CERTIFICATE OF ANALYSIS

Work Order	: **FC2303466**	Page	: 1 of 8
Client	: **Regional Municipality of Wood Buffalo**	Laboratory	: ALS Environmental - Fort McMurray
Contact	: Water Treatment Plant	Account Manager	: Megan Trydal
Address	: 1 Silin Forest Road Fort Mcmurray AB Canada T9H 5A1	Address	: #4, 340 Macalpine Crescent Fort McMurray AB Canada T9H 4A8
Telephone	: 780-762-5863	Telephone	: +1 780 791 1524
Project	: Fort Chipewyan Imperial Release	Date Samples Received	: 05-Dec-2023 15:45
PO	: 4500051416	Date Analysis Commenced	: 06-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 11:47
Sampler	: JF		
Site	: Fort Chip		
Quote number	: Q61323 (Fort chip)		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Dan Nguyen	Team Leader - Inorganics	Metals, Edmonton, Alberta
Daniel Nguyen	Lab Assistant	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Yan Zhang	Lab Analyst	Organics, Edmonton, 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 units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
pH units	pH units
psu	practical salinity 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.

Analytical Results

Sub-Matrix: Water (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
						FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/EO	1.0	mg/L		60.9	42.3	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/EO	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/EO	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/EO	1.0	mg/L		49.9	34.7	----	----	----
Conductivity	----	E100/EO	1.0	µS/cm		149	86.0	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/EO	0.50	mg/L		37.2	34.7	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/EO	0.50	mg/L		37.0	35.2	----	----	----
pH	----	E108/EO	0.10	pH units		8.07	7.65	----	----	----
Salinity	----	EC100S/VA	1.0	psu		<1.0	<1.0	----	----	----
Solids, total dissolved [TDS], calculated	----	EC103/EO	1.0	mg/L		86.2	51.5	----	----	----
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl/EO	0.50	mg/L		15.1	3.52	----	----	----
Fluoride	16984-48-8	E235.F/EO	0.020	mg/L		<0.020	0.057	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/EO	0.020	mg/L		0.030	0.028	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/EO	0.0300	mg/L		0.0300	<0.0300	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/EO	0.010	mg/L		<0.010	<0.010	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/EO	0.30	mg/L		4.75	5.11	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Ion Balance										
Anion sum	----	EC101/EO	0.10	meq/L		1.52	0.90	----	----	----
Cation sum	----	EC101/EO	0.10	meq/L		1.50	0.86	----	----	----
Ion balance (APHA)	----	EC101/EO	0.01	%		-0.66	-2.27	----	----	----
Ion balance (cations/anions)	----	EC101/EO	0.010	%		98.7	95.6	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/EO	0.0030	mg/L		0.0226	0.227	----	----	----
Antimony, total	7440-36-0	E420/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/EO	0.00010	mg/L		0.00012	0.00030	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
						FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Barium, total	7440-39-3	E420/EO	0.00010	mg/L		0.0208	0.0221	----	----	----
Beryllium, total	7440-41-7	E420/EO	0.000020	mg/L		<0.000020	<0.000020	----	----	----
Bismuth, total	7440-69-9	E420/EO	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/EO	0.010	mg/L		0.016	0.015	----	----	----
Cadmium, total	7440-43-9	E420/EO	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Calcium, total	7440-70-2	E420/EO	0.050	mg/L		10.1	9.30	----	----	----
Cesium, total	7440-46-2	E420/EO	0.000010	mg/L		<0.000010	0.000024	----	----	----
Chromium, total	7440-47-3	E420/EO	0.00050	mg/L		0.0107	0.0112	----	----	----
Cobalt, total	7440-48-4	E420/EO	0.00010	mg/L		<0.00010	0.00014	----	----	----
Copper, total	7440-50-8	E420/EO	0.00050	mg/L		0.00208	0.00279	----	----	----
Iron, total	7439-89-6	E420/EO	0.010	mg/L		0.056	0.241	----	----	----
Lead, total	7439-92-1	E420/EO	0.000050	mg/L		0.000072	0.000160	----	----	----
Lithium, total	7439-93-2	E420/EO	0.0010	mg/L		0.0028	0.0030	----	----	----
Magnesium, total	7439-95-4	E420/EO	0.0050	mg/L		2.86	2.90	----	----	----
Manganese, total	7439-96-5	E420/EO	0.00010	mg/L		0.00281	0.00546	----	----	----
Molybdenum, total	7439-98-7	E420/EO	0.000050	mg/L		0.000604	0.000607	----	----	----
Nickel, total	7440-02-0	E420/EO	0.00050	mg/L		0.00868	0.00890	----	----	----
Phosphorus, total	7723-14-0	E420/EO	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/EO	0.050	mg/L		0.967	1.02	----	----	----
Rubidium, total	7440-17-7	E420/EO	0.00020	mg/L		0.00090	0.00116	----	----	----
Selenium, total	7782-49-2	E420/EO	0.000050	mg/L		<0.000050	0.000050	----	----	----
Silicon, total	7440-21-3	E420/EO	0.10	mg/L		1.93	2.55	----	----	----
Silver, total	7440-22-4	E420/EO	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/EO	0.050	mg/L		16.5	3.29	----	----	----
Strontium, total	7440-24-6	E420/EO	0.00020	mg/L		0.0605	0.0615	----	----	----
Sulfur, total	7704-34-9	E420/EO	0.50	mg/L		1.67	1.82	----	----	----
Tellurium, total	13494-80-9	E420/EO	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/EO	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
						FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Titanium, total	7440-32-6	E420/EO	0.00030	mg/L		<0.00030	0.00654	----	----	----
Tungsten, total	7440-33-7	E420/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/EO	0.000010	mg/L		<0.000010	0.000068	----	----	----
Vanadium, total	7440-62-2	E420/EO	0.00050	mg/L		<0.00050	0.00077	----	----	----
Zinc, total	7440-66-6	E420/EO	0.0030	mg/L		<0.0030	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/EO	0.00020	mg/L		<0.00020	0.00026	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L		0.0207	0.0136	----	----	----
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L		0.00012	0.00021	----	----	----
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L		0.0200	0.0206	----	----	----
Beryllium, dissolved	7440-41-7	E421/EO	0.000020	mg/L		<0.000020	<0.000020	----	----	----
Bismuth, dissolved	7440-69-9	E421/EO	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L		0.016	0.015	----	----	----
Cadmium, dissolved	7440-43-9	E421/EO	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L		10.2	9.17	----	----	----
Cesium, dissolved	7440-46-2	E421/EO	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L		0.00048	0.00102	----	----	----
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L		<0.010	0.024	----	----	----
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/EO	0.0010	mg/L		0.0028	0.0029	----	----	----
Magnesium, dissolved	7439-95-4	E421/EO	0.0050	mg/L		2.86	2.86	----	----	----
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L		0.00071	0.00134	----	----	----
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L		0.000410	0.000282	----	----	----
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/EO	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L		0.944	0.947	----	----	----
Rubidium, dissolved	7440-17-7	E421/EO	0.00020	mg/L		0.00082	0.00091	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/EO	0.050	mg/L		1.97	2.07	----	----	----
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L		16.9	3.27	----	----	----
Strontium, dissolved	7440-24-6	E421/EO	0.00020	mg/L		0.0619	0.0618	----	----	----
Sulfur, dissolved	7704-34-9	E421/EO	0.50	mg/L		1.70	1.71	----	----	----
Tellurium, dissolved	13494-80-9	E421/EO	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/EO	0.00030	mg/L		<0.00030	0.00088	----	----	----
Tungsten, dissolved	7440-33-7	E421/EO	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L		<0.000010	0.000055	----	----	----
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Zirconium, dissolved	7440-67-7	E421/EO	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Dissolved metals filtration location	----	EP421/EO	-	-		Laboratory	Laboratory	----	----	----
Aggregate Organics										
Naphthenic acids	----	E565-L/EO	0.10	mg/L		<0.10	<0.10	----	----	----
Volatile Organic Compounds [BTEXS+MTBE]										
Benzene	71-43-2	E611A/EO	0.50	µg/L		<0.50	<0.50	----	----	----
Ethylbenzene	100-41-4	E611A/EO	0.50	µg/L		<0.50	<0.50	----	----	----
Toluene	108-88-3	E611A/EO	0.50	µg/L		<0.50	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611A/EO	0.50	µg/L		<0.50	<0.50	----	----	----
Xylene, o-	95-47-6	E611A/EO	0.50	µg/L		<0.50	<0.50	----	----	----
Xylenes, total	1330-20-7	E611A/EO	0.75	µg/L		<0.75	<0.75	----	----	----
BTEX, total	----	E611A/EO	1.2	µg/L		<1.2	<1.2	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/EO	100	µg/L		<100	<100	----	----	----
F1-BTEX	----	EC580/EO	100	µg/L		<100	<100	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
						FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Hydrocarbons										
F2 (C10-C16)	----	E601/EO	100	µg/L		<100	<100	----	----	----
F3 (C16-C34)	----	E601/EO	250	µg/L		<250	<250	----	----	----
F4 (C34-C50)	----	E601/EO	250	µg/L		<250	<250	----	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/EO	400	µg/L		<400	<400	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/EO	1.0	%		114	112	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/EO	1.0	%		73.4	70.4	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/EO	1.0	%		77.5	74.6	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/EO	1.0	%		92.4	91.5	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/EO	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/EO	0.015	µg/L		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/EO	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A/EO	0.015	µg/L		<0.015	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Naphthalene	91-20-3	E641A/EO	0.050	µg/L		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Treated Water	Raw Water Chamber Tap	----	----	----
					Client sampling date / time	05-Dec-2023 09:25	05-Dec-2023 09:20	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		FC2303466-001	FC2303466-002	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
Phenanthrene	85-01-8	E641A/EO	0.020	µg/L		<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/EO	0.050	µg/L		<0.050	<0.050	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/EO	0.010	µg/L		<0.010	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/EO	0.030	µg/L		<0.030	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/EO	0.060	µg/L		<0.060	<0.060	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/EO	0.070	µg/L		<0.070	<0.070	----	----	----
PAHs, total (EPA 16)	n/a	E641A/EO	0.065	µg/L		<0.065	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/EO	0.1	%		103	115	----	----	----
Naphthalene-d8	1146-65-2	E641A/EO	0.1	%		127	110	----	----	----
Phenanthrene-d10	1517-22-2	E641A/EO	0.1	%		122	122	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

CERTIFICATE OF ANALYSIS

Work Order	: **FC2303466**	Page	: 1 of 10
Client	: **Regional Municipality of Wood Buffalo**	Laboratory	: ALS Environmental - Fort McMurray
Contact	: Water Treatment Plant	Account Manager	: Megan Trydal
Address	: 1 Silin Forest Road Fort Mcmurray AB Canada T9H 5A1	Address	: #4, 340 Macalpine Crescent Fort McMurray AB Canada T9H 4A8
Telephone	: 780-762-5863	Telephone	: +1 780 791 1524
Project	: Fort Chipewyan Imperial Release	Date Samples Received	: 05-Dec-2023 15:45
PO	: 4500051416	Date Analysis Commenced	: 06-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 11:47
Sampler	: JF		
Site	: Fort Chip		
Quote number	: Q61323 (Fort chip)		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Dan Nguyen	Team Leader - Inorganics	Metals, Edmonton, Alberta
Daniel Nguyen	Lab Assistant	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Yan Zhang	Lab Analyst	Organics, Edmonton, 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).
Measurement Uncertainty: The reported uncertainties in this report are expanded uncertainties calculated using a coverage factor of 2, which gives a level of confidence of approximately 95%.
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.

Unit	*Description*
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
pH units	pH units
psu	practical salinity units

>: greater than.
<: less than.

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.

Analytical Results

FC2303466-001

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

Client sample ID: Treated Water
Client sampling date / time: 05-Dec-2023 09:25

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests								
Alkalinity, bicarbonate (as HCO3)	71-52-3	60.9	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, total (as CaCO3)	----	49.9	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Conductivity	----	149	1.0	µS/cm	E100/EO	07-Dec-2023	07-Dec-2023	1268405
Hardness (as CaCO3), dissolved	----	37.2	0.50	mg/L	EC100/EO	-	08-Dec-2023	-
Hardness (as CaCO3), from total Ca/Mg	----	37.0	0.50	mg/L	EC100A/EO	-	08-Dec-2023	-
pH	----	8.07	0.10	pH units	E108/EO	07-Dec-2023	07-Dec-2023	1268404
Salinity	----	<1.0	1.0	psu	EC100S/VA	-	13-Dec-2023	-
Solids, total dissolved [TDS], calculated	----	86.2	1.0	mg/L	EC103/EO	-	07-Dec-2023	-
Anions and Nutrients								
Chloride	16887-00-6	15.1	0.50	mg/L	E235.Cl/EO	06-Dec-2023	06-Dec-2023	1266502
Fluoride	16984-48-8	<0.020	0.020	mg/L	E235.F/EO	06-Dec-2023	06-Dec-2023	1266499
Nitrate (as N)	14797-55-8	0.030	0.020	mg/L	E235.NO3/EO	06-Dec-2023	06-Dec-2023	1266500
Nitrate + Nitrite (as N)	----	0.0300	0.03	mg/L	EC235.N+N/EO	-	07-Dec-2023	-
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2/EO	06-Dec-2023	06-Dec-2023	1266501
Sulfate (as SO4)	14808-79-8	4.75	0.30	mg/L	E235.SO4/EO	06-Dec-2023	06-Dec-2023	1266503
Total Sulfides								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395/VA	-	08-Dec-2023	1269986
Ion Balance								
Anion sum	----	1.52	0.10	meq/L	EC101/EO	-	07-Dec-2023	-
Cation sum	----	1.50	0.10	meq/L	EC101/EO	-	07-Dec-2023	-
Ion balance (APHA)	----	-0.66	0.01	%	EC101/EO	-	07-Dec-2023	-
Ion balance (cations/anions)	----	98.7	0.010	%	EC101/EO	-	07-Dec-2023	-
Total Metals								
Aluminum, total	7429-90-5	0.0226	0.0030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Arsenic, total	7440-38-2	0.00012	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Barium, total	7440-39-3	0.0208	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Boron, total	7440-42-8	0.016	0.010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cadmium, total	7440-43-9	<0.0000050	0.0000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Calcium, total	7440-70-2	10.1	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cesium, total	7440-46-2	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Chromium, total	7440-47-3	0.0107	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cobalt, total	7440-48-4	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Copper, total	7440-50-8	0.00208	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Iron, total	7439-89-6	0.056	0.010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Lead, total	7439-92-1	0.000072	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Lithium, total	7439-93-2	0.0028	0.0010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Magnesium, total	7439-95-4	2.86	0.0050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Manganese, total	7439-96-5	0.00281	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Molybdenum, total	7439-98-7	0.000604	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Nickel, total	7440-02-0	0.00868	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681

Analytical Results

FC2303466-001

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

Client sample ID: Treated Water
Client sampling date / time: 05-Dec-2023 09:25

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Total Metals								
Phosphorus, total	7723-14-0	<0.050	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Potassium, total	7440-09-7	0.967	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Rubidium, total	7440-17-7	0.00090	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Selenium, total	7782-49-2	<0.000050	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Silicon, total	7440-21-3	1.93	0.10	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Sodium, total	7440-23-5	16.5	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Strontium, total	7440-24-6	0.0605	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Sulfur, total	7704-34-9	1.67	0.50	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Titanium, total	7440-32-6	<0.00030	0.00030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Uranium, total	7440-61-1	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Vanadium, total	7440-62-2	<0.00050	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Zinc, total	7440-66-6	<0.0030	0.0030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0207	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Arsenic, dissolved	7440-38-2	0.00012	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Barium, dissolved	7440-39-3	0.0200	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Boron, dissolved	7440-42-8	0.016	0.010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Calcium, dissolved	7440-70-2	10.2	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Copper, dissolved	7440-50-8	0.00048	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Iron, dissolved	7439-89-6	<0.010	0.010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Lithium, dissolved	7439-93-2	0.0028	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Magnesium, dissolved	7439-95-4	2.86	0.0050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Manganese, dissolved	7439-96-5	0.00071	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Molybdenum, dissolved	7439-98-7	0.000410	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Potassium, dissolved	7440-09-7	0.944	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Rubidium, dissolved	7440-17-7	0.00082	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Silicon, dissolved	7440-21-3	1.97	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499

Analytical Results

FC2303466-001

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

Client sample ID: Treated Water
Client sampling date / time: 05-Dec-2023 09:25

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals								
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Sodium, dissolved	7440-23-5	16.9	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Strontium, dissolved	7440-24-6	0.0619	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Sulfur, dissolved	7704-34-9	1.70	0.50	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Titanium, dissolved	7440-32-6	<0.00030	0.00030	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Uranium, dissolved	7440-61-1	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Dissolved metals filtration location	----	Laboratory	-	-	EP421/EO	-	07-Dec-2023	1267499
Aggregate Organics								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L/EO	11-Dec-2023	12-Dec-2023	1271681
Volatile Organic Compounds [BTEXS+MTBE]								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Toluene	108-88-3	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylene, m+p-	179601-23-1	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylene, o-	95-47-6	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylenes, total	1330-20-7	<0.75	0.75	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
BTEX, total	----	<1.2	1.2	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Hydrocarbons								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1/EO	08-Dec-2023	10-Dec-2023	1269651
F1-BTEX	----	<100	100	µg/L	EC580/EO	-	11-Dec-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
F3 (C16-C34)	----	<250	250	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
F4 (C34-C50)	----	<250	250	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
Hydrocarbons, total (C6-C50)	n/a	<400	400	µg/L	EC581/EO	-	08-Dec-2023	-
Hydrocarbons Surrogates								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	114	1.0	%	E601/EO	07-Dec-2023	07-Dec-2023	1267877
Dichlorotoluene, 3,4-	95-75-0	73.4	1.0	%	E581.F1/EO	08-Dec-2023	10-Dec-2023	1269651
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	77.5	1.0	%	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Difluorobenzene, 1,4-	540-36-3	92.4	1.0	%	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Acridine	260-94-6	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878

Analytical Results

FC2303466-001

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

Client sample ID: Treated Water

Client sampling date / time: 05-Dec-2023 09:25

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Polycyclic Aromatic Hydrocarbons								
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	103	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Naphthalene-d8	1146-65-2	127	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Phenanthrene-d10	1517-22-2	122	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

FC2303466-002

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

Client sample ID: Raw Water Chamber Tap

Client sampling date / time: 05-Dec-2023 09:20

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests								
Alkalinity, bicarbonate (as HCO3)	71-52-3	42.3	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Alkalinity, total (as CaCO3)	----	34.7	1.0	mg/L	E290/EO	07-Dec-2023	07-Dec-2023	1268406
Conductivity	----	86.0	1.0	µS/cm	E100/EO	07-Dec-2023	07-Dec-2023	1268405
Hardness (as CaCO3), dissolved	----	34.7	0.50	mg/L	EC100/EO	-	08-Dec-2023	-
Hardness (as CaCO3), from total Ca/Mg	----	35.2	0.50	mg/L	EC100A/EO	-	08-Dec-2023	-
pH	----	7.65	0.10	pH units	E108/EO	07-Dec-2023	07-Dec-2023	1268404
Salinity	----	<1.0	1.0	psu	EC100S/VA	-	13-Dec-2023	-

Analytical Results

FC2303466-002

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

Client sample ID: Raw Water Chamber Tap
Client sampling date / time: 05-Dec-2023 09:20

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests								
Solids, total dissolved [TDS], calculated	----	51.5	1.0	mg/L	EC103/EO	-	07-Dec-2023	-
Anions and Nutrients								
Chloride	16887-00-6	3.52	0.50	mg/L	E235.Cl/EO	06-Dec-2023	06-Dec-2023	1266502
Fluoride	16984-48-8	0.057	0.020	mg/L	E235.F/EO	06-Dec-2023	06-Dec-2023	1266499
Nitrate (as N)	14797-55-8	0.028	0.020	mg/L	E235.NO3/EO	06-Dec-2023	06-Dec-2023	1266500
Nitrate + Nitrite (as N)	----	<0.0300	0.03	mg/L	EC235.N+N/EO	-	07-Dec-2023	-
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2/EO	06-Dec-2023	06-Dec-2023	1266501
Sulfate (as SO4)	14808-79-8	5.11	0.30	mg/L	E235.SO4/EO	06-Dec-2023	06-Dec-2023	1266503
Total Sulfides								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395/VA	-	08-Dec-2023	1269986
Ion Balance								
Anion sum	----	0.90	0.10	meq/L	EC101/EO	-	07-Dec-2023	-
Cation sum	----	0.86	0.10	meq/L	EC101/EO	-	07-Dec-2023	-
Ion balance (APHA)	----	-2.27	0.01	%	EC101/EO	-	07-Dec-2023	-
Ion balance (cations/anions)	----	95.6	0.010	%	EC101/EO	-	07-Dec-2023	-
Total Metals								
Aluminum, total	7429-90-5	0.227	0.0030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Arsenic, total	7440-38-2	0.00030	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Barium, total	7440-39-3	0.0221	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Boron, total	7440-42-8	0.015	0.010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cadmium, total	7440-43-9	<0.0000050	0.0000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Calcium, total	7440-70-2	9.30	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cesium, total	7440-46-2	0.000024	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Chromium, total	7440-47-3	0.0112	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Cobalt, total	7440-48-4	0.00014	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Copper, total	7440-50-8	0.00279	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Iron, total	7439-89-6	0.241	0.010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Lead, total	7439-92-1	0.000160	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Lithium, total	7439-93-2	0.0030	0.0010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Magnesium, total	7439-95-4	2.90	0.0050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Manganese, total	7439-96-5	0.00546	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Molybdenum, total	7439-98-7	0.000607	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Nickel, total	7440-02-0	0.00890	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Phosphorus, total	7723-14-0	<0.050	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Potassium, total	7440-09-7	1.02	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Rubidium, total	7440-17-7	0.00116	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Selenium, total	7782-49-2	0.000050	0.000050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Silicon, total	7440-21-3	2.55	0.10	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Sodium, total	7440-23-5	3.29	0.050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Strontium, total	7440-24-6	0.0615	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Sulfur, total	7704-34-9	1.82	0.50	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681

Analytical Results

FC2303466-002

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

Client sample ID: Raw Water Chamber Tap
Client sampling date / time: 05-Dec-2023 09:20

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Total Metals								
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Titanium, total	7440-32-6	0.00654	0.00030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Uranium, total	7440-61-1	0.000068	0.000010	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Vanadium, total	7440-62-2	0.00077	0.00050	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Zinc, total	7440-66-6	<0.0030	0.0030	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Zirconium, total	7440-67-7	0.00026	0.00020	mg/L	E420/EO	07-Dec-2023	07-Dec-2023	1267681
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0136	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Arsenic, dissolved	7440-38-2	0.00021	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Barium, dissolved	7440-39-3	0.0206	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Boron, dissolved	7440-42-8	0.015	0.010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Calcium, dissolved	7440-70-2	9.17	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Copper, dissolved	7440-50-8	0.00102	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Iron, dissolved	7439-89-6	0.024	0.010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Lithium, dissolved	7439-93-2	0.0029	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Magnesium, dissolved	7439-95-4	2.86	0.0050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Manganese, dissolved	7439-96-5	0.00134	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Molybdenum, dissolved	7439-98-7	0.000282	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Potassium, dissolved	7440-09-7	0.947	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Rubidium, dissolved	7440-17-7	0.00091	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Silicon, dissolved	7440-21-3	2.07	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Sodium, dissolved	7440-23-5	3.27	0.050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Strontium, dissolved	7440-24-6	0.0618	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Sulfur, dissolved	7704-34-9	1.71	0.50	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Titanium, dissolved	7440-32-6	0.00088	0.00030	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499

Analytical Results

FC2303466-002

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

Client sample ID: Raw Water Chamber Tap
Client sampling date / time: 05-Dec-2023 09:20

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals								
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Uranium, dissolved	7440-61-1	0.000055	0.000010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421/EO	07-Dec-2023	07-Dec-2023	1267499
Dissolved metals filtration location	----	Laboratory	-	-	EP421/EO	-	07-Dec-2023	1267499
Aggregate Organics								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L/EO	11-Dec-2023	12-Dec-2023	1271681
Volatile Organic Compounds [BTEXS+MTBE]								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Toluene	108-88-3	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylene, m+p-	179601-23-1	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylene, o-	95-47-6	<0.50	0.50	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Xylenes, total	1330-20-7	<0.75	0.75	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
BTEX, total	----	<1.2	1.2	µg/L	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Hydrocarbons								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1/EO	08-Dec-2023	10-Dec-2023	1269651
F1-BTEX	----	<100	100	µg/L	EC580/EO	-	11-Dec-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
F3 (C16-C34)	----	<250	250	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
F4 (C34-C50)	----	<250	250	µg/L	E601/EO	07-Dec-2023	07-Dec-2023	1267877
Hydrocarbons, total (C6-C50)	n/a	<400	400	µg/L	EC581/EO	-	08-Dec-2023	-
Hydrocarbons Surrogates								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	112	1.0	%	E601/EO	07-Dec-2023	07-Dec-2023	1267877
Dichlorotoluene, 3,4-	95-75-0	70.4	1.0	%	E581.F1/EO	08-Dec-2023	10-Dec-2023	1269651
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	74.6	1.0	%	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Difluorobenzene, 1,4-	540-36-3	91.5	1.0	%	E611A/EO	08-Dec-2023	10-Dec-2023	1269650
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Acridine	260-94-6	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878

Analytical Results

FC2303466-002

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

Client sample ID: Raw Water Chamber Tap
Client sampling date / time: 05-Dec-2023 09:20

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Polycyclic Aromatic Hydrocarbons								
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	115	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Naphthalene-d8	1146-65-2	110	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878
Phenanthrene-d10	1517-22-2	122	0.1	%	E641A/EO	07-Dec-2023	07-Dec-2023	1267878

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

Please refer to the Accreditation section for an explanation of analyte accreditations.