

CERTIFICATE OF ANALYSIS

Work Order : **CG2106903**
Client : **Lotic Environmental Ltd.**
Contact : Mike Robinson
Address : 2193 Mazur Road
 Cranbrook BC Canada V1C 6V9
Telephone : 250 426 0528
Project : 21NORT01
PO : 15708
C-O-C number : ----
Sampler : Rick Smit
Site : 18CANA02
Quote number : CG20-NOCL100-0001
No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 10
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 : 17-Dec-2021 08:50
Date Analysis Commenced : 17-Dec-2021
Issue Date : 30-Dec-2021 11:38

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
Elke Tabora		Inorganics, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Jeanie Mark	Laboratory Analyst	Organics, Calgary, Alberta
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
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Sara Niroomand		Metals, Calgary, Alberta
Shirley Li		Metals, Calgary, Alberta
Sorina Motea	Laboratory Analyst	Organics, 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: Surface Water

Client sample ID

(Matrix: Water)

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time					16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, bicarbonate (as CaCO ₃)	----	E290	2.0	mg/L	121	162	129	125	<2.0
alkalinity, bicarbonate (as HCO ₃)	71-52-3	E290	2.0	mg/L	148	197	157	153	<2.0
alkalinity, carbonate (as CaCO ₃)	----	E290	2.0	mg/L	6.6	10.2	6.2	6.2	<2.0
alkalinity, carbonate (as CO ₃)	3812-32-6	E290	2.0	mg/L	4.0	6.1	3.7	3.7	<2.0
alkalinity, hydroxide (as CaCO ₃)	----	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
alkalinity, phenolphthalein (as CaCO ₃)	----	E290	2.0	mg/L	3.3	5.1	3.1	3.1	<2.0
alkalinity, total (as CaCO ₃)	----	E290	2.0	mg/L	128	172	135	131	<2.0
colour, true	----	E329	5.0	CU	<5.0	<5.0	<5.0	<5.0	<5.0
conductivity	----	E100	2.0	µS/cm	355	610	252	252	<2.0
hardness (as CaCO ₃), dissolved	----	EC100	0.60	mg/L	189	344	146	146	<0.60
hardness (as CaCO ₃), from total Ca/Mg	----	EC100A	0.60	mg/L	197	353	149	145	<0.60
pH	----	E108	0.10	pH units	8.36	8.42	8.39	8.39	5.27
solids, total dissolved [TDS]	----	E162	10	mg/L	216	403	152	144	<10
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU	0.91	1.00	<0.10	0.14	<0.10
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0068	<0.0050	<0.0050	<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	0.92	1.17	0.66	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.122	0.167	0.267	0.266	<0.020
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.090	0.222	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.338	0.925	0.148	0.145	0.0059 ^{RRV}
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0022	0.0027	0.0011	<0.0010
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0097	0.0032	0.0017	0.0017	<0.0010
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0101	0.0049	0.0020	<0.0020	<0.0020
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	66.8	174	14.3	13.0	<0.30
Organic / Inorganic Carbon									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.81	1.10	0.96	0.94	<0.50
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.94	1.25	0.94	1.01	<0.50



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	16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005	
					Result	Result	Result	Result	Result	
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0261	0.0162	0.0063	0.0063	<0.0030	
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00011	0.00013	<0.00010	<0.00010	<0.00010	
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00022	0.00025	0.00046	0.00049	<0.00010	
barium, total	7440-39-3	E420	0.00010	mg/L	0.0911	0.0527	0.0208	0.0207	<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	<0.010	0.019	<0.010	<0.010	<0.010	
cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000351	0.0000433	0.0000113	0.0000134	<0.0000050	
calcium, total	7440-70-2	E420	0.050	mg/L	49.4	82.2	43.8	42.5	<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	0.00095	<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	0.030	0.026	<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	0.0054	0.0107	0.0014	0.0015	<0.0010	
magnesium, total	7439-95-4	E420	0.100	mg/L	17.8	35.8	9.64	9.39	<0.100	
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00145	0.00755	0.00014	0.00015	<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	0.000681	0.000809	0.000615	0.000574	<0.000050	
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00182	0.00965	<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	0.630	0.972	0.219	0.213	<0.100	
selenium, total	7782-49-2	E420	0.000050	mg/L	0.00227	0.00554	0.00126	0.00118	<0.000050	
silicon, total	7440-21-3	E420	0.10	mg/L	2.46	2.16	1.63	1.64	<0.10	
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
sodium, total	7440-23-5	E420	0.050	mg/L	4.03	8.16	0.772	0.742	<0.050	
strontium, total	7440-24-6	E420	0.00020	mg/L	0.149	0.269	0.133	0.129	<0.00020	
sulfur, total	7704-34-9	E420	0.50	mg/L	24.5	66.0	5.00	4.87	<0.50	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	0.000017	0.000043	0.000042	<0.000010	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	RRV
titanium, total	7440-32-6	E420	0.00030	mg/L	0.00033	<0.00030	<0.00030	<0.00030	<0.00030	



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

(Matrix: Water)

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time					16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005
					Result	Result	Result	Result	Result
Total Metals									
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000681	0.00162	0.000592	0.000595	<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	0.0038	<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	0.0062	0.0029	0.0022	0.0018	<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	0.00019	0.00020	0.00049	0.00044	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0892	0.0516	0.0210	0.0213	<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	<0.010	0.019	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000230	0.0000421	0.0000098	0.0000098	<0.0000050
calcium, dissolved	7440-70-2	E421	0.050	mg/L	48.7	82.8	43.4	44.0	<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	0.00083	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00026	<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	0.0052	0.0109	0.0020	0.0021	<0.0010
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	16.4	33.4	9.02	8.89	<0.100
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00084	0.00573	<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	0.000711	0.000897	0.000641	0.000631	<0.000050
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00140	0.00859	<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	0.637	1.00	0.225	0.223	<0.100
selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00243	0.00582	0.00131	0.00127	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.27	1.99	1.54	1.55	<0.050
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	3.69	7.46	0.656	0.648	<0.050



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

(Matrix: Water)

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time					16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005
					Result	Result	Result	Result	Result
Dissolved Metals									
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.150	0.271	0.131	0.133	<0.00020
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	23.8	63.2	4.54	4.60	<0.50
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000016	0.000044	0.000042	<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	0.000717	0.00174	0.000642	0.000636	<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	<0.0010	0.0034	0.0018	0.0018	<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: Surface Water
(Matrix: Water)

					Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time						16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005	
					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	<0.50
dichlorodifluoromethane	75-71-8	E611F	0.50	µg/L	<0.50	<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	<0.50
dichloropropane, 1,3-	142-28-9	E611F	0.50	µg/L	<0.50	<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	<0.50
dichloropropylene, 1,1-	563-58-6	E611F	0.50	µg/L	<0.50	<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	<0.75
dichloropropylene, cis-1,3-	10061-01-5	E611F	0.50	µg/L	<0.50	<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	<0.50
hexanone, 2-	591-78-6	E611F	20	µg/L	<20	<20	<20	<20	<20	<20
methyl ethyl ketone [MEK]	78-93-3	E611F	20	µg/L	<20	<20	<20	<20	<20	<20
methyl isobutyl ketone [MIBK]	108-10-1	E611F	20	µg/L	<20	<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	<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	<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	<0.50
trichlorobenzene, 1,2,3-	87-61-6	E611F	0.50	µg/L	<0.50	<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	<0.50
trichloroethane, 1,1,2-	79-00-5	E611F	0.50	µg/L	<0.50	<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	<0.50
trichloropropane, 1,2,3-	96-18-4	E611F	0.50	µg/L	<0.50	<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	<0.20
chloroethane	75-00-3	E611F	0.50	µg/L	<0.50	<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	<0.50
dichloroethane, 1,2-	107-06-2	E611F	0.50	µg/L	<0.50	<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	<0.50
dichloroethylene, cis-1,2-	156-59-2	E611F	0.50	µg/L	<0.50	<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	<0.50
dichloromethane	75-09-2	E611F	1.0	µg/L	<1.0	<1.0	<1.0	1.0	1.9	1.9 RRV
dichloropropylene, trans-1,3-	10061-02-6	E611F	0.50	µg/L	<0.50	<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	<0.50



Analytical Results

Sub-Matrix: Surface Water

Client sample ID

(Matrix: Water)

					MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
Client sampling date / time					16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit	CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005
					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
xylene, 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	%	84.9	87.4	82.3	83.4	82.5
difluorobenzene, 1,4-	540-36-3	E611F	1.0	%	102	102	101	101	101
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: Surface Water
(Matrix: Water)

					Client sample ID	MICH-13.0	MICH-33.8	AND1	DUPLICATE	FIELD BLANK
					Client sampling date / time	16-Dec-2021 09:00	16-Dec-2021 11:30	16-Dec-2021 12:45	16-Dec-2021 08:30	16-Dec-2021 08:00
Analyte	CAS Number	Method	LOR	Unit		CG2106903-001	CG2106903-002	CG2106903-003	CG2106903-004	CG2106903-005
						Result	Result	Result	Result	Result
Hydrocarbons Surrogates										
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		127	137	124	138	95.5

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: CG2106903	Page	: 1 of 25
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, Alberta Canada T1Y 7B5
Telephone	: 250 426 0528	Telephone	: +1 403 407 1800
Project	: 21NORT01	Date Samples Received	: 17-Dec-2021 08:50
PO	: 15708	Issue Date	: 30-Dec-2021 11:38
C-O-C number	: ----		
Sampler	: Rick Smit		
Site	: 18CANA02		
Quote number	: CG20-NOCL100-0001		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and 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 Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) AND1	E559-L	16-Dec-2021	----	----	----		21-Dec-2021	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) DUPLICATE	E559-L	16-Dec-2021	----	----	----		21-Dec-2021	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) FIELD BLANK	E559-L	16-Dec-2021	----	----	----		21-Dec-2021	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) MICH-13.0	E559-L	16-Dec-2021	----	----	----		21-Dec-2021	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) MICH-33.8	E559-L	16-Dec-2021	----	----	----		21-Dec-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) AND1	E298	16-Dec-2021	17-Dec-2021	----	----		17-Dec-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUPLICATE	E298	16-Dec-2021	17-Dec-2021	----	----		17-Dec-2021	28 days	1 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) FIELD BLANK	E298	16-Dec-2021	17-Dec-2021	----	----		17-Dec-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MICH-13.0	E298	16-Dec-2021	17-Dec-2021	----	----		17-Dec-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MICH-33.8	E298	16-Dec-2021	17-Dec-2021	----	----		17-Dec-2021	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE AND1	E235.Br-L	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE DUPLICATE	E235.Br-L	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE FIELD BLANK	E235.Br-L	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MICH-13.0	E235.Br-L	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MICH-33.8	E235.Br-L	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE AND1	E235.Cl	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE DUPLICATE	E235.Cl	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE FIELD BLANK	E235.Cl	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE MICH-13.0	E235.Cl	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE MICH-33.8	E235.Cl	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE AND1	E378-U	16-Dec-2021	----	----	----		17-Dec-2021	3 days	1 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE DUPLICATE	E378-U	16-Dec-2021	----	----	----		17-Dec-2021	3 days	1 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE FIELD BLANK	E378-U	16-Dec-2021	----	----	----		17-Dec-2021	3 days	1 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE MICH-13.0	E378-U	16-Dec-2021	----	----	----		17-Dec-2021	3 days	1 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE MICH-33.8	E378-U	16-Dec-2021	----	----	----		17-Dec-2021	3 days	1 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE AND1	E235.F	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUPLICATE	E235.F	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE FIELD BLANK	E235.F	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MICH-13.0	E235.F	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MICH-33.8	E235.F	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE AND1	E235.NO3-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE DUPLICATE	E235.NO3-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE FIELD BLANK	E235.NO3-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MICH-13.0	E235.NO3-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MICH-33.8	E235.NO3-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE AND1	E235.NO2-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUPLICATE	E235.NO2-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE FIELD BLANK	E235.NO2-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MICH-13.0	E235.NO2-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MICH-33.8	E235.NO2-L	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE AND1	E235.SO4	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE DUPLICATE	E235.SO4	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE FIELD BLANK	E235.SO4	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE MICH-13.0	E235.SO4	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MICH-33.8	E235.SO4	16-Dec-2021	----	----	----		18-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) AND1	E318	16-Dec-2021	19-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) DUPLICATE	E318	16-Dec-2021	19-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) FIELD BLANK	E318	16-Dec-2021	19-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MICH-13.0	E318	16-Dec-2021	19-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MICH-33.8	E318	16-Dec-2021	19-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) AND1	E372-U	16-Dec-2021	23-Dec-2021	----	----		23-Dec-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) DUPLICATE	E372-U	16-Dec-2021	23-Dec-2021	----	----		23-Dec-2021	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) FIELD BLANK	E372-U	16-Dec-2021	23-Dec-2021	----	----		23-Dec-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) MICH-13.0	E372-U	16-Dec-2021	23-Dec-2021	----	----		23-Dec-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) MICH-33.8	E372-U	16-Dec-2021	23-Dec-2021	----	----		23-Dec-2021	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) AND1	E509	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) DUPLICATE	E509	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) FIELD BLANK	E509	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MICH-13.0	E509	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MICH-33.8	E509	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) AND1	E421	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	180 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) DUPLICATE	E421	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) FIELD BLANK	E421	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MICH-13.0	E421	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MICH-33.8	E421	16-Dec-2021	22-Dec-2021	----	----		22-Dec-2021	180 days	6 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) AND1	E601A	16-Dec-2021	18-Dec-2021	14 days	2 days	✓	19-Dec-2021	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) DUPLICATE	E601A	16-Dec-2021	18-Dec-2021	14 days	2 days	✓	19-Dec-2021	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MICH-13.0	E601A	16-Dec-2021	18-Dec-2021	14 days	2 days	✓	19-Dec-2021	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MICH-33.8	E601A	16-Dec-2021	18-Dec-2021	14 days	2 days	✓	19-Dec-2021	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) FIELD BLANK	E601A	16-Dec-2021	21-Dec-2021	14 days	5 days	✓	22-Dec-2021	40 days	1 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) AND1	E358-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) DUPLICATE	E358-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MICH-13.0	E358-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MICH-33.8	E358-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) FIELD BLANK	E358-L	16-Dec-2021	17-Dec-2021	----	----		19-Dec-2021	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) AND1	E355-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUPLICATE	E355-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) FIELD BLANK	E355-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MICH-13.0	E355-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MICH-33.8	E355-L	16-Dec-2021	17-Dec-2021	----	----		18-Dec-2021	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE AND1	E290	16-Dec-2021	----	----	----		20-Dec-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUPLICATE	E290	16-Dec-2021	----	----	----		20-Dec-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE FIELD BLANK	E290	16-Dec-2021	----	----	----		20-Dec-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MICH-13.0	E290	16-Dec-2021	----	----	----		20-Dec-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MICH-33.8	E290	16-Dec-2021	----	----	----		20-Dec-2021	14 days	4 days	✓
Physical Tests : Colour (True) by Spectrometer										
HDPE AND1	E329	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer										
HDPE DUPLICATE	E329	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer										
HDPE FIELD BLANK	E329	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Colour (True) by Spectrometer										
HDPE MICH-13.0	E329	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer										
HDPE MICH-33.8	E329	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE AND1	E100	16-Dec-2021	----	----	----		20-Dec-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE DUPLICATE	E100	16-Dec-2021	----	----	----		20-Dec-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE FIELD BLANK	E100	16-Dec-2021	----	----	----		20-Dec-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MICH-13.0	E100	16-Dec-2021	----	----	----		20-Dec-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MICH-33.8	E100	16-Dec-2021	----	----	----		20-Dec-2021	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE MICH-13.0	E108	16-Dec-2021	----	----	----		20-Dec-2021	0.25 hrs	101 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE DUPLICATE	E108	16-Dec-2021	----	----	----		20-Dec-2021	0.25 hrs	102 hrs	✖ EHTR-FM



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE FIELD BLANK	E108	16-Dec-2021	----	----	----		20-Dec-2021	0.25 hrs	102 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE AND1	E108	16-Dec-2021	----	----	----		20-Dec-2021	0.25 hrs	98 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MICH-33.8	E108	16-Dec-2021	----	----	----		20-Dec-2021	0.25 hrs	99 hrs	✖ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE AND1	E162	16-Dec-2021	----	----	----		20-Dec-2021	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE DUPLICATE	E162	16-Dec-2021	----	----	----		20-Dec-2021	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE FIELD BLANK	E162	16-Dec-2021	----	----	----		20-Dec-2021	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE MICH-13.0	E162	16-Dec-2021	----	----	----		20-Dec-2021	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE MICH-33.8	E162	16-Dec-2021	----	----	----		20-Dec-2021	7 days	4 days	✔
Physical Tests : TSS by Gravimetry										
HDPE AND1	E160-H	16-Dec-2021	----	----	----		21-Dec-2021	7 days	5 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE DUPLICATE	E160-H	16-Dec-2021	----	----	----		21-Dec-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE FIELD BLANK	E160-H	16-Dec-2021	----	----	----		21-Dec-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MICH-13.0	E160-H	16-Dec-2021	----	----	----		21-Dec-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MICH-33.8	E160-H	16-Dec-2021	----	----	----		21-Dec-2021	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE FIELD BLANK	E121	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE MICH-13.0	E121	16-Dec-2021	----	----	----		18-Dec-2021	3 days	2 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE AND1	E121	16-Dec-2021	----	----	----		19-Dec-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUPLICATE	E121	16-Dec-2021	----	----	----		19-Dec-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE MICH-33.8	E121	16-Dec-2021	----	----	----		19-Dec-2021	3 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) AND1	E508	16-Dec-2021	----	----	----		22-Dec-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) DUPLICATE	E508	16-Dec-2021	----	----	----		22-Dec-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) FIELD BLANK	E508	16-Dec-2021	----	----	----		22-Dec-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MICH-13.0	E508	16-Dec-2021	----	----	----		22-Dec-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MICH-33.8	E508	16-Dec-2021	----	----	----		22-Dec-2021	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) AND1	E420	16-Dec-2021	----	----	----		20-Dec-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) DUPLICATE	E420	16-Dec-2021	----	----	----		20-Dec-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) FIELD BLANK	E420	16-Dec-2021	----	----	----		20-Dec-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) MICH-13.0	E420	16-Dec-2021	----	----	----		20-Dec-2021	180 days	4 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) MICH-33.8	E420	16-Dec-2021	----	----	----		20-Dec-2021	180 days	4 days	✓
Volatile Organic Compounds : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) AND1	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUPLICATE	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) FIELD BLANK	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-13.0	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-33.8	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	14 days	4 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) AND1	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Drycleaning] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUPLICATE	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Drycleaning] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) FIELD BLANK	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Drycleaning] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-13.0	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Drycleaning] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-33.8	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Fuels] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) AND1	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Fuels] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUPLICATE	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Fuels] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) FIELD BLANK	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Fuels] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-13.0	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [Fuels] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-33.8	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [THMs] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) AND1	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [THMs] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUPLICATE	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [THMs] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) FIELD BLANK	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [THMs] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-13.0	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	
Volatile Organic Compounds [THMs] : VOCs (Full List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MICH-33.8	E611F	16-Dec-2021	18-Dec-2021	----	----		20-Dec-2021	----	----	

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended
 Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	372824	1	14	7.1	5.0	✔
Ammonia by Fluorescence	E298	370914	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	371389	1	12	8.3	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	373277	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	371391	1	5	20.0	5.0	✔
Colour (True) by Spectrometer	E329	370885	1	5	20.0	5.0	✔
Conductivity in Water	E100	372823	1	14	7.1	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	374293	1	15	6.6	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	374259	1	10	10.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	371025	1	7	14.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	370873	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	371388	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	371385	1	17	5.8	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	371386	1	17	5.8	5.0	✔
pH by Meter	E108	372822	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	371387	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	372958	2	40	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	371399	1	11	9.0	5.0	✔
Total Mercury in Water by CVAAS	E508	374295	1	15	6.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	372735	1	13	7.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	371039	1	10	10.0	5.0	✔
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	371916	1	14	7.1	5.0	✔
TSS by Gravimetry	E160-H	372492	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	371558	2	30	6.6	5.0	✔
VOCs (Full List) by Headspace GC-MS	E611F	370961	1	5	20.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	372824	1	14	7.1	5.0	✔
Ammonia by Fluorescence	E298	370914	1	20	5.0	5.0	✔
BC PHCs - EPH by GC-FID	E601A	371416	2	9	22.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	371389	1	12	8.3	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	373277	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	371391	1	5	20.0	5.0	✔
Colour (True) by Spectrometer	E329	370885	1	5	20.0	5.0	✔
Conductivity in Water	E100	372823	1	14	7.1	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	374293	1	15	6.6	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	374259	1	10	10.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	371025	1	7	14.2	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	370873	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	371388	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	371385	1	17	5.8	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	371386	1	17	5.8	5.0	✔
pH by Meter	E108	372822	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	371387	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	372958	2	40	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	371399	1	11	9.0	5.0	✔
Total Mercury in Water by CVAAS	E508	374295	1	15	6.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	372735	1	13	7.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	371039	1	10	10.0	5.0	✔
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	371916	1	14	7.1	5.0	✔
TSS by Gravimetry	E160-H	372492	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	371558	2	30	6.6	5.0	✔
VOCs (Full List) by Headspace GC-MS	E611F	370961	1	5	20.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	372824	1	14	7.1	5.0	✔
Ammonia by Fluorescence	E298	370914	1	20	5.0	5.0	✔
BC PHCs - EPH by GC-FID	E601A	371416	2	9	22.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	371389	1	12	8.3	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	373277	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	371391	1	5	20.0	5.0	✔
Colour (True) by Spectrometer	E329	370885	1	5	20.0	5.0	✔
Conductivity in Water	E100	372823	1	14	7.1	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	374293	1	15	6.6	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	374259	1	10	10.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	371025	1	7	14.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	370873	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	371388	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	371385	1	17	5.8	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	371386	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	371387	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	372958	2	40	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	371399	1	11	9.0	5.0	✔
Total Mercury in Water by CVAAS	E508	374295	1	15	6.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	372735	1	13	7.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	371039	1	10	10.0	5.0	✔
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	371916	1	14	7.1	5.0	✔
TSS by Gravimetry	E160-H	372492	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	371558	2	30	6.6	5.0	✔
VOCs (Full List) by Headspace GC-MS	E611F	370961	1	5	20.0	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	370914	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	371389	1	12	8.3	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	373277	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	371391	1	5	20.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	374293	1	15	6.6	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	374259	1	10	10.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	371025	1	7	14.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	370873	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	371388	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	371385	1	17	5.8	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	371386	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	371387	1	13	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	371399	1	11	9.0	5.0	✔
Total Mercury in Water by CVAAS	E508	374295	1	15	6.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	372735	1	13	7.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	371039	1	10	10.0	5.0	✔
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	371916	1	14	7.1	5.0	✔
VOCs (Full List) by Headspace GC-MS	E611F	370961	1	5	20.0	5.0	✔



Methodology References and Summaries

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. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Calgary - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Calgary - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Calgary - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Calgary - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Calgary - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Calgary - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 Calgary - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Calgary - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Calgary - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Colour (True) by Spectrometer	E329 Calgary - Environmental	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Calgary - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Calgary - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U Calgary - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Calgary - Environmental	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a flow analyzer on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 Calgary - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Calgary - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Calgary - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 Calgary - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L Calgary - Environmental	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
BC PHCs - EPH by GC-FID	E601A Calgary - Environmental	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
VOCs (Full List) by Headspace GC-MS	E611F Calgary - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100 Calgary - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A Calgary - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Calgary - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Calgary - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Calgary - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Calgary - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 Calgary - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Calgary - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 Calgary - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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Work Order : CG2106903
Client : Lotic Environmental Ltd.
Project : 21NORT01



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 Calgary - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Calgary - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order : **CG2106903**

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 : 21NORT01
PO : 15708
C-O-C number : ----
Sampler : Rick Smit
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 : 17-Dec-2021 08:50
Date Analysis Commenced : 17-Dec-2021
Issue Date : 30-Dec-2021 11:38

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>
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Sorina Motea	Laboratory Analyst	Organics, 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: 370885)											
CG2106903-001	MICH-13.0	colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 371558)											
CG2106895-010	Anonymous	turbidity	----	E121	0.10	NTU	1.19	1.19	0.006	Diff <2x LOR	----
Physical Tests (QC Lot: 371899)											
CG2106862-001	Anonymous	turbidity	----	E121	0.10	NTU	2.28	2.07	9.29%	15%	----
Physical Tests (QC Lot: 372492)											
CG2106878-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	3.1	<3.0	0.1	Diff <2x LOR	----
Physical Tests (QC Lot: 372822)											
CG2106897-003	Anonymous	pH	----	E108	0.10	pH units	8.13	8.13	0.00%	4%	----
Physical Tests (QC Lot: 372823)											
CG2106897-006	Anonymous	conductivity	----	E100	2.0	µS/cm	15900	15900	0.188%	10%	----
Physical Tests (QC Lot: 372824)											
CG2106897-006	Anonymous	alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	575	595	3.47%	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	575	595	3.47%	20%	----
Physical Tests (QC Lot: 372958)											
CG2106894-001	Anonymous	solids, total dissolved [TDS]	----	E162	20	mg/L	1510	1510	0.298%	20%	----
Physical Tests (QC Lot: 372959)											
CG2106903-002	MICH-33.8	solids, total dissolved [TDS]	----	E162	20	mg/L	403	411	1.97%	20%	----
Anions and Nutrients (QC Lot: 370873)											
CG2106899-003	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: 370914)											
CG2106899-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.191	0.171	10.9%	20%	----
Anions and Nutrients (QC Lot: 371385)											
CG2106894-003	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	65.1	65.0	0.154%	20%	----
Anions and Nutrients (QC Lot: 371386)											
CG2106894-003	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	0.0066	<0.0050	0.0016	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 371387)											
CG2106894-003	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	466	464	0.530%	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: 371388)											
CG2106894-003	Anonymous	fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	0.229	0.129	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 371389)											
CG2106894-003	Anonymous	bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 371391)											
CG2106903-001	MICH-13.0	chloride	16887-00-6	E235.Cl	0.50	mg/L	0.92	1.02	0.10	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 371399)											
CG2106903-001	MICH-13.0	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.090	<0.050	0.040	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 371916)											
CG2106898-002	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 371025)											
CG2106903-001	MICH-13.0	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.81	1.92	0.11	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 371039)											
CG2106903-001	MICH-13.0	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.94	1.93	0.01	Diff <2x LOR	----
Total Metals (QC Lot: 372735)											
CG2106862-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0179	0.0164	0.0015	Diff <2x LOR	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	0.00013	0.00012	0.000006	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00015	0.00016	0.000005	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.163	0.156	4.50%	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	0.231	0.232	0.314%	20%	----
		cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000146	0.0000125	0.0000021	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	88.8	88.4	0.504%	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	0.00950	0.00941	0.954%	20%	----
		iron, total	7439-89-6	E420	0.010	mg/L	0.087	0.086	0.0004	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000252	0.000245	0.000007	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0069	0.0066	0.0002	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.0050	mg/L	27.6	27.6	0.121%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.0650	0.0646	0.550%	20%	----
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00159	0.00152	4.41%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00059	0.00057	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	0.050	mg/L	4.56	4.47	2.01%	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: 372735) - continued											
CG2106862-001	Anonymous	selenium, total	7782-49-2	E420	0.000050	mg/L	0.000362	0.000329	0.000033	Diff <2x LOR	----
		silicon, total	7440-21-3	E420	0.10	mg/L	3.19	3.24	1.49%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	7440-23-5	E420	0.050	mg/L	34.4	34.8	1.26%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.399	0.398	0.336%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	24.5	25.2	2.73%	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	0.00010	<0.00010	0.000003	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	0.000576	0.000591	2.58%	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	0.0148	0.0144	0.0005	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 374295)											
CG2106903-001	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: 374259)											
CG2106898-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0124	0.0134	7.76%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00019	0.00019	0.0000002	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00015	0.00016	0.000007	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0147	0.0147	0.300%	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	0.030	0.031	0.0008	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000624	0.0000603	3.31%	20%	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	114	116	2.39%	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	0.00087	0.00085	0.00003	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.510	0.503	1.39%	20%	----
		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	0.00114	0.00114	0.00703%	20%	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0197	0.0212	7.49%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	65.6	65.6	0.109%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0341	0.0338	0.804%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00101	0.00100	0.505%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0110	0.0108	1.96%	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
Dissolved Metals (QC Lot: 374259) - continued											
CG2106898-002	Anonymous	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.62	1.63	0.531%	20%	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.0171	0.0171	0.322%	20%	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.09	2.10	0.325%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	0.000011	0.000014	0.000003	Diff <2x LOR	----
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	15.8	15.4	2.74%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.302	0.305	1.06%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	124	126	1.50%	20%	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000014	0.000012	0.000002	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	0.00291	0.00287	1.51%	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	0.0571	0.0571	0.0546%	20%	----
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	0.00205	0.00212	0.00007	Diff <2x LOR	----
Dissolved Metals (QC Lot: 374293)											
CG2106903-001	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: 373277)											
CG2106899-008	Anonymous	chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	<10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 370961)											
CG2106903-001	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	----
		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	----



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: 370961) - continued											
CG2106903-001	MICH-13.0	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	----
		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	----



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: 370961) - continued											
CG2106903-001	MICH-13.0	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: 370885)						
colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 371558)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 371899)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 372492)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 372823)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 372824)						
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: 372958)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 372959)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 370873)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 370914)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 371385)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 371386)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 371387)						
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 371388)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 371389)						
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: 371391)						
chloride	16887-00-6	E235-Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 371399)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 371916)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 371025)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 371039)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 372735)						
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	7440-23-5	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: 372735) - 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: 374295)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 374259)						
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	7440-23-5	E421	0.05	mg/L	<0.050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 374259) - 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: 374293)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 373277)						
chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Volatile Organic Compounds (QCLot: 370961)						
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	----
dibromochloromethane	124-48-1	E611F	0.5	µg/L	<0.50	----
dibromoethane, 1,2-	106-93-4	E611F	0.2	µg/L	<0.20	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 370961) - continued						
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	----
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	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 370961) - continued						
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: 371416)						
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	----
Hydrocarbons (QCLot: 373700)						
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: 370885)									
colour, true	----	E329	5	CU	100 CU	113	85.0	115	----
Physical Tests (QCLot: 371558)									
turbidity	----	E121	0.1	NTU	200 NTU	101	85.0	115	----
Physical Tests (QCLot: 371899)									
turbidity	----	E121	0.1	NTU	200 NTU	97.1	85.0	115	----
Physical Tests (QCLot: 372492)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	97.0	85.0	115	----
Physical Tests (QCLot: 372822)									
pH	----	E108	----	pH units	7 pH units	100	98.6	101	----
Physical Tests (QCLot: 372823)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	96.0	90.0	110	----
Physical Tests (QCLot: 372824)									
alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	88.2	85.0	115	----
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.6	85.0	115	----
Physical Tests (QCLot: 372958)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.8	85.0	115	----
Physical Tests (QCLot: 372959)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 370873)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.02 mg/L	92.9	80.0	120	----
Anions and Nutrients (QCLot: 370914)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 371385)									
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: 371386)									
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: 371387)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 371388)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 371389)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	96.3	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: 371391)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 371399)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 371916)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	8.02 mg/L	95.8	80.0	120	----
Organic / Inorganic Carbon (QCLot: 371025)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	10 mg/L	100	80.0	120	----
Organic / Inorganic Carbon (QCLot: 371039)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	10 mg/L	105	80.0	120	----
Total Metals (QCLot: 372735)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.4	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	99.2	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	102	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.9	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	114	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	113	70.0	130	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.6	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	60.0	140	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	99.6	80.0	120	----
sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	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: 372735) - continued									
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	103	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	106	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.3	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.6	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Total Metals (QCLot: 374295)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.5	80.0	120	----
Dissolved Metals (QCLot: 374259)									
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	115	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	106	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	106	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	107	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	113	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	106	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	112	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	103	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	108	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	111	70.0	130	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	99.8	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: 374259) - continued									
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	111	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	108	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	107	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	107	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	104	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	102	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	----
Aggregate Organics (QCLot: 373277)									
chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	103	85.0	115	----
Volatile Organic Compounds (QCLot: 370961)									
acetone	67-64-1	E611F	20	µg/L	2000 µg/L	117	70.0	130	----
benzene	71-43-2	E611F	0.5	µg/L	100 µg/L	105	70.0	130	----
bromobenzene	108-86-1	E611F	0.5	µg/L	100 µg/L	118	70.0	130	----
bromochloromethane	74-97-5	E611F	0.5	µg/L	100 µg/L	118	70.0	130	----
bromodichloromethane	75-27-4	E611F	0.5	µg/L	100 µg/L	123	70.0	130	----
bromoform	75-25-2	E611F	0.5	µg/L	100 µg/L	117	70.0	130	----
bromomethane	74-83-9	E611F	0.5	µg/L	100 µg/L	106	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	123	70.0	130	----
butylbenzene, tert-	98-06-6	E611F	0.5	µg/L	100 µg/L	114	70.0	130	----
carbon disulfide	75-15-0	E611F	0.5	µg/L	140 µg/L	119	70.0	130	----
carbon tetrachloride	56-23-5	E611F	0.2	µg/L	100 µg/L	118	70.0	130	----
chlorobenzene	108-90-7	E611F	0.5	µg/L	100 µg/L	105	70.0	130	----
chloroethane	75-00-3	E611F	0.5	µg/L	100 µg/L	93.0	60.0	140	----
chloroform	67-66-3	E611F	0.5	µg/L	100 µg/L	117	70.0	130	----
chloromethane	74-87-3	E611F	2	µg/L	100 µg/L	97.7	60.0	140	----
chlorotoluene, 2-	95-49-8	E611F	0.5	µg/L	100 µg/L	116	70.0	130	----
chlorotoluene, 4-	106-43-4	E611F	0.5	µg/L	100 µg/L	116	70.0	130	----
cymene, p-	99-87-6	E611F	0.5	µg/L	100 µg/L	115	70.0	130	----
dibromo-3-chloropropane, 1,2-	96-12-8	E611F	0.5	µg/L	100 µg/L	118	70.0	130	----
dibromochloromethane	124-48-1	E611F	0.5	µg/L	100 µg/L	121	70.0	130	----
dibromoethane, 1,2-	106-93-4	E611F	0.2	µg/L	100 µg/L	128	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: 370961) - continued									
dibromomethane	74-95-3	E611F	0.5	µg/L	100 µg/L	129	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611F	0.5	µg/L	100 µg/L	123	70.0	130	----
dichlorobenzene, 1,3-	541-73-1	E611F	0.5	µg/L	100 µg/L	113	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611F	0.5	µg/L	100 µg/L	120	70.0	130	----
dichlorodifluoromethane	75-71-8	E611F	0.5	µg/L	100 µg/L	120	60.0	140	----
dichloroethane, 1,1-	75-34-3	E611F	0.5	µg/L	100 µg/L	114	70.0	130	----
dichloroethane, 1,2-	107-06-2	E611F	0.5	µg/L	100 µg/L	120	70.0	130	----
dichloroethylene, 1,1-	75-35-4	E611F	0.5	µg/L	100 µg/L	96.6	70.0	130	----
dichloroethylene, cis-1,2-	156-59-2	E611F	0.5	µg/L	100 µg/L	111	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611F	0.5	µg/L	100 µg/L	102	70.0	130	----
dichloromethane	75-09-2	E611F	1	µg/L	100 µg/L	103	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611F	0.5	µg/L	100 µg/L	109	70.0	130	----
dichloropropane, 1,3-	142-28-9	E611F	0.5	µg/L	100 µg/L	121	70.0	130	----
dichloropropane, 2,2-	594-20-7	E611F	0.5	µg/L	100 µg/L	90.0	70.0	130	----
dichloropropylene, 1,1-	563-58-6	E611F	0.5	µg/L	100 µg/L	98.1	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611F	0.5	µg/L	100 µg/L	102	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611F	0.5	µg/L	100 µg/L	128	70.0	130	----
ethylbenzene	100-41-4	E611F	0.5	µg/L	100 µg/L	90.1	70.0	130	----
hexachlorobutadiene	87-68-3	E611F	0.5	µg/L	100 µg/L	121	70.0	130	----
hexane, n-	110-54-3	E611F	0.5	µg/L	100 µg/L	115	70.0	130	----
hexanone, 2-	591-78-6	E611F	20	µg/L	400.6 µg/L	125	70.0	130	----
isopropylbenzene	98-82-8	E611F	0.5	µg/L	100 µg/L	106	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	117	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	0.5	µg/L	100 µg/L	100	70.0	130	----
naphthalene	91-20-3	E611F	0.5	µg/L	100 µg/L	106	70.0	130	----
propylbenzene, n-	103-65-1	E611F	0.5	µg/L	100 µg/L	93.6	70.0	130	----
styrene	100-42-5	E611F	0.5	µg/L	100 µg/L	92.9	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611F	0.5	µg/L	100 µg/L	104	70.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611F	0.5	µg/L	100 µg/L	122	70.0	130	----
tetrachloroethylene	127-18-4	E611F	0.5	µg/L	100 µg/L	122	70.0	130	----
toluene	108-88-3	E611F	0.5	µg/L	100 µg/L	108	70.0	130	----
trichlorobenzene, 1,2,3-	87-61-6	E611F	0.5	µg/L	100 µg/L	119	70.0	130	----
trichlorobenzene, 1,2,4-	120-82-1	E611F	0.5	µg/L	100 µg/L	115	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611F	0.5	µg/L	100 µg/L	128	70.0	130	----
trichloroethane, 1,1,2-	79-00-5	E611F	0.5	µg/L	100 µg/L	124	70.0	130	----
trichloroethylene	79-01-6	E611F	0.5	µg/L	100 µg/L	119	70.0	130	----
trichlorofluoromethane	75-69-4	E611F	0.5	µg/L	100 µg/L	113	60.0	140	----



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: 370961) - continued									
trichloropropane, 1,2,3-	96-18-4	E611F	0.5	µg/L	100 µg/L	124	70.0	130	----
trimethylbenzene, 1,2,4-	95-63-6	E611F	0.5	µg/L	100 µg/L	113	70.0	130	----
trimethylbenzene, 1,3,5-	108-67-8	E611F	0.5	µg/L	100 µg/L	114	70.0	130	----
vinyl chloride	75-01-4	E611F	0.5	µg/L	100 µg/L	88.5	60.0	140	----
xylene, m+p-	179601-23-1	E611F	0.4	µg/L	200 µg/L	103	70.0	130	----
xylene, o-	95-47-6	E611F	0.3	µg/L	100 µg/L	98.6	70.0	130	----
Hydrocarbons (QCLot: 371416)									
EPH (C10-C19)	----	E601A	250	µg/L	7719.3 µg/L	71.9	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3536.8 µg/L	93.8	70.0	130	----
TEH (C10-C30), BC	----	E601A	250	µg/L	10414 µg/L	79.5	70.0	130	----
Hydrocarbons (QCLot: 373700)									
EPH (C10-C19)	----	E601A	250	µg/L	7719.3 µg/L	96.3	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3536.8 µg/L	97.6	70.0	130	----
TEH (C10-C30), BC	----	E601A	250	µg/L	10414 µg/L	97.5	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: 370873)										
CG2106899-004	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 370914)										
CG2106899-014	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.116 mg/L	0.1 mg/L	116	75.0	125	----
Anions and Nutrients (QCLot: 371385)										
CG2106894-004	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	ND mg/L	2.5 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 371386)										
CG2106894-004	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.504 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 371387)										
CG2106894-004	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	100 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 371388)										
CG2106894-004	Anonymous	fluoride	16984-48-8	E235.F	0.784 mg/L	1 mg/L	78.4	75.0	125	----
Anions and Nutrients (QCLot: 371389)										
CG2106894-004	Anonymous	bromide	24959-67-9	E235.Br-L	0.454 mg/L	0.5 mg/L	90.7	75.0	125	----
Anions and Nutrients (QCLot: 371391)										
CG2106903-002	MICH-33.8	chloride	16887-00-6	E235.Cl	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 371399)										
CG2106903-002	MICH-33.8	Kjeldahl nitrogen, total [TKN]	----	E318	2.56 mg/L	2.5 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 371916)										
CG2106898-003	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0530 mg/L	0.0676 mg/L	78.3	70.0	130	----
Organic / Inorganic Carbon (QCLot: 371025)										
CG2106903-001	MICH-13.0	carbon, dissolved organic [DOC]	----	E358-L	23.0 mg/L	23.9 mg/L	96.3	70.0	130	----
Organic / Inorganic Carbon (QCLot: 371039)										
CG2106903-001	MICH-13.0	carbon, total organic [TOC]	----	E355-L	24.8 mg/L	23.9 mg/L	104	70.0	130	----
Total Metals (QCLot: 372735)										
CG2106903-005	FIELD BLANK	aluminum, total	7429-90-5	E420	2.22 mg/L	2 mg/L	111	70.0	130	----
		antimony, total	7440-36-0	E420	0.200 mg/L	0.2 mg/L	99.8	70.0	130	----
		arsenic, total	7440-38-2	E420	0.212 mg/L	0.2 mg/L	106	70.0	130	----
		barium, total	7440-39-3	E420	0.213 mg/L	0.2 mg/L	107	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: 372735) - continued										
CG2106903-005	FIELD BLANK	beryllium, total	7440-41-7	E420	0.439 mg/L	0.4 mg/L	110	70.0	130	----
		bismuth, total	7440-69-9	E420	0.112 mg/L	0.1 mg/L	112	70.0	130	----
		boron, total	7440-42-8	E420	1.06 mg/L	1 mg/L	106	70.0	130	----
		cadmium, total	7440-43-9	E420	0.0448 mg/L	0.04 mg/L	112	70.0	130	----
		calcium, total	7440-70-2	E420	41.8 mg/L	40 mg/L	104	70.0	130	----
		chromium, total	7440-47-3	E420	0.438 mg/L	0.4 mg/L	110	70.0	130	----
		cobalt, total	7440-48-4	E420	0.218 mg/L	0.2 mg/L	109	70.0	130	----
		copper, total	7440-50-8	E420	0.247 mg/L	0.2 mg/L	124	70.0	130	----
		iron, total	7439-89-6	E420	21.8 mg/L	20 mg/L	109	70.0	130	----
		lead, total	7439-92-1	E420	0.215 mg/L	0.2 mg/L	108	70.0	130	----
		lithium, total	7439-93-2	E420	0.994 mg/L	1 mg/L	99.4	70.0	130	----
		magnesium, total	7439-95-4	E420	10.9 mg/L	10 mg/L	109	70.0	130	----
		manganese, total	7439-96-5	E420	0.222 mg/L	0.2 mg/L	111	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.195 mg/L	0.2 mg/L	97.5	70.0	130	----
		nickel, total	7440-02-0	E420	0.442 mg/L	0.4 mg/L	110	70.0	130	----
		phosphorus, total	7723-14-0	E420	110 mg/L	100 mg/L	110	70.0	130	----
		potassium, total	7440-09-7	E420	44.0 mg/L	40 mg/L	110	70.0	130	----
		selenium, total	7782-49-2	E420	0.428 mg/L	0.4 mg/L	107	70.0	130	----
		silicon, total	7440-21-3	E420	106 mg/L	100 mg/L	106	70.0	130	----
		silver, total	7440-22-4	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		sodium, total	7440-23-5	E420	21.6 mg/L	20 mg/L	108	70.0	130	----
		strontium, total	7440-24-6	E420	0.214 mg/L	0.2 mg/L	107	70.0	130	----
		sulfur, total	7704-34-9	E420	212 mg/L	200 mg/L	106	70.0	130	----
		thallium, total	7440-28-0	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		tin, total	7440-31-5	E420	0.199 mg/L	0.2 mg/L	99.3	70.0	130	----
		titanium, total	7440-32-6	E420	0.435 mg/L	0.4 mg/L	109	70.0	130	----
		uranium, total	7440-61-1	E420	0.0397 mg/L	0.04 mg/L	99.4	70.0	130	----
		vanadium, total	7440-62-2	E420	1.08 mg/L	1 mg/L	108	70.0	130	----
		zinc, total	7440-66-6	E420	4.68 mg/L	4 mg/L	117	70.0	130	----
		zirconium, total	7440-67-7	E420	0.417 mg/L	0.4 mg/L	104	70.0	130	----
Total Metals (QCLot: 374295)										
CG2106903-002	MICH-33.8	mercury, total	7439-97-6	E508	0.000104 mg/L	0.0001 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 374259)										
CG2106898-002	Anonymous	aluminum, dissolved	7429-90-5	E421	1.80 mg/L	2 mg/L	90.2	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.197 mg/L	0.2 mg/L	98.5	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.181 mg/L	0.2 mg/L	90.5	70.0	130	----

Sub-Matrix: **Water**

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: 374259) - continued										
CG2106898-002	Anonymous	barium, dissolved	7440-39-3	E421	0.178 mg/L	0.2 mg/L	89.0	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.359 mg/L	0.4 mg/L	89.7	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.0858 mg/L	0.1 mg/L	85.8	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.947 mg/L	1 mg/L	94.7	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.0369 mg/L	0.04 mg/L	92.4	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	0.360 mg/L	0.4 mg/L	90.0	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.182 mg/L	0.2 mg/L	90.9	70.0	130	----
		copper, dissolved	7440-50-8	E421	ND mg/L	0.2 mg/L	ND	70.0	130	----
		iron, dissolved	7439-89-6	E421	18.2 mg/L	20 mg/L	91.0	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.174 mg/L	0.2 mg/L	86.8	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.887 mg/L	1 mg/L	88.7	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	0.178 mg/L	0.2 mg/L	88.9	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.372 mg/L	0.4 mg/L	93.1	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	94.6 mg/L	100 mg/L	94.6	70.0	130	----
		potassium, dissolved	7440-09-7	E421	36.5 mg/L	40 mg/L	91.2	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.373 mg/L	0.4 mg/L	93.2	70.0	130	----
		silicon, dissolved	7440-21-3	E421	88.1 mg/L	100 mg/L	88.1	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0357 mg/L	0.04 mg/L	89.4	70.0	130	----
		sodium, dissolved	7440-23-5	E421	17.5 mg/L	20 mg/L	87.7	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	170 mg/L	200 mg/L	85.1	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	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.343 mg/L	0.4 mg/L	85.8	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.917 mg/L	1 mg/L	91.7	70.0	130	----
		zinc, dissolved	7440-66-6	E421	3.63 mg/L	4 mg/L	90.8	70.0	130	----
zirconium, dissolved	7440-67-7	E421	0.385 mg/L	0.4 mg/L	96.2	70.0	130	----		
Dissolved Metals (QCLot: 374293)										
CG2106903-002	MICH-33.8	mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0.0001 mg/L	102	70.0	130	----
Aggregate Organics (QCLot: 373277)										
CG2106899-009	Anonymous	chemical oxygen demand [COD]	----	E559-L	99 mg/L	100 mg/L	98.9	75.0	125	----
Volatile Organic Compounds (QCLot: 370961)										

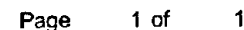


Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 370961) - continued										
CG2106903-001	MICH-13.0	acetone	67-64-1	E611F	2140 µg/L	2000 µg/L	107	70.0	130	----
		benzene	71-43-2	E611F	98.8 µg/L	100 µg/L	98.8	70.0	130	----
		bromobenzene	108-86-1	E611F	114 µg/L	100 µg/L	114	70.0	130	----
		bromochloromethane	74-97-5	E611F	113 µg/L	100 µg/L	113	70.0	130	----
		bromodichloromethane	75-27-4	E611F	119 µg/L	100 µg/L	119	70.0	130	----
		bromoform	75-25-2	E611F	107 µg/L	100 µg/L	107	70.0	130	----
		bromomethane	74-83-9	E611F	106 µg/L	100 µg/L	106	60.0	140	----
		butylbenzene, n-	104-51-8	E611F	107 µg/L	100 µg/L	107	70.0	130	----
		butylbenzene, sec-	135-98-8	E611F	122 µg/L	100 µg/L	122	70.0	130	----
		butylbenzene, tert-	98-06-6	E611F	112 µg/L	100 µg/L	112	70.0	130	----
		carbon disulfide	75-15-0	E611F	163 µg/L	140 µg/L	117	70.0	130	----
		carbon tetrachloride	56-23-5	E611F	118 µg/L	100 µg/L	118	70.0	130	----
		chlorobenzene	108-90-7	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		chloroethane	75-00-3	E611F	88.4 µg/L	100 µg/L	88.4	60.0	140	----
		chloroform	67-66-3	E611F	115 µg/L	100 µg/L	115	70.0	130	----
		chloromethane	74-87-3	E611F	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		chlorotoluene, 2-	95-49-8	E611F	115 µg/L	100 µg/L	115	70.0	130	----
		chlorotoluene, 4-	106-43-4	E611F	115 µg/L	100 µg/L	115	70.0	130	----
		cymene, p-	99-87-6	E611F	112 µg/L	100 µg/L	112	70.0	130	----
		dibromo-3-chloropropane, 1,2-	96-12-8	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		dibromochloromethane	124-48-1	E611F	116 µg/L	100 µg/L	116	70.0	130	----
		dibromoethane, 1,2-	106-93-4	E611F	117 µg/L	100 µg/L	117	70.0	130	----
		dibromomethane	74-95-3	E611F	123 µg/L	100 µg/L	123	70.0	130	----
		dichlorobenzene, 1,2-	95-50-1	E611F	117 µg/L	100 µg/L	117	70.0	130	----
		dichlorobenzene, 1,3-	541-73-1	E611F	109 µg/L	100 µg/L	109	70.0	130	----
		dichlorobenzene, 1,4-	106-46-7	E611F	120 µg/L	100 µg/L	120	70.0	130	----
		dichlorodifluoromethane	75-71-8	E611F	117 µg/L	100 µg/L	117	60.0	140	----
		dichloroethane, 1,1-	75-34-3	E611F	112 µg/L	100 µg/L	112	70.0	130	----
		dichloroethane, 1,2-	107-06-2	E611F	115 µg/L	100 µg/L	115	70.0	130	----
		dichloroethylene, 1,1-	75-35-4	E611F	94.1 µg/L	100 µg/L	94.1	70.0	130	----
		dichloroethylene, cis-1,2-	156-59-2	E611F	105 µg/L	100 µg/L	105	70.0	130	----
		dichloroethylene, trans-1,2-	156-60-5	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		dichloromethane	75-09-2	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		dichloropropane, 1,2-	78-87-5	E611F	99.5 µg/L	100 µg/L	99.5	70.0	130	----
		dichloropropane, 1,3-	142-28-9	E611F	113 µg/L	100 µg/L	113	70.0	130	----
		dichloropropane, 2,2-	594-20-7	E611F	123 µg/L	100 µg/L	123	70.0	130	----
		dichloropropylene, 1,1-	563-58-6	E611F	89.6 µg/L	100 µg/L	89.6	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
Volatile Organic Compounds (QCLot: 370961) - continued										
CG2106903-001	MICH-13.0	dichloropropylene, cis-1,3-	10061-01-5	E611F	97.2 µg/L	100 µg/L	97.2	70.0	130	----
		dichloropropylene, trans-1,3-	10061-02-6	E611F	124 µg/L	100 µg/L	124	70.0	130	----
		ethylbenzene	100-41-4	E611F	82.7 µg/L	100 µg/L	82.7	70.0	130	----
		hexachlorobutadiene	87-68-3	E611F	120 µg/L	100 µg/L	120	70.0	130	----
		hexane, n-	110-54-3	E611F	113 µg/L	100 µg/L	113	70.0	130	----
		hexanone, 2-	591-78-6	E611F	438 µg/L	400.6 µg/L	109	70.0	130	----
		isopropylbenzene	98-82-8	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		methyl ethyl ketone [MEK]	78-93-3	E611F	1890 µg/L	2000 µg/L	94.5	70.0	130	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611F	389 µg/L	401.4 µg/L	97.0	70.0	130	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		naphthalene	91-20-3	E611F	90.7 µg/L	100 µg/L	90.7	70.0	130	----
		propylbenzene, n-	103-65-1	E611F	95.0 µg/L	100 µg/L	95.0	70.0	130	----
		styrene	100-42-5	E611F	87.4 µg/L	100 µg/L	87.4	70.0	130	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611F	101 µg/L	100 µg/L	101	70.0	130	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611F	111 µg/L	100 µg/L	111	70.0	130	----
		tetrachloroethylene	127-18-4	E611F	121 µg/L	100 µg/L	121	70.0	130	----
		toluene	108-88-3	E611F	99.2 µg/L	100 µg/L	99.2	70.0	130	----
		trichlorobenzene, 1,2,3-	87-61-6	E611F	108 µg/L	100 µg/L	108	70.0	130	----
		trichlorobenzene, 1,2,4-	120-82-1	E611F	124 µg/L	100 µg/L	124	70.0	130	----
		trichloroethane, 1,1,1-	71-55-6	E611F	126 µg/L	100 µg/L	126	70.0	130	----
		trichloroethane, 1,1,2-	79-00-5	E611F	116 µg/L	100 µg/L	116	70.0	130	----
		trichloroethylene	79-01-6	E611F	112 µg/L	100 µg/L	112	70.0	130	----
		trichlorofluoromethane	75-69-4	E611F	115 µg/L	100 µg/L	115	60.0	140	----
		trichloropropane, 1,2,3-	96-18-4	E611F	118 µg/L	100 µg/L	118	70.0	130	----
		trimethylbenzene, 1,2,4-	95-63-6	E611F	111 µg/L	100 µg/L	111	70.0	130	----
		trimethylbenzene, 1,3,5-	108-67-8	E611F	112 µg/L	100 µg/L	112	70.0	130	----
		vinyl chloride	75-01-4	E611F	80.7 µg/L	100 µg/L	80.7	60.0	140	----
		xylene, m+p-	179601-23-1	E611F	196 µg/L	200 µg/L	97.8	70.0	130	----
		xylene, o-	95-47-6	E611F	92.0 µg/L	100 µg/L	92.0	70.0	130	----

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