	87-68-3	E611F	0.5	µg/L	100 µg/L	101	70.0	130	----
hexane, n-	110-54-3	E611F	0.5	µg/L	100 µg/L	101	70.0	130	----
hexanone, 2-	591-78-6	E611F	20	µg/L	400.6 µg/L	94.4	70.0	130	----
isopropylbenzene	98-82-8	E611F	0.5	µg/L	100 µg/L	108	70.0	130	----
methyl ethyl ketone [MEK]	78-93-3	E611F	20	µg/L	2000 µg/L	106	70.0	130	----
methyl isobutyl ketone [MIBK]	108-10-1	E611F	20	µg/L	401.4 µg/L	102	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	0.5	µg/L	100 µg/L	109	70.0	130	----
naphthalene	91-20-3	E611F	0.5	µg/L	100 µg/L	71.8	70.0	130	----
propylbenzene, n-	103-65-1	E611F	0.5	µg/L	100 µg/L	104	70.0	130	----
styrene	100-42-5	E611F	0.5	µg/L	100 µg/L	83.0	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611F	0.5	µg/L	100 µg/L	113	70.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611F	0.5	µg/L	100 µg/L	111	70.0	130	----
tetrachloroethylene	127-18-4	E611F	0.5	µg/L	100 µg/L	109	70.0	130	----
toluene	108-88-3	E611F	0.5	µg/L	100 µg/L	85.5	70.0	130	----
trichlorobenzene, 1,2,3-	87-61-6	E611F	0.5	µg/L	100 µg/L	114	70.0	130	----
trichlorobenzene, 1,2,4-	120-82-1	E611F	0.5	µg/L	100 µg/L	124	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611F	0.5	µg/L	100 µg/L	90.2	70.0	130	----
trichloroethane, 1,1,2-	79-00-5	E611F	0.5	µg/L	100 µg/L	90.4	70.0	130	----
trichloroethylene	79-01-6	E611F	0.5	µg/L	100 µg/L	95.3	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 303358) - continued									
trichlorofluoromethane	75-69-4	E611F	0.5	µg/L	100 µg/L	117	60.0	140	----
trichloropropane, 1,2,3-	96-18-4	E611F	0.5	µg/L	100 µg/L	114	70.0	130	----
trimethylbenzene, 1,2,4-	95-63-6	E611F	0.5	µg/L	100 µg/L	110	70.0	130	----
trimethylbenzene, 1,3,5-	108-67-8	E611F	0.5	µg/L	100 µg/L	111	70.0	130	----
vinyl chloride	75-01-4	E611F	0.5	µg/L	100 µg/L	112	60.0	140	----
xylene, m+p-	179601-23-1	E611F	0.4	µg/L	200 µg/L	113	70.0	130	----
xylene, o-	95-47-6	E611F	0.3	µg/L	100 µg/L	96.8	70.0	130	----
Hydrocarbons (QCLot: 304374)									
EPH (C10-C19)	----	E601A	250	µg/L	8310 µg/L	104	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3570 µg/L	102	70.0	130	----
TEH (C10-C30), BC	----	E601A	250	µg/L	11080 µg/L	104	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 301877)										
CG2104374-011	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0569 mg/L	0.05 mg/L	114	70.0	130	----
Anions and Nutrients (QCLot: 302449)										
CG2104363-009	Anonymous	fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 302452)										
CG2104363-009	Anonymous	chloride	16887-00-6	E235.Cl	109 mg/L	100 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 302453)										
CG2104363-009	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 302454)										
CG2104374-013	Anonymous	bromide	24959-67-9	E235.Br-L	0.531 mg/L	0.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 302456)										
CG2104374-013	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.73 mg/L	2.5 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 302457)										
CG2104374-013	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.544 mg/L	0.5 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 304414)										
CG2104374-002	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0735 mg/L	0.0676 mg/L	109	70.0	130	----
Anions and Nutrients (QCLot: 304415)										
CG2104383-005	FIELD BLANK	phosphorus, total	7723-14-0	E372-U	0.0637 mg/L	0.0676 mg/L	94.3	70.0	130	----
Anions and Nutrients (QCLot: 305651)										
CG2104343-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.27 mg/L	2.5 mg/L	90.8	70.0	130	----
Anions and Nutrients (QCLot: 318216)										
CG2104383-002	MICH-33.8	ammonia, total (as N)	7664-41-7	E298	0.114 mg/L	0.1 mg/L	114	75.0	125	----
Organic / Inorganic Carbon (QCLot: 309369)										
CG2104374-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	24.2 mg/L	23.9 mg/L	101	70.0	130	----
Organic / Inorganic Carbon (QCLot: 309373)										
CG2104381-001	Anonymous	carbon, total organic [TOC]	----	E355-L	ND mg/L	23.9 mg/L	ND	70.0	130	----
Total Metals (QCLot: 302822)										
CG2104383-002	MICH-33.8	mercury, total	7439-97-6	E508	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 306382)										
CG2104383-001	MICH-13.0	aluminum, total	7429-90-5	E420	2.01 mg/L	2 mg/L	101	70.0	130	----
		antimony, total	7440-36-0	E420	0.204 mg/L	0.2 mg/L	102	70.0	130	----
		arsenic, total	7440-38-2	E420	0.200 mg/L	0.2 mg/L	100	70.0	130	----
		barium, total	7440-39-3	E420	0.198 mg/L	0.2 mg/L	99.2	70.0	130	----
		beryllium, total	7440-41-7	E420	0.404 mg/L	0.4 mg/L	101	70.0	130	----
		bismuth, total	7440-69-9	E420	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		boron, total	7440-42-8	E420	1.08 mg/L	1 mg/L	108	70.0	130	----
		cadmium, total	7440-43-9	E420	0.0402 mg/L	0.04 mg/L	101	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	40 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E420	0.404 mg/L	0.4 mg/L	101	70.0	130	----
		cobalt, total	7440-48-4	E420	0.204 mg/L	0.2 mg/L	102	70.0	130	----
		copper, total	7440-50-8	E420	0.205 mg/L	0.2 mg/L	102	70.0	130	----
		iron, total	7439-89-6	E420	20.1 mg/L	20 mg/L	101	70.0	130	----
		lead, total	7439-92-1	E420	0.210 mg/L	0.2 mg/L	105	70.0	130	----
		lithium, total	7439-93-2	E420	1.06 mg/L	1 mg/L	106	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	10 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	0.204 mg/L	0.2 mg/L	102	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.198 mg/L	0.2 mg/L	99.1	70.0	130	----
		nickel, total	7440-02-0	E420	0.409 mg/L	0.4 mg/L	102	70.0	130	----
		phosphorus, total	7723-14-0	E420	98.2 mg/L	100 mg/L	98.2	70.0	130	----
		potassium, total	7440-09-7	E420	40.8 mg/L	40 mg/L	102	70.0	130	----
		selenium, total	7782-49-2	E420	0.441 mg/L	0.4 mg/L	110	70.0	130	----
		silicon, total	7440-21-3	E420	93.1 mg/L	100 mg/L	93.1	70.0	130	----
		silver, total	7440-22-4	E420	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		sodium, total	17341-25-2	E420	20.0 mg/L	20 mg/L	100	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	217 mg/L	200 mg/L	108	70.0	130	----
		thallium, total	7440-28-0	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		tin, total	7440-31-5	E420	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		titanium, total	7440-32-6	E420	0.363 mg/L	0.4 mg/L	90.6	70.0	130	----
		uranium, total	7440-61-1	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		vanadium, total	7440-62-2	E420	1.02 mg/L	1 mg/L	102	70.0	130	----
		zinc, total	7440-66-6	E420	3.88 mg/L	4 mg/L	97.0	70.0	130	----
		zirconium, total	7440-67-7	E420	0.395 mg/L	0.4 mg/L	98.8	70.0	130	----
Dissolved Metals (QCLot: 302823)										
CG2104383-002	MICH-33.8	mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0.0001 mg/L	102	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 307498)										
CG2104383-002	MICH-33.8	aluminum, dissolved	7429-90-5	E421	1.84 mg/L	2 mg/L	91.9	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.187 mg/L	0.2 mg/L	93.7	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		barium, dissolved	7440-39-3	E421	0.186 mg/L	0.2 mg/L	93.1	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.377 mg/L	0.4 mg/L	94.3	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.0973 mg/L	0.1 mg/L	97.3	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.920 mg/L	1 mg/L	92.0	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	40 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.382 mg/L	0.4 mg/L	95.5	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.193 mg/L	0.2 mg/L	96.6	70.0	130	----
		iron, dissolved	7439-89-6	E421	18.8 mg/L	20 mg/L	94.0	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.185 mg/L	0.2 mg/L	92.4	70.0	130	----
		lithium, dissolved	7439-93-2	E421	1.04 mg/L	1 mg/L	104	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	10 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	0.191 mg/L	0.2 mg/L	95.5	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.192 mg/L	0.2 mg/L	96.0	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.381 mg/L	0.4 mg/L	95.2	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	97.5 mg/L	100 mg/L	97.5	70.0	130	----
		potassium, dissolved	7440-09-7	E421	35.7 mg/L	40 mg/L	89.3	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.374 mg/L	0.4 mg/L	93.5	70.0	130	----
		silicon, dissolved	7440-21-3	E421	89.5 mg/L	100 mg/L	89.5	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		sodium, dissolved	17341-25-2	E421	20.2 mg/L	20 mg/L	101	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.2 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	198 mg/L	200 mg/L	98.9	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.0344 mg/L	0.04 mg/L	85.9	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.180 mg/L	0.2 mg/L	90.2	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.942 mg/L	1 mg/L	94.2	70.0	130	----
		zinc, dissolved	7440-66-6	E421	3.73 mg/L	4 mg/L	93.3	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.397 mg/L	0.4 mg/L	99.3	70.0	130	----
Aggregate Organics (QCLot: 304986)										
CG2104374-010	Anonymous	chemical oxygen demand [COD]	----	E559-L	102 mg/L	100 mg/L	102	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 303358)										
CG2104383-001	MICH-13.0	acetone	67-64-1	E611F	1980 µg/L	2000 µg/L	99.1	50.0	140	----
		benzene	71-43-2	E611F	96.8 µg/L	100 µg/L	96.8	50.0	140	----
		bromobenzene	108-86-1	E611F	83.9 µg/L	100 µg/L	83.9	50.0	140	----
		bromochloromethane	74-97-5	E611F	126 µg/L	100 µg/L	126	50.0	140	----
		bromodichloromethane	75-27-4	E611F	124 µg/L	100 µg/L	124	50.0	140	----
		bromoform	75-25-2	E611F	102 µg/L	100 µg/L	102	50.0	140	----
		bromomethane	74-83-9	E611F	122 µg/L	100 µg/L	122	50.0	140	----
		butylbenzene, n-	104-51-8	E611F	123 µg/L	100 µg/L	123	50.0	140	----
		butylbenzene, sec-	135-98-8	E611F	121 µg/L	100 µg/L	121	50.0	140	----
		butylbenzene, tert-	98-06-6	E611F	126 µg/L	100 µg/L	126	50.0	140	----
		carbon disulfide	75-15-0	E611F	94.5 µg/L	140 µg/L	67.5	50.0	140	----
		carbon tetrachloride	56-23-5	E611F	128 µg/L	100 µg/L	128	50.0	140	----
		chlorobenzene	108-90-7	E611F	127 µg/L	100 µg/L	127	50.0	140	----
		chloroethane	75-00-3	E611F	74.3 µg/L	100 µg/L	74.3	50.0	140	----
		chloroform	67-66-3	E611F	110 µg/L	100 µg/L	110	50.0	140	----
		chloromethane	74-87-3	E611F	95.0 µg/L	100 µg/L	95.0	50.0	140	----
		chlorotoluene, 2-	95-49-8	E611F	128 µg/L	100 µg/L	128	50.0	140	----
		chlorotoluene, 4-	106-43-4	E611F	120 µg/L	100 µg/L	120	50.0	140	----
		cymene, p-	99-87-6	E611F	118 µg/L	100 µg/L	118	50.0	140	----
		dibromo-3-chloropropane, 1,2-	96-12-8	E611F	112 µg/L	100 µg/L	112	50.0	140	----
		dibromochloromethane	124-48-1	E611F	106 µg/L	100 µg/L	106	50.0	140	----
		dibromoethane, 1,2-	106-93-4	E611F	85.7 µg/L	100 µg/L	85.7	50.0	140	----
		dibromomethane	74-95-3	E611F	119 µg/L	100 µg/L	119	50.0	140	----
		dichlorobenzene, 1,2-	95-50-1	E611F	103 µg/L	100 µg/L	103	50.0	140	----
		dichlorobenzene, 1,3-	541-73-1	E611F	116 µg/L	100 µg/L	116	50.0	140	----
		dichlorobenzene, 1,4-	106-46-7	E611F	99.3 µg/L	100 µg/L	99.3	50.0	140	----
		dichlorodifluoromethane	75-71-8	E611F	129 µg/L	100 µg/L	129	50.0	140	----
		dichloroethane, 1,1-	75-34-3	E611F	120 µg/L	100 µg/L	120	50.0	140	----
		dichloroethane, 1,2-	107-06-2	E611F	117 µg/L	100 µg/L	117	50.0	140	----
		dichloroethylene, 1,1-	75-35-4	E611F	97.2 µg/L	100 µg/L	97.2	50.0	140	----
		dichloroethylene, cis-1,2-	156-59-2	E611F	106 µg/L	100 µg/L	106	50.0	140	----
		dichloroethylene, trans-1,2-	156-60-5	E611F	99.4 µg/L	100 µg/L	99.4	50.0	140	----
		dichloromethane	75-09-2	E611F	116 µg/L	100 µg/L	116	50.0	140	----
		dichloropropane, 1,2-	78-87-5	E611F	106 µg/L	100 µg/L	106	50.0	140	----
		dichloropropane, 1,3-	142-28-9	E611F	128 µg/L	100 µg/L	128	50.0	140	----
		dichloropropane, 2,2-	594-20-7	E611F	112 µg/L	100 µg/L	112	50.0	140	----
		dichloropropylene, 1,1-	563-58-6	E611F	128 µg/L	100 µg/L	128	50.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 303358) - continued										
CG2104383-001	MICH-13.0	dichloropropylene, cis-1,3-	10061-01-5	E611F	109 µg/L	100 µg/L	109	50.0	140	----
		dichloropropylene, trans-1,3-	10061-02-6	E611F	116 µg/L	100 µg/L	116	50.0	140	----
		ethylbenzene	100-41-4	E611F	109 µg/L	100 µg/L	109	50.0	140	----
		hexachlorobutadiene	87-68-3	E611F	89.2 µg/L	100 µg/L	89.2	50.0	140	----
		hexane, n-	110-54-3	E611F	80.9 µg/L	100 µg/L	80.9	50.0	140	----
		hexanone, 2-	591-78-6	E611F	496 µg/L	400.6 µg/L	124	50.0	140	----
		isopropylbenzene	98-82-8	E611F	122 µg/L	100 µg/L	122	50.0	140	----
		methyl ethyl ketone [MEK]	78-93-3	E611F	1980 µg/L	2000 µg/L	99.2	50.0	140	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611F	395 µg/L	401.4 µg/L	98.5	50.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	120 µg/L	100 µg/L	120	50.0	140	----
		naphthalene	91-20-3	E611F	85.8 µg/L	100 µg/L	85.8	50.0	140	----
		propylbenzene, n-	103-65-1	E611F	118 µg/L	100 µg/L	118	50.0	140	----
		styrene	100-42-5	E611F	100 µg/L	100 µg/L	100	50.0	140	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611F	124 µg/L	100 µg/L	124	50.0	140	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611F	80.0 µg/L	100 µg/L	80.0	50.0	140	----
		tetrachloroethylene	127-18-4	E611F	124 µg/L	100 µg/L	124	50.0	140	----
		toluene	108-88-3	E611F	95.5 µg/L	100 µg/L	95.5	50.0	140	----
		trichlorobenzene, 1,2,3-	87-61-6	E611F	84.0 µg/L	100 µg/L	84.0	50.0	140	----
		trichlorobenzene, 1,2,4-	120-82-1	E611F	128 µg/L	100 µg/L	128	50.0	140	----
		trichloroethane, 1,1,1-	71-55-6	E611F	110 µg/L	100 µg/L	110	50.0	140	----
		trichloroethane, 1,1,2-	79-00-5	E611F	123 µg/L	100 µg/L	123	50.0	140	----
		trichloroethylene	79-01-6	E611F	121 µg/L	100 µg/L	121	50.0	140	----
		trichlorofluoromethane	75-69-4	E611F	86.1 µg/L	100 µg/L	86.1	50.0	140	----
		trichloropropane, 1,2,3-	96-18-4	E611F	126 µg/L	100 µg/L	126	50.0	140	----
		trimethylbenzene, 1,2,4-	95-63-6	E611F	124 µg/L	100 µg/L	124	50.0	140	----
		trimethylbenzene, 1,3,5-	108-67-8	E611F	127 µg/L	100 µg/L	127	50.0	140	----
		vinyl chloride	75-01-4	E611F	90.0 µg/L	100 µg/L	90.0	50.0	140	----
		xylene, m+p-	179601-23-1	E611F	253 µg/L	200 µg/L	126	50.0	140	----
		xylene, o-	95-47-6	E611F	113 µg/L	100 µg/L	113	50.0	140	----

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	North Coal Limited	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Abby Cousins	☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	652F Sparwood Dr, PO Box 576	Email 1: acousins@northcoal.ca		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Sparwood, BC, V0B 2G0	Email 2: barling@northcoal.ca		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	Fax:	Email 3: mia.otto@lotic.co		
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: 21NORT02		Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	Same as Report	PO / AFE: 15708		
Contact:	Same as Report	LSD:		
Address:	Same as Report			
Phone:	Fax:	Quote #: CG2020NOCL1000001		
Lab Work Order # (lab use only)		ALS Contact: Patryk Wojciak	Sampler: Mia Otto	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	EPH x2	DOC	COD/NH3/TKN/TOC	Total Metals	Dissolved Metals	Dissolved mercury	Total Mercury	VOCx2				Number of Containers
						P	F/P	P	P	F/P	F/P	P	P				
	MICH-13.0	23-09-21	7:45	Surface Water	X	X	X	X	X	X	X	X	X				11
	MICH-33.8	23-09-21	10:45	Surface Water	X	X	X	X	X	X	X	X	X				11
	AND1	23-09-21	13:30	Surface Water	X	X	X	X	X	X	X	X	X				11
	Duplicate	23-09-21	17:00	Surface Water	X	X	X	X	X	X	X	X	X				11
	Field Blank	23-09-21	08:00	Surface Water	X	X	X	X	X	X	X	X	X				11

Environmental Division Calgary
Work Order Reference
CG2104383

Telephone : +1 403 407 1800

Special Instructi ... use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

... portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Mia Otto	23/9/21	17:00				5°C		24/9	9:55	