

CERTIFICATE OF ANALYSIS

Work Order : **CG2102588**
Client : **Lotic Environmental Ltd.**
Contact : Mike Robinson
Address : 2193 Mazur Road
 Cranbrook BC Canada V1C 6V9
Telephone : 250 426 0528
Project : 18CANA02
PO : ----
C-O-C number : ----
Sampler : ----
Site : 18CANA02
Quote number : CG20-NOCL100-0001
No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 8
Laboratory : Calgary - Environmental
Account Manager : Patryk Wojciak
Address : 2559 29th Street NE
 Calgary AB Canada T1Y 7B5
Telephone : +1 403 407 1800
Date Samples Received : 15-Jul-2021 08:30
Date Analysis Commenced : 15-Jul-2021
Issue Date : 23-Jul-2021 11:55

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Anthony Calero	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Anthony Calero	Team Leader - Inorganics	Metals, Calgary, Alberta
Elke Tabora		Inorganics, Calgary, Alberta
Hannah Phung	Lab Assistant	Inorganics, Calgary, Alberta
James Diacon	Laboratory Analyst	Metals, Calgary, Alberta
Jeanie Mark	Laboratory Analyst	Organics, Calgary, Alberta
Jorden Fanson	Analyst	Inorganics, Calgary, Alberta
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
Maqsood Ul Hassan	Laboratory Analyst	Organics, Calgary, Alberta
Oscar Ruiz	Lab Assistant	Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Sara Niroomand		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.

Client sample ID

Client sampling date / time

Sub-Matrix: Surface Water					Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
(Matrix: Water)										
Client sampling date / time					14-Jul-2021 07:55	14-Jul-2021 13:20	14-Jul-2021 10:50	14-Jul-2021 10:25	14-Jul-2021 13:40	
Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005	
					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	379	508	212	212	<2.0	
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L	198	259	113	106	<0.60	
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L	214	254	106	107	<0.60	
pH	----	E108	0.10	pH units	8.38	8.47	8.33	8.33	5.38	
solids, total dissolved [TDS]	----	E162	10	mg/L	245	345	119	124	<10	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	3.4	<3.0	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	0.88	1.70	0.69	0.16	<0.10	
alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	136	139	101	103	<2.0	
alkalinity, phenolphthalein (as CaCO3)	----	E290	2.0	mg/L	3.3	5.0	<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	6.6	10.0	3.2	2.8	<2.0	
alkalinity, bicarbonate (as CaCO3)	----	E290	2.0	mg/L	129	129	97.9	100	<2.0	
alkalinity, bicarbonate (as HCO3)	71-52-3	E290	2.0	mg/L	158	158	119	122	<2.0	
alkalinity, carbonate (as CO3)	3812-32-6	E290	2.0	mg/L	4.0	6.0	<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	0.0156	0.0065	<0.0050	0.0421	<0.0050	
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	0.69	0.54	<0.50	<0.50	<0.50	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.097	0.141	0.205	0.200	<0.020	
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.155	0.278	0.068	0.155	<0.050	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0829	0.407	0.0558	0.0565	<0.0050	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0020	0.0029	<0.0010	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0019	0.0013	<0.0010	0.0011	<0.0010	
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0039	0.0045	<0.0020	<0.0020	<0.0020	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	75.1	142	11.6	11.5	<0.30	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.07	2.53	1.44	1.68	<0.50	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	9.63	11.7	8.92	5.44	<0.50	
Total Metals										



Analytical Results

Sub-Matrix: Surface Water

(Matrix: Water)

					Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	14-Jul-2021 07:55	14-Jul-2021 13:20	14-Jul-2021 10:50	14-Jul-2021 10:25	14-Jul-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005	
					Result	Result	Result	Result	Result	
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0190	0.0651	0.0070	0.0061	<0.0030	
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00012	<0.00010	<0.00010	<0.00010	
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00023	0.00023	0.00046	0.00043	<0.00010	
barium, total	7440-39-3	E420	0.00010	mg/L	0.116	0.0493	0.0146	0.0143	<0.00010	
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	0.017	<0.010	<0.010	<0.010	
cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000359	0.0000149	0.0000136	0.0000162	<0.0000050	
calcium, total	7440-70-2	E420	0.050	mg/L	57.7	63.2	32.4	32.6	<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	0.00066	<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	0.021	0.055	<0.010	<0.010	<0.010	
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000060	<0.000050	<0.000050	<0.000050	
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0076	0.0094	0.0012	0.0012	<0.0010	
magnesium, total	7439-95-4	E420	0.100	mg/L	16.9	23.5	6.10	6.18	<0.100	
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00255	0.00646	0.00014	0.00012	<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	0.000784	0.000777	0.000479	0.000497	<0.000050	
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00184	0.00691	<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	0.727	0.839	0.154	0.150	<0.100	
selenium, total	7782-49-2	E420	0.000050	mg/L	0.00170	0.00266	0.00102	0.000985	<0.000050	
silicon, total	7440-21-3	E420	0.10	mg/L	1.84	1.64	1.16	1.16	<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	3.84	5.35	0.373	0.382	<0.050	
strontium, total	7440-24-6	E420	0.00020	mg/L	0.175	0.216	0.0941	0.0949	<0.00020	
sulfur, total	7704-34-9	E420	0.50	mg/L	25.8	44.6	3.34	3.27	<0.50	
thallium, total	7440-28-0	E420	0.000010	mg/L	0.000010	0.000019	0.000042	0.000042	<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	0.00046	0.00102	<0.00030	<0.00030	<0.00030	
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000777	0.00129	0.000514	0.000510	<0.000010	



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
(Matrix: Water)									
Client sampling date / time					14-Jul-2021 07:55	14-Jul-2021 13:20	14-Jul-2021 10:50	14-Jul-2021 10:25	14-Jul-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005
					Result	Result	Result	Result	Result
Total Metals									
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	<0.0010	0.0119	0.0061	0.0026	<0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00011	0.00012	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00022	0.00025	0.00050	0.00046	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.109	0.0514	0.0157	0.0152	<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	0.013	0.017	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000247	0.0000149	0.0000102	0.0000099	<0.0000050
calcium, dissolved	7440-70-2	E421	0.050	mg/L	51.1	63.0	34.4	32.0	<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	0.00057	<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	0.014	<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	0.0065	0.0094	0.0013	0.0012	<0.0010
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.2	24.8	6.62	6.48	<0.100
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00095	0.00389	<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	0.000672	0.000713	0.000525	0.000507	<0.000050
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00158	0.00685	<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	0.737	0.873	0.200	0.176	<0.100
selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00165	0.00293	0.00115	0.00107	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.71	1.60	1.22	1.16	<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	3.93	5.60	0.421	0.391	<0.050
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.150	0.207	0.0964	0.0904	<0.00020
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	25.1	46.5	3.92	3.62	<0.50



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
(Matrix: Water)									
Client sampling date / time					14-Jul-2021 07:55	14-Jul-2021 13:20	14-Jul-2021 10:50	14-Jul-2021 10:25	14-Jul-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005
					Result	Result	Result	Result	Result
Dissolved Metals									
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000018	0.000043	0.000044	<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	0.000658	0.00130	0.000529	0.000498	<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	0.0011	<0.0010	0.0036	0.0014	<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									
benzene	71-43-2	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
bromobenzene	108-86-1	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
bromochloromethane	74-97-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	75-27-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	75-25-2	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
bromomethane	74-83-9	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
butylbenzene, n-	104-51-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
butylbenzene, sec-	135-98-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
butylbenzene, tert-	98-06-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	56-23-5	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
chlorobenzene	108-90-7	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
chloroethane	75-00-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
chloroform	67-66-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
chloromethane	74-87-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
chlorotoluene, 2-	95-49-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
chlorotoluene, 4-	106-43-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cymene, p-	99-87-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dibromo-3-chloropropane, 1,2-	96-12-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	124-48-1	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dibromoethane, 1,2-	106-93-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

(Matrix: Water)

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
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Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds									
dibromomethane	74-95-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichlorobenzene, 1,2-	95-50-1	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
dichlorobenzene, 1,3-	541-73-1	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichlorobenzene, 1,4-	106-46-7	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichlorodifluoromethane	75-71-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloroethane, 1,1-	75-34-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloroethane, 1,2-	107-06-2	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloroethylene, 1,1-	75-35-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloroethylene, cis-1,2-	156-59-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloroethylene, trans-1,2-	156-60-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloromethane	75-09-2	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropane, 1,2-	78-87-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropane, 1,3-	142-28-9	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropane, 2,2-	594-20-7	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropylene, 1,1-	563-58-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropylene, cis+trans-1,3-	542-75-6	E611E	1.5	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
dichloropropylene, cis-1,3-	10061-01-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropylene, trans-1,3-	10061-02-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
ethylbenzene	100-41-4	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
hexachlorobutadiene	87-68-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	98-82-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
methyl-tert-butyl ether [MTBE]	1634-04-4	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
propylbenzene, n-	103-65-1	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
styrene	100-42-5	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethane, 1,1,1,2-	630-20-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethane, 1,1,2,2-	79-34-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethylene	127-18-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
toluene	108-88-3	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
trichlorobenzene, 1,2,3-	87-61-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethane, 1,1,1-	71-55-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethane, 1,1,2-	79-00-5	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: Surface Water

(Matrix: Water)

					Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time					14-Jul-2021 07:55	14-Jul-2021 13:20	14-Jul-2021 10:50	14-Jul-2021 10:25	14-Jul-2021 13:40	
Analyte	CAS Number	Method	LOR	Unit	CG2102588-001	CG2102588-002	CG2102588-003	CG2102588-004	CG2102588-005	
					Result	Result	Result	Result	Result	
Volatile Organic Compounds										
trichloroethylene	79-01-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trichlorofluoromethane	75-69-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trichloropropane, 1,2,3-	96-18-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trimethylbenzene, 1,2,4-	95-63-6	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trimethylbenzene, 1,3,5-	108-67-8	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
vinyl chloride	75-01-4	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
xylene, m+p-	179601-23-1	E611E	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
xylene, o-	95-47-6	E611E	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
xylenes, total	1330-20-7	E611E	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
BTEX, total	----	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trihalomethanes [THMs], total	----	E611E	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611E	1.0	%	78.2	77.5	79.7	80.0	79.9	
difluorobenzene, 1,4-	540-36-3	E611E	1.0	%	96.5	96.3	94.8	94.3	93.9	
Hydrocarbons										
EPH (C10-C19)	----	E601A	250	µg/L	<250	<250	<250	<250	<250	<250
EPH (C10-C32)	----	E601A	400	µg/L	<400	<400	<400	<400	<400	<400
EPH (C19-C32)	----	E601A	250	µg/L	<250	<250	<250	<250	<250	<250
TEH (C10-C30), BC	----	E601A	250	µg/L	<250	<250	<250	<250	<250	<250
Hydrocarbons Surrogates										
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	72.0	70.0	70.0	76.0	70.0	
Polycyclic Aromatic Hydrocarbons										
naphthalene	91-20-3	E611E	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

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

QUALITY CONTROL REPORT

Work Order : **CG2102588**

Page : 1 of 25

Client : Lotic Environmental Ltd.
Contact : Mike Robinson
Address : 652 F Sparwood Drive
 Sparwood BC Canada V0B 2G0
Telephone : 250 426 0528
Project : 18CANA02
PO : ----
C-O-C number : ----
Sampler : ----
Site : 18CANA02
Quote number : CG20-NOCL100-0001
No. of samples received : 5
No. of samples analysed : 5

Laboratory : Calgary - Environmental
Account Manager : Patryk Wojciak
Address : 2559 29th Street NE
 Calgary, Alberta Canada T1Y 7B5
Telephone : +1 403 407 1800
Date Samples Received : 15-Jul-2021 08:30
Date Analysis Commenced : 15-Jul-2021
Issue Date : 23-Jul-2021 11:55

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Anthony Calero	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Anthony Calero	Team Leader - Inorganics	Metals, Calgary, Alberta
Elke Tabora		Inorganics, Calgary, Alberta
Hannah Phung	Lab Assistant	Inorganics, Calgary, Alberta
James Diacon	Laboratory Analyst	Metals, Calgary, Alberta
Jeanie Mark	Laboratory Analyst	Organics, Calgary, Alberta
Jorden Fanson	Analyst	Inorganics, Calgary, Alberta
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
Maqsood Ul Hassan	Laboratory Analyst	Organics, Calgary, Alberta
Oscar Ruiz	Lab Assistant	Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Sara Niroomand		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: 244905)											
CG2102542-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	14.7	16.3	1.6	Diff <2x LOR	----
Physical Tests (QC Lot: 245293)											
CG2102588-001	MICH-13.0	turbidity	----	E121	0.10	NTU	0.88	0.78	0.10	Diff <2x LOR	----
Physical Tests (QC Lot: 245295)											
CG2102588-002	MICH-33.8	turbidity	----	E121	0.10	NTU	1.70	1.86	9.32%	15%	----
Physical Tests (QC Lot: 245725)											
CG2102588-001	MICH-13.0	colour, true	----	E329	5.0	CU	<5.0	5.3	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 246123)											
CG2102586-001	Anonymous	pH	----	E108	0.10	pH units	8.22	8.24	0.243%	4%	----
Physical Tests (QC Lot: 246124)											
CG2102586-001	Anonymous	conductivity	----	E100	2.0	µS/cm	719	767	6.46%	10%	----
Physical Tests (QC Lot: 246125)											
CG2102586-001	Anonymous	alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	139	140	1.15%	20%	----
		alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		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	<1.0	<1.0	0	Diff <2x LOR	----
		alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	139	140	1.15%	20%	----
Physical Tests (QC Lot: 246418)											
CG2102575-001	Anonymous	solids, total suspended [TSS]	----	E160-H	5.0	mg/L	452	415	8.69%	20%	----
Physical Tests (QC Lot: 247984)											
CG2102588-001	MICH-13.0	solids, total dissolved [TDS]	----	E162	20	mg/L	245	244	0.614%	20%	----
Anions and Nutrients (QC Lot: 244213)											
CG2102586-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0635	0.0623	1.91%	20%	----
Anions and Nutrients (QC Lot: 244276)											
CG2102580-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	6.27	6.26	0.0160%	20%	----
Anions and Nutrients (QC Lot: 244277)											
CG2102580-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	0.0414	0.0416	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 244280)											
CG2102586-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	232	232	0.0444%	20%	----
Anions and Nutrients (QC Lot: 244281)											
CG2102586-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.136	0.134	0.002	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
Anions and Nutrients (QC Lot: 244282)											
CG2102586-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	13.2	13.2	0.358%	20%	----
Anions and Nutrients (QC Lot: 244283)											
CG2102588-001	MICH-13.0	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 244343)											
CG2102588-001	MICH-13.0	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.155	0.175	0.020	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 245720)											
CG2102586-001	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0120	0.0123	3.24%	20%	----
Anions and Nutrients (QC Lot: 247195)											
CG2102586-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0553	0.0564	1.95%	20%	----
Organic / Inorganic Carbon (QC Lot: 247515)											
CG2102447-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.42	2.47	0.04	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 247516)											
CG2102447-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.70	2.41	0.29	Diff <2x LOR	----
Total Metals (QC Lot: 245007)											
CG2102498-001	Anonymous	aluminum, total	7429-90-5	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	----
		antimony, total	7440-36-0	E420	0.00050	mg/L	0.00224	0.00250	0.00026	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00050	mg/L	0.0196	0.0215	9.06%	20%	----
		beryllium, total	7440-41-7	E420	0.100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.050	mg/L	0.104	0.118	0.015	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0250	mg/L	0.726 µg/L	0.000802	9.87%	20%	----
		calcium, total	7440-70-2	E420	0.250	mg/L	616	692	11.6%	20%	----
		chromium, total	7440-47-3	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.50	mg/L	74.5 µg/L	0.0823	9.95%	20%	----
		copper, total	7440-50-8	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0050	mg/L	1.38	1.56	12.4%	20%	----
		magnesium, total	7439-95-4	E420	0.0250	mg/L	272	303	10.6%	20%	----
		manganese, total	7439-96-5	E420	0.00050	mg/L	0.506	0.560	10.0%	20%	----
		molybdenum, total	7439-98-7	E420	0.000250	mg/L	0.00467	0.00523	11.4%	20%	----
		nickel, total	7440-02-0	E420	0.00250	mg/L	0.471	0.523	10.6%	20%	----
		phosphorus, total	7723-14-0	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.250	mg/L	19.3	21.2	9.32%	20%	----



Sub-Matrix: **Water**

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: 245007) - continued											
CG2102498-001	Anonymous	selenium, total	7782-49-2	E420	0.250	mg/L	64.4 µg/L	0.0679	5.33%	20%	----
		silicon, total	7440-21-3	E420	0.50	mg/L	3.06	3.38	0.32	Diff <2x LOR	----
		silver, total	7440-22-4	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.250	mg/L	43.4	48.2	10.5%	20%	----
		strontium, total	7440-24-6	E420	0.00100	mg/L	1.59	1.77	10.9%	20%	----
		sulfur, total	7704-34-9	E420	2.50	mg/L	498	536	7.36%	20%	----
		thallium, total	7440-28-0	E420	0.000050	mg/L	0.000206	0.000224	0.000018	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00150	mg/L	<0.00150	<0.00150	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000050	mg/L	0.0352	0.0393	11.0%	20%	----
		vanadium, total	7440-62-2	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0150	mg/L	0.0669	0.0735	0.0065	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
Total Metals (QC Lot: 248004)											
CG2102588-001	MICH-13.0	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 244203)											
CG2102588-005	FIELD BLANK	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		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	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		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	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	<0.0010	<0.0010	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: **Water**

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: 244203) - continued											
CG2102588-005	FIELD BLANK	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	<0.100	<0.100	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		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	<0.050	<0.050	0	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		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	<0.000010	<0.000010	0	Diff <2x LOR	----
		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	<0.0010	<0.0010	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 248003)											
CG2102588-001	MICH-13.0	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 244146)											
CG2102570-004	Anonymous	chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	<10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 244909)											
CG2102595-001	Anonymous	benzene	71-43-2	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		bromobenzene	108-86-1	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		bromochloromethane	74-97-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		bromodichloromethane	75-27-4	E611E	0.0010	µg/L	0.0019 mg/L	1.9	0.02	Diff <2x LOR	----
		bromoform	75-25-2	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		bromomethane	74-83-9	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		butylbenzene, n-	104-51-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		butylbenzene, sec-	135-98-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		butylbenzene, tert-	98-06-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		carbon tetrachloride	56-23-5	E611E	0.00100	µg/L	<0.00100 mg/L	<1.00	0	Diff <2x LOR	----
		chlorobenzene	108-90-7	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		chloroethane	75-00-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		chloroform	67-66-3	E611E	0.0010	µg/L	0.0292 mg/L	29.7	1.77%	30%	----
		chloromethane	74-87-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	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: 244909) - continued											
CG2102595-001	Anonymous	chlorotoluene, 2-	95-49-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		chlorotoluene, 4-	106-43-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		cymene, p-	99-87-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dibromo-3-chloropropane, 1,2-	96-12-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dibromochloromethane	124-48-1	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dibromoethane, 1,2-	106-93-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dibromomethane	74-95-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichlorobenzene, 1,2-	95-50-1	E611E	0.00100	µg/L	<0.00100 mg/L	<1.00	0	Diff <2x LOR	----
		dichlorobenzene, 1,3-	541-73-1	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichlorobenzene, 1,4-	106-46-7	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichlorodifluoromethane	75-71-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloroethane, 1,1-	75-34-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloroethane, 1,2-	107-06-2	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloroethylene, 1,1-	75-35-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloroethylene, cis-1,2-	156-59-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloroethylene, trans-1,2-	156-60-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloromethane	75-09-2	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropane, 1,2-	78-87-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropane, 1,3-	142-28-9	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropane, 2,2-	594-20-7	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropylene, 1,1-	563-58-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropylene, cis-1,3-	10061-01-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		dichloropropylene, trans-1,3-	10061-02-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		hexachlorobutadiene	87-68-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		isopropylbenzene	98-82-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		naphthalene	91-20-3	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		propylbenzene, n-	103-65-1	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		styrene	100-42-5	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		tetrachloroethylene	127-18-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	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: 244909) - continued											
CG2102595-001	Anonymous	toluene	108-88-3	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		trichlorobenzene, 1,2,3-	87-61-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichlorobenzene, 1,2,4-	120-82-1	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichloroethane, 1,1,1-	71-55-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichloroethane, 1,1,2-	79-00-5	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichloroethylene	79-01-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichlorofluoromethane	75-69-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trichloropropane, 1,2,3-	96-18-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trimethylbenzene, 1,2,4-	95-63-6	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		trimethylbenzene, 1,3,5-	108-67-8	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		vinyl chloride	75-01-4	E611E	0.0010	µg/L	<0.0010 mg/L	<1.0	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611E	0.00050	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611E	0.00050	µg/L	0.00086 mg/L	0.86	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: 244905)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 245293)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 245295)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 245725)						
colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 246124)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 246125)						
alkalinity, bicarbonate (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
alkalinity, carbonate (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
alkalinity, hydroxide (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
alkalinity, phenolphthalein (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 246418)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 247984)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 244213)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 244276)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 244277)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 244280)						
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 244281)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 244282)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 244283)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 244343)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 245720)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 247195)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 247515)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 247516)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 245007)						
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	----
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	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 245007) - continued						
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	----
Total Metals (QCLot: 248004)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 244203)						
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	----
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	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 244203) - continued						
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	----
Dissolved Metals (QCLot: 248003)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 244146)						
chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Volatile Organic Compounds (QCLot: 244909)						
benzene	71-43-2	E611E	0.5	µg/L	<0.50	----
bromobenzene	108-86-1	E611E	1	µg/L	<1.0	----
bromochloromethane	74-97-5	E611E	1	µg/L	<1.0	----
bromodichloromethane	75-27-4	E611E	1	µg/L	<1.0	----
bromoform	75-25-2	E611E	1	µg/L	<1.0	----
bromomethane	74-83-9	E611E	1	µg/L	<1.0	----
butylbenzene, n-	104-51-8	E611E	1	µg/L	<1.0	----
butylbenzene, sec-	135-98-8	E611E	1	µg/L	<1.0	----
butylbenzene, tert-	98-06-6	E611E	1	µg/L	<1.0	----
carbon tetrachloride	56-23-5	E611E	0.5	µg/L	<0.50	----
chlorobenzene	108-90-7	E611E	1	µg/L	<1.0	----
chloroethane	75-00-3	E611E	1	µg/L	<1.0	----
chloroform	67-66-3	E611E	1	µg/L	<1.0	----
chloromethane	74-87-3	E611E	1	µg/L	<1.0	----
chlorotoluene, 2-	95-49-8	E611E	1	µg/L	<1.0	----
chlorotoluene, 4-	106-43-4	E611E	1	µg/L	<1.0	----
cymene, p-	99-87-6	E611E	1	µg/L	<1.0	----
dibromo-3-chloropropane, 1,2-	96-12-8	E611E	1	µg/L	<1.0	----
dibromochloromethane	124-48-1	E611E	1	µg/L	<1.0	----
dibromoethane, 1,2-	106-93-4	E611E	1	µg/L	<1.0	----
dibromomethane	74-95-3	E611E	1	µg/L	<1.0	----
dichlorobenzene, 1,2-	95-50-1	E611E	0.5	µg/L	<0.50	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 244909) - continued						
dichlorobenzene, 1,3-	541-73-1	E611E	1	µg/L	<1.0	----
dichlorobenzene, 1,4-	106-46-7	E611E	1	µg/L	<1.0	----
dichlorodifluoromethane	75-71-8	E611E	1	µg/L	<1.0	----
dichloroethane, 1,1-	75-34-3	E611E	1	µg/L	<1.0	----
dichloroethane, 1,2-	107-06-2	E611E	1	µg/L	<1.0	----
dichloroethylene, 1,1-	75-35-4	E611E	1	µg/L	<1.0	----
dichloroethylene, cis-1,2-	156-59-4	E611E	1	µg/L	<1.0	----
dichloroethylene, trans-1,2-	156-60-5	E611E	1	µg/L	<1.0	----
dichloromethane	75-09-2	E611E	1	µg/L	<1.0	----
dichloropropane, 1,2-	78-87-5	E611E	1	µg/L	<1.0	----
dichloropropane, 1,3-	142-28-9	E611E	1	µg/L	<1.0	----
dichloropropane, 2,2-	594-20-7	E611E	1	µg/L	<1.0	----
dichloropropylene, 1,1-	563-58-6	E611E	1	µg/L	<1.0	----
dichloropropylene, cis-1,3-	10061-01-5	E611E	1	µg/L	<1.0	----
dichloropropylene, trans-1,3-	10061-02-6	E611E	1	µg/L	<1.0	----
ethylbenzene	100-41-4	E611E	0.5	µg/L	<0.50	----
hexachlorobutadiene	87-68-3	E611E	1	µg/L	<1.0	----
isopropylbenzene	98-82-8	E611E	1	µg/L	<1.0	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611E	0.5	µg/L	<0.50	----
naphthalene	91-20-3	E611E	1	µg/L	<1.0	----
propylbenzene, n-	103-65-1	E611E	1	µg/L	<1.0	----
styrene	100-42-5	E611E	0.5	µg/L	<0.50	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611E	1	µg/L	<1.0	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611E	1	µg/L	<1.0	----
tetrachloroethylene	127-18-4	E611E	1	µg/L	<1.0	----
toluene	108-88-3	E611E	0.5	µg/L	<0.50	----
trichlorobenzene, 1,2,3-	87-61-6	E611E	1	µg/L	<1.0	----
trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
trichloroethane, 1,1,1-	71-55-6	E611E	1	µg/L	<1.0	----
trichloroethane, 1,1,2-	79-00-5	E611E	1	µg/L	<1.0	----
trichloroethylene	79-01-6	E611E	1	µg/L	<1.0	----
trichlorofluoromethane	75-69-4	E611E	1	µg/L	<1.0	----
trichloropropane, 1,2,3-	96-18-4	E611E	1	µg/L	<1.0	----
trimethylbenzene, 1,2,4-	95-63-6	E611E	1	µg/L	<1.0	----
trimethylbenzene, 1,3,5-	108-67-8	E611E	1	µg/L	<1.0	----
vinyl chloride	75-01-4	E611E	1	µg/L	<1.0	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 244909) - continued						
xylene, m+p-	179601-23-1	E611E	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611E	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 244489)						
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 (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 244905)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	85.9	85.0	115	----
Physical Tests (QCLot: 245293)									
turbidity	----	E121	0.1	NTU	200 NTU	96.4	85.0	115	----
Physical Tests (QCLot: 245295)									
turbidity	----	E121	0.1	NTU	200 NTU	98.8	85.0	115	----
Physical Tests (QCLot: 245725)									
colour, true	----	E329	5	CU	100 CU	105	85.0	115	----
Physical Tests (QCLot: 246123)									
pH	----	E108	----	pH units	7 pH units	100	98.6	101	----
Physical Tests (QCLot: 246124)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 246125)									
alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	92.3	85.0	115	----
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.8	85.0	115	----
Physical Tests (QCLot: 246418)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	87.9	85.0	115	----
Physical Tests (QCLot: 247984)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 244213)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	87.2	85.0	115	----
Anions and Nutrients (QCLot: 244276)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 244277)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 244280)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 244281)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	93.6	90.0	110	----
Anions and Nutrients (QCLot: 244282)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 244283)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	106	85.0	115	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 244343)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 245720)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.1 mg/L	99.0	80.0	120	----
Anions and Nutrients (QCLot: 247195)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	8.32 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 247515)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	10 mg/L	95.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 247516)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	10 mg/L	88.3	80.0	120	----
Total Metals (QCLot: 245007)									
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	101	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.9	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	95.6	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	112	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	94.6	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	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	100	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.6	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.6	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	93.9	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	108	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.2	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	100	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	112	70.0	130	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.9	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	60.0	140	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 245007) - continued									
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	105	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	105	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.9	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Total Metals (QCLot: 248004)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	111	80.0	120	----
Dissolved Metals (QCLot: 244203)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	106	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	107	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	113	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	109	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	98.2	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.8	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.1	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	111	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.8	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.8	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	101	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	107	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	99.8	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	70.0	130	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	112	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	103	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	110	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.9	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 244203) - continued									
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	111	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	104	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.6	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	106	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	115	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	110	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	113	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	----
Aggregate Organics (QCLot: 244146)									
chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	102	85.0	115	----
Volatile Organic Compounds (QCLot: 244909)									
benzene	71-43-2	E611E	0.5	µg/L	100 µg/L	103	70.0	130	----
bromobenzene	108-86-1	E611E	1	µg/L	100 µg/L	107	70.0	130	----
bromochloromethane	74-97-5	E611E	1	µg/L	100 µg/L	107	70.0	130	----
bromodichloromethane	75-27-4	E611E	1	µg/L	100 µg/L	111	70.0	130	----
bromoform	75-25-2	E611E	1	µg/L	100 µg/L	111	70.0	130	----
bromomethane	74-83-9	E611E	1	µg/L	100 µg/L	91.1	60.0	140	----
butylbenzene, n-	104-51-8	E611E	1	µg/L	100 µg/L	98.9	70.0	130	----
butylbenzene, sec-	135-98-8	E611E	1	µg/L	100 µg/L	104	70.0	130	----
butylbenzene, tert-	98-06-6	E611E	1	µg/L	100 µg/L	101	70.0	130	----
carbon tetrachloride	56-23-5	E611E	0.5	µg/L	100 µg/L	101	70.0	130	----
chlorobenzene	108-90-7	E611E	1	µg/L	100 µg/L	104	70.0	130	----
chloroethane	75-00-3	E611E	1	µg/L	100 µg/L	111	60.0	140	----
chloroform	67-66-3	E611E	1	µg/L	100 µg/L	103	70.0	130	----
chloromethane	74-87-3	E611E	1	µg/L	100 µg/L	94.8	60.0	140	----
chlorotoluene, 2-	95-49-8	E611E	1	µg/L	100 µg/L	98.6	70.0	130	----
chlorotoluene, 4-	106-43-4	E611E	1	µg/L	100 µg/L	97.4	70.0	130	----
cymene, p-	99-87-6	E611E	1	µg/L	100 µg/L	92.7	70.0	130	----
dibromo-3-chloropropane, 1,2-	96-12-8	E611E	1	µg/L	100 µg/L	123	70.0	130	----
dibromochloromethane	124-48-1	E611E	1	µg/L	100 µg/L	116	70.0	130	----
dibromoethane, 1,2-	106-93-4	E611E	1	µg/L	100 µg/L	118	70.0	130	----
dibromomethane	74-95-3	E611E	1	µg/L	100 µg/L	109	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611E	0.5	µg/L	100 µg/L	108	70.0	130	----



Sub-Matrix: Water

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: 244909) - continued									
dichlorobenzene, 1,3-	541-73-1	E611E	1	µg/L	100 µg/L	103	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611E	1	µg/L	100 µg/L	105	70.0	130	----
dichlorodifluoromethane	75-71-8	E611E	1	µg/L	100 µg/L	78.8	60.0	140	----
dichloroethane, 1,1-	75-34-3	E611E	1	µg/L	100 µg/L	117	70.0	130	----
dichloroethane, 1,2-	107-06-2	E611E	1	µg/L	100 µg/L	109	70.0	130	----
dichloroethylene, 1,1-	75-35-4	E611E	1	µg/L	100 µg/L	96.8	70.0	130	----
dichloroethylene, cis-1,2-	156-59-4	E611E	1	µg/L	100 µg/L	108	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611E	1	µg/L	100 µg/L	113	70.0	130	----
dichloromethane	75-09-2	E611E	1	µg/L	100 µg/L	107	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611E	1	µg/L	100 µg/L	112	70.0	130	----
dichloropropane, 1,3-	142-28-9	E611E	1	µg/L	100 µg/L	122	70.0	130	----
dichloropropane, 2,2-	594-20-7	E611E	1	µg/L	100 µg/L	123	70.0	130	----
dichloropropylene, 1,1-	563-58-6	E611E	1	µg/L	100 µg/L	92.8	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611E	1	µg/L	100 µg/L	114	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611E	1	µg/L	100 µg/L	127	70.0	130	----
ethylbenzene	100-41-4	E611E	0.5	µg/L	100 µg/L	93.1	70.0	130	----
hexachlorobutadiene	87-68-3	E611E	1	µg/L	100 µg/L	85.7	70.0	130	----
isopropylbenzene	98-82-8	E611E	1	µg/L	100 µg/L	96.0	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611E	0.5	µg/L	100 µg/L	100.0	70.0	130	----
naphthalene	91-20-3	E611E	1	µg/L	100 µg/L	114	70.0	130	----
propylbenzene, n-	103-65-1	E611E	1	µg/L	100 µg/L	91.0	70.0	130	----
styrene	100-42-5	E611E	0.5	µg/L	100 µg/L	83.6	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611E	1	µg/L	100 µg/L	110	70.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611E	1	µg/L	100 µg/L	113	70.0	130	----
tetrachloroethylene	127-18-4	E611E	1	µg/L	100 µg/L	106	70.0	130	----
toluene	108-88-3	E611E	0.5	µg/L	100 µg/L	99.6	70.0	130	----
trichlorobenzene, 1,2,3-	87-61-6	E611E	1	µg/L	100 µg/L	108	70.0	130	----
trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	101	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611E	1	µg/L	100 µg/L	109	70.0	130	----
trichloroethane, 1,1,2-	79-00-5	E611E	1	µg/L	100 µg/L	112	70.0	130	----
trichloroethylene	79-01-6	E611E	1	µg/L	100 µg/L	101	70.0	130	----
trichlorofluoromethane	75-69-4	E611E	1	µg/L	100 µg/L	95.3	60.0	140	----
trichloropropane, 1,2,3-	96-18-4	E611E	1	µg/L	100 µg/L	116	70.0	130	----
trimethylbenzene, 1,2,4-	95-63-6	E611E	1	µg/L	100 µg/L	103	70.0	130	----
trimethylbenzene, 1,3,5-	108-67-8	E611E	1	µg/L	100 µg/L	100	70.0	130	----
vinyl chloride	75-01-4	E611E	1	µg/L	100 µg/L	96.2	60.0	140	----
xylene, m+p-	179601-23-1	E611E	0.4	µg/L	200 µg/L	99.9	70.0	130	----
xylene, o-	95-47-6	E611E	0.3	µg/L	100 µg/L	96.3	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
Hydrocarbons (QCLot: 244489)									
EPH (C10-C19)	----	E601A	250	µg/L	8310 µg/L	97.3	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3570 µg/L	99.1	70.0	130	----
TEH (C10-C30), BC	----	E601A	250	µg/L	11080 µg/L	98.0	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: 244213)										
CG2102588-005	FIELD BLANK	ammonia, total (as N)	7664-41-7	E298	0.0958 mg/L	0.1 mg/L	95.8	75.0	125	----
Anions and Nutrients (QCLot: 244283)										
CG2102588-005	FIELD BLANK	bromide	24959-67-9	E235.Br-L	0.532 mg/L	0.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 244343)										
CG2102588-002	MICH-33.8	Kjeldahl nitrogen, total [TKN]	----	E318	2.34 mg/L	2.5 mg/L	93.8	70.0	130	----
Anions and Nutrients (QCLot: 245720)										
CG2102586-002	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0500 mg/L	0.05 mg/L	100	70.0	130	----
Anions and Nutrients (QCLot: 247195)										
CG2102586-002	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0699 mg/L	0.0676 mg/L	103	70.0	130	----
Organic / Inorganic Carbon (QCLot: 247515)										
CG2102447-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	21.4 mg/L	23.9 mg/L	89.6	70.0	130	----
Organic / Inorganic Carbon (QCLot: 247516)										
CG2102447-001	Anonymous	carbon, total organic [TOC]	----	E355-L	22.5 mg/L	23.9 mg/L	94.3	70.0	130	----
Total Metals (QCLot: 245007)										
CG2102588-005	FIELD BLANK	aluminum, total	7429-90-5	E420	1.85 mg/L	2 mg/L	92.6	70.0	130	----
		antimony, total	7440-36-0	E420	0.188 mg/L	0.2 mg/L	94.3	70.0	130	----
		arsenic, total	7440-38-2	E420	0.188 mg/L	0.2 mg/L	94.1	70.0	130	----
		barium, total	7440-39-3	E420	0.192 mg/L	0.2 mg/L	95.8	70.0	130	----
		beryllium, total	7440-41-7	E420	0.379 mg/L	0.4 mg/L	94.8	70.0	130	----
		bismuth, total	7440-69-9	E420	0.0921 mg/L	0.1 mg/L	92.1	70.0	130	----
		boron, total	7440-42-8	E420	0.907 mg/L	1 mg/L	90.7	70.0	130	----
		cadmium, total	7440-43-9	E420	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		calcium, total	7440-70-2	E420	37.1 mg/L	40 mg/L	92.7	70.0	130	----
		chromium, total	7440-47-3	E420	0.385 mg/L	0.4 mg/L	96.4	70.0	130	----
		cobalt, total	7440-48-4	E420	0.189 mg/L	0.2 mg/L	94.6	70.0	130	----
		copper, total	7440-50-8	E420	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		iron, total	7439-89-6	E420	19.0 mg/L	20 mg/L	95.1	70.0	130	----
		lead, total	7439-92-1	E420	0.188 mg/L	0.2 mg/L	93.8	70.0	130	----
		lithium, total	7439-93-2	E420	0.965 mg/L	1 mg/L	96.5	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: 245007) - continued										
CG2102588-005	FIELD BLANK	magnesium, total	7439-95-4	E420	9.20 mg/L	10 mg/L	92.0	70.0	130	----
		manganese, total	7439-96-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		nickel, total	7440-02-0	E420	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		phosphorus, total	7723-14-0	E420	105 mg/L	100 mg/L	105	70.0	130	----
		potassium, total	7440-09-7	E420	38.2 mg/L	40 mg/L	95.4	70.0	130	----
		selenium, total	7782-49-2	E420	0.370 mg/L	0.4 mg/L	92.5	70.0	130	----
		silicon, total	7440-21-3	E420	93.2 mg/L	100 mg/L	93.2	70.0	130	----
		silver, total	7440-22-4	E420	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		sodium, total	17341-25-2	E420	18.3 mg/L	20 mg/L	91.5	70.0	130	----
		strontium, total	7440-24-6	E420	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		sulfur, total	7704-34-9	E420	190 mg/L	200 mg/L	94.8	70.0	130	----
		thallium, total	7440-28-0	E420	0.0361 mg/L	0.04 mg/L	90.2	70.0	130	----
		tin, total	7440-31-5	E420	0.188 mg/L	0.2 mg/L	93.8	70.0	130	----
		titanium, total	7440-32-6	E420	0.355 mg/L	0.4 mg/L	88.8	70.0	130	----
		uranium, total	7440-61-1	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		vanadium, total	7440-62-2	E420	0.939 mg/L	1 mg/L	93.9	70.0	130	----
		zinc, total	7440-66-6	E420	3.79 mg/L	4 mg/L	94.7	70.0	130	----
		zirconium, total	7440-67-7	E420	0.420 mg/L	0.4 mg/L	105	70.0	130	----
		Total Metals (QCLot: 248004)								
CG2102588-002	MICH-33.8	mercury, total	7439-97-6	E508	0.000114 mg/L	0.0001 mg/L	114	70.0	130	----
Dissolved Metals (QCLot: 244203)										
CG2102588-005	FIELD BLANK	aluminum, dissolved	7429-90-5	E421	1.84 mg/L	2 mg/L	91.9	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.179 mg/L	0.2 mg/L	89.6	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.187 mg/L	0.2 mg/L	93.5	70.0	130	----
		barium, dissolved	7440-39-3	E421	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.0878 mg/L	0.1 mg/L	87.8	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.858 mg/L	1 mg/L	85.8	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		calcium, dissolved	7440-70-2	E421	35.8 mg/L	40 mg/L	89.5	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.391 mg/L	0.4 mg/L	97.7	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.192 mg/L	0.2 mg/L	96.1	70.0	130	----
		iron, dissolved	7439-89-6	E421	19.0 mg/L	20 mg/L	94.8	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.179 mg/L	0.2 mg/L	89.6	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Dissolved Metals (QCLot: 244203) - continued										
CG2102588-005	FIELD BLANK	lithium, dissolved	7439-93-2	E421	0.920 mg/L	1 mg/L	92.0	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	9.20 mg/L	10 mg/L	92.0	70.0	130	----
		manganese, dissolved	7439-96-5	E421	0.182 mg/L	0.2 mg/L	91.0	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.181 mg/L	0.2 mg/L	90.4	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	104 mg/L	100 mg/L	104	70.0	130	----
		potassium, dissolved	7440-09-7	E421	38.5 mg/L	40 mg/L	96.2	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.370 mg/L	0.4 mg/L	92.5	70.0	130	----
		silicon, dissolved	7440-21-3	E421	93.0 mg/L	100 mg/L	93.0	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0360 mg/L	0.04 mg/L	90.0	70.0	130	----
		sodium, dissolved	17341-25-2	E421	18.2 mg/L	20 mg/L	91.3	70.0	130	----
		strontium, dissolved	7440-24-6	E421	0.181 mg/L	0.2 mg/L	90.4	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	188 mg/L	200 mg/L	93.9	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.0345 mg/L	0.04 mg/L	86.3	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.182 mg/L	0.2 mg/L	91.2	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.363 mg/L	0.4 mg/L	90.7	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.940 mg/L	1 mg/L	94.0	70.0	130	----
		zinc, dissolved	7440-66-6	E421	4.04 mg/L	4 mg/L	101	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.407 mg/L	0.4 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 248003)										
CG2102588-002	MICH-33.8	mercury, dissolved	7439-97-6	E509	0.000109 mg/L	0.0001 mg/L	109	70.0	130	----
Aggregate Organics (QCLot: 244146)										
CG2102570-005	Anonymous	chemical oxygen demand [COD]	----	E559-L	101 mg/L	100 mg/L	101	75.0	125	----
Volatile Organic Compounds (QCLot: 244909)										
CG2102595-001	Anonymous	benzene	71-43-2	E611E	101 µg/L	100 µg/L	101	50.0	140	----
		bromobenzene	108-86-1	E611E	108 µg/L	100 µg/L	108	50.0	140	----
		bromochloromethane	74-97-5	E611E	103 µg/L	100 µg/L	103	50.0	140	----
		bromodichloromethane	75-27-4	E611E	107 µg/L	100 µg/L	107	50.0	140	----
		bromoform	75-25-2	E611E	109 µg/L	100 µg/L	109	50.0	140	----
		bromomethane	74-83-9	E611E	81.0 µg/L	100 µg/L	81.0	50.0	140	----
		butylbenzene, n-	104-51-8	E611E	107 µg/L	100 µg/L	107	50.0	140	----
		butylbenzene, sec-	135-98-8	E611E	106 µg/L	100 µg/L	106	50.0	140	----
		butylbenzene, tert-	98-06-6	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		carbon tetrachloride	56-23-5	E611E	95.7 µg/L	100 µg/L	95.7	50.0	140	----
		chlorobenzene	108-90-7	E611E	102 µg/L	100 µg/L	102	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: 244909) - continued										
CG2102595-001	Anonymous	chloroethane	75-00-3	E611E	98.9 µg/L	100 µg/L	98.9	50.0	140	----
		chloroform	67-66-3	E611E	95.4 µg/L	100 µg/L	95.4	50.0	140	----
		chloromethane	74-87-3	E611E	83.4 µg/L	100 µg/L	83.4	50.0	140	----
		chlorotoluene, 2-	95-49-8	E611E	98.7 µg/L	100 µg/L	98.7	50.0	140	----
		chlorotoluene, 4-	106-43-4	E611E	99.3 µg/L	100 µg/L	99.3	50.0	140	----
		cymene, p-	99-87-6	E611E	98.6 µg/L	100 µg/L	98.6	50.0	140	----
		dibromo-3-chloropropane, 1,2-	96-12-8	E611E	89.4 µg/L	100 µg/L	89.4	50.0	140	----
		dibromochloromethane	124-48-1	E611E	111 µg/L	100 µg/L	111	50.0	140	----
		dibromoethane, 1,2-	106-93-4	E611E	116 µg/L	100 µg/L	116	50.0	140	----
		dibromomethane	74-95-3	E611E	106 µg/L	100 µg/L	106	50.0	140	----
		dichlorobenzene, 1,2-	95-50-1	E611E	112 µg/L	100 µg/L	112	50.0	140	----
		dichlorobenzene, 1,3-	541-73-1	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		dichlorobenzene, 1,4-	106-46-7	E611E	107 µg/L	100 µg/L	107	50.0	140	----
		dichlorodifluoromethane	75-71-8	E611E	70.1 µg/L	100 µg/L	70.1	50.0	140	----
		dichloroethane, 1,1-	75-34-3	E611E	109 µg/L	100 µg/L	109	50.0	140	----
		dichloroethane, 1,2-	107-06-2	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		dichloroethylene, 1,1-	75-35-4	E611E	89.4 µg/L	100 µg/L	89.4	50.0	140	----
		dichloroethylene, cis-1,2-	156-59-4	E611E	107 µg/L	100 µg/L	107	50.0	140	----
		dichloroethylene, trans-1,2-	156-60-5	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		dichloromethane	75-09-2	E611E	100.0 µg/L	100 µg/L	100.0	50.0	140	----
		dichloropropane, 1,2-	78-87-5	E611E	110 µg/L	100 µg/L	110	50.0	140	----
		dichloropropane, 1,3-	142-28-9	E611E	120 µg/L	100 µg/L	120	50.0	140	----
		dichloropropane, 2,2-	594-20-7	E611E	120 µg/L	100 µg/L	120	50.0	140	----
		dichloropropylene, 1,1-	563-58-6	E611E	93.5 µg/L	100 µg/L	93.5	50.0	140	----
		dichloropropylene, cis-1,3-	10061-01-5	E611E	115 µg/L	100 µg/L	115	50.0	140	----
		dichloropropylene, trans-1,3-	10061-02-6	E611E	123 µg/L	100 µg/L	123	50.0	140	----
		ethylbenzene	100-41-4	E611E	97.9 µg/L	100 µg/L	97.9	50.0	140	----
		hexachlorobutadiene	87-68-3	E611E	87.4 µg/L	100 µg/L	87.4	50.0	140	----
		isopropylbenzene	98-82-8	E611E	99.4 µg/L	100 µg/L	99.4	50.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611E	95.9 µg/L	100 µg/L	95.9	50.0	140	----
		naphthalene	91-20-3	E611E	108 µg/L	100 µg/L	108	50.0	140	----
		propylbenzene, n-	103-65-1	E611E	97.4 µg/L	100 µg/L	97.4	50.0	140	----
		styrene	100-42-5	E611E	85.7 µg/L	100 µg/L	85.7	50.0	140	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611E	105 µg/L	100 µg/L	105	50.0	140	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611E	116 µg/L	100 µg/L	116	50.0	140	----
		tetrachloroethylene	127-18-4	E611E	103 µg/L	100 µg/L	103	50.0	140	----
		toluene	108-88-3	E611E	102 µg/L	100 µg/L	102	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: 244909) - continued										
CG2102595-001	Anonymous	trichlorobenzene, 1,2,3-	87-61-6	E611E	123 µg/L	100 µg/L	123	50.0	140	----
		trichlorobenzene, 1,2,4-	120-82-1	E611E	111 µg/L	100 µg/L	111	50.0	140	----
		trichloroethane, 1,1,1-	71-55-6	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		trichloroethane, 1,1,2-	79-00-5	E611E	110 µg/L	100 µg/L	110	50.0	140	----
		trichloroethylene	79-01-6	E611E	100 µg/L	100 µg/L	100	50.0	140	----
		trichlorofluoromethane	75-69-4	E611E	86.6 µg/L	100 µg/L	86.6	50.0	140	----
		trichloropropane, 1,2,3-	96-18-4	E611E	116 µg/L	100 µg/L	116	50.0	140	----
		trimethylbenzene, 1,2,4-	95-63-6	E611E	106 µg/L	100 µg/L	106	50.0	140	----
		trimethylbenzene, 1,3,5-	108-67-8	E611E	104 µg/L	100 µg/L	104	50.0	140	----
		vinyl chloride	75-01-4	E611E	87.3 µg/L	100 µg/L	87.3	50.0	140	----
		xylene, m+p-	179601-23-1	E611E	208 µg/L	200 µg/L	104	50.0	140	----
		xylene, o-	95-47-6	E611E	101 µg/L	100 µg/L	101	50.0	140	----

