



CERTIFICATE OF ANALYSIS

<p>Work Order : FC2300738</p> <p>Client : Regional Municipality of Wood Buffalo</p> <p>Contact : Water Treatment Plant</p> <p>Address : 1 Silin Forest Road Fort McMurray AB Canada T9H 5A1</p> <p>Telephone : 780-762-5863</p> <p>Project : Fort Chipewyan Imperial Release</p> <p>PO : 4500049712</p> <p>C-O-C number : ----</p> <p>Sampler : DM</p> <p>Site :</p> <p>Quote number : Q61323 (Fort chip)</p> <p>No. of samples received : 3</p> <p>No. of samples analysed : 3</p>	<p>Page : 1 of 8</p> <p>Laboratory : Fort McMurray - Environmental</p> <p>Account Manager : Megan Trydal</p> <p>Address : #4, 340 Macalpine Crescent Fort McMurray AB Canada T9H 4A8</p> <p>Telephone : +1 780 791 1524</p> <p>Date Samples Received : 29-Mar-2023 13:30</p> <p>Date Analysis Commenced : 30-Mar-2023</p> <p>Issue Date : 03-Apr-2023 13:32</p>
--	---

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>
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Anthony Calero	Supervisor - Inorganic	Metals, Calgary, Alberta
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
George Huang	Supervisor - Inorganic	Inorganics, Calgary, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Kevin Baxter	Team Leader - Inorganics	Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Metals, Calgary, Alberta
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Remy Gatabazi	Lab Analyst	Organics, Edmonton, Alberta
Samantha Mayor	Lab Assistant	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).

<i>Unit</i>	<i>Description</i>
-	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)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001 Result	FC2300738-002 Result	FC2300738-003 Result	----- ----	----- ----	
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	30.1	32.4	34.5	----	----	
Salinity	----	EC100S	1.0	psu	<1.0	<1.0	<1.0	----	----	
Conductivity	----	E100	2.0	µS/cm	74.1	78.7	142	----	----	
pH	----	E108	0.10	pH units	7.42	7.32	8.39	----	----	
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290	1.0	mg/L	36.0	38.3	62.1	----	----	
Alkalinity, carbonate (as CO3)	3812-32-6	E290	1.0	mg/L	<1.0	<1.0	1.4	----	----	
Alkalinity, hydroxide (as OH)	14280-30-9	E290	1.0	mg/L	<1.0	<1.0	<1.0	----	----	
Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	29.5	31.4	53.3	----	----	
Solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	45.2	47.6	82.6	----	----	
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.41	3.48	11.5	----	----	
Fluoride	16984-48-8	E235.F	0.020	mg/L	0.083	0.077	0.049	----	----	
Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.077	0.082	0.081	----	----	
Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	<0.010	----	----	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.91	2.93	2.55	----	----	
Nitrate + Nitrite (as N)	----	EC235.N+N	0.0500	mg/L	0.0770	0.0820	0.0810	----	----	
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	<0.0015	----	----	
Ion Balance										
Anion sum	----	EC101	0.10	meq/L	0.76	0.80	1.45	----	----	
Cation sum	----	EC101	0.10	meq/L	0.74	0.80	1.44	----	----	
Ion balance (APHA)	----	EC101	0.01	%	-1.33	<0.01	-0.35	----	----	
Ion balance (cations/anions)	----	EC101	0.010	%	97.4	100	99.3	----	----	
Total Metals										
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.214	0.114	0.0177	----	----	
Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00031	0.00025	0.00011	----	----	
Barium, total	7440-39-3	E420	0.00010	mg/L	0.0176	0.0181	0.0175	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001	FC2300738-002	FC2300738-003	-----	-----	
					Result	Result	Result	----	----	
Total Metals										
Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	----	----	
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Boron, total	7440-42-8	E420	0.010	mg/L	0.015	0.014	0.015	----	----	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000123	0.0000066	<0.0000050	----	----	
Calcium, total	7440-70-2	E420	0.050	mg/L	8.47	8.85	9.70	----	----	
Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000040	0.000018	<0.000010	----	----	
Chromium, total	7440-47-3	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00011	<0.00010	<0.00010	----	----	
Copper, total	7440-50-8	E420	0.000050	mg/L	0.00136	0.00134	0.00059	----	----	
Iron, total	7439-89-6	E420	0.010	mg/L	0.601	0.188	<0.010	----	----	
Lead, total	7439-92-1	E420	0.000050	mg/L	0.00110	0.000087	<0.000050	----	----	
Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0031	0.0030	0.0029	----	----	
Magnesium, total	7439-95-4	E420	0.0050	mg/L	3.05	2.74	2.77	----	----	
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00987	0.00682	0.00668	----	----	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000252	0.000221	0.000192	----	----	
Nickel, total	7440-02-0	E420	0.000050	mg/L	0.00085	<0.000050	<0.000050	----	----	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
Potassium, total	7440-09-7	E420	0.050	mg/L	1.09	1.06	1.03	----	----	
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00140	0.00124	0.00111	----	----	
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000135	0.000111	<0.000050	----	----	
Silicon, total	7440-21-3	E420	0.10	mg/L	3.02	2.85	2.49	----	----	
Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, total	7440-23-5	E420	0.050	mg/L	2.99	3.00	18.4	----	----	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0616	0.0648	0.0659	----	----	
Sulfur, total	7704-34-9	E420	0.50	mg/L	2.10	1.78	1.46	----	----	
Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001 Result	FC2300738-002 Result	FC2300738-003 Result	-----	-----	
Total Metals										
Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00490	0.00194	<0.00030	----	----	
Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000114	0.000093	<0.000010	----	----	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00070	<0.00050	<0.00050	----	----	
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0161	<0.0030	<0.0030	----	----	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0048	0.0074	0.0134	----	----	
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00023	0.00017	0.00011	----	----	
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0156	0.0178	0.0183	----	----	
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	----	----	
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.013	0.014	0.015	----	----	
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	8.06	8.74	9.52	----	----	
Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00052	0.00100	0.00048	----	----	
Iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.030	0.033	<0.030	----	----	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0030	0.0030	0.0030	----	----	
Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.42	2.57	2.61	----	----	
Manganese, dissolved	7439-96-5	E421	0.00500	mg/L	<0.00500	<0.00500	<0.00500	----	----	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000220	0.000209	0.000211	----	----	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.976	1.03	1.05	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001 Result	FC2300738-002 Result	FC2300738-003 Result	----- ----	----- ----	
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00092	0.00098	0.00108	----	----	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000053	<0.000050	----	----	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.45	2.51	2.40	----	----	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.66	2.76	16.5	----	----	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0583	0.0610	0.0629	----	----	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.12	1.30	1.19	----	----	
Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	0.00065	<0.00030	----	----	
Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000082	0.000076	<0.000010	----	----	
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0084	<0.0010	<0.0010	----	----	
Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	
Dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	----	----	
Aggregate Organics										
Naphthenic acids	----	E565-L	0.10	mg/L	<0.10	<0.10	<0.10	----	----	
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	<0.40	----	----	
Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	<0.30	----	----	
Xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
BTEX, total	----	E611A	1.0	µg/L	<1.0	<1.0	<1.0	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001	FC2300738-002	FC2300738-003	-----	-----	
					Result	Result	Result	----	----	
Hydrocarbons										
F1 (C6-C10)	----	E581.F1	100	µg/L	<100	<100	<100	----	----	
F1-BTEX	----	EC580	25	µg/L	<100	<100	<100	----	----	
F2 (C10-C16)	----	E601	100	µg/L	<100	<100	<100	----	----	
F3 (C16-C34)	----	E601	250	µg/L	<250	<250	<250	----	----	
F4 (C34-C50)	----	E601	250	µg/L	<250	<250	<250	----	----	
Hydrocarbons, total (C6-C50)	----	EC581	370	µg/L	<380	<380	<380	----	----	
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601	1.0	%	95.9	96.8	101	----	----	
Dichlorotoluene, 3,4-	95-75-0	E581.F1	1.0	%	103	105	118	----	----	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	117	111	113	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	103	103	101	----	----	
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Acridine	260-94-6	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Anthracene	120-12-7	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	<0.0050	<0.0050	----	----	
Benzo(b+j)fluoranthene	n/a	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Benzo(b+j+k)fluoranthene	n/a	E641A	0.015	µg/L	<0.015	<0.015	<0.015	----	----	
Benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Chrysene	218-01-9	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	<0.0050	<0.0050	----	----	
Fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Fluorene	86-73-7	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					29-Mar-2023 09:30	29-Mar-2023 09:45	29-Mar-2023 09:30	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300738-001 Result	FC2300738-002 Result	FC2300738-003 Result	-----	-----	
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	<0.015	<0.015	----	----	
Methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	<0.050	<0.050	----	----	
Phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	<0.020	<0.020	----	----	
Pyrene	129-00-0	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
Quinoline	91-22-5	E641A	0.050	µg/L	<0.050	<0.050	<0.050	----	----	
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
PAHs, high molecular weight (BC AWQ)	n/a	E641A	0.030	µg/L	<0.030	<0.030	<0.030	----	----	
PAHs, low molecular weight (BC AWQ)	n/a	E641A	0.060	µg/L	<0.060	<0.060	<0.060	----	----	
PAHs, total (CCME sewer 18)	n/a	E641A	0.070	µg/L	<0.070	<0.070	<0.070	----	----	
PAHs, total (EPA 16)	n/a	E641A	0.065	µg/L	<0.065	<0.065	<0.065	----	----	
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A	0.1	%	100	105	110	----	----	
Naphthalene-d8	1146-65-2	E641A	0.1	%	108	104	115	----	----	
Phenanthrene-d10	1517-22-2	E641A	0.1	%	115	114	113	----	----	

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



CERTIFICATE OF ANALYSIS

Work Order	: FC2300738	Page	: 1 of 13
Client	: Regional Municipality of Wood Buffalo	Laboratory	: Fort McMurray - Environmental
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	: 29-Mar-2023 13:30
PO	: 4500049712	Date Analysis	: 30-Mar-2023
C-O-C number	: ----	Commenced	
Sampler	: DM	Issue Date	: 03-Apr-2023 13:32
Site	:		
Quote number	: Q61323 (Fort chip)		
No. of samples received	: 3		
No. of samples analysed	: 3		

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>
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Anthony Calero	Supervisor - Inorganic	Metals, Calgary, Alberta
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
George Huang	Supervisor - Inorganic	Inorganics, Calgary, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Kevin Baxter	Team Leader - Inorganics	Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Metals, Calgary, Alberta
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Remy Gatabazi	Lab Analyst	Organics, Edmonton, Alberta
Samantha Mayor	Lab Assistant	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.

<i>Unit</i>	<i>Description</i>
-	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

FC2300738-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Physical Tests								
Hardness (as CaCO3), dissolved	----	30.1	0.50	mg/L	EC100	-	31-Mar-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	01-Apr-2023	-
Conductivity	----	74.1	2.0	µS/cm	E100	30-Mar-2023	30-Mar-2023	881545
pH	----	7.42	0.10	pH units	E108	30-Mar-2023	30-Mar-2023	881544
Alkalinity, bicarbonate (as HCO3)	71-52-3	36.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, total (as CaCO3)	----	29.5	2.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Solids, total dissolved [TDS], calculated	----	45.2	1.0	mg/L	EC103	-	30-Mar-2023	-
Anions and Nutrients								
Chloride	16887-00-6	3.41	0.50	mg/L	E235.Cl	30-Mar-2023	30-Mar-2023	881655
Fluoride	16984-48-8	0.083	0.020	mg/L	E235.F	30-Mar-2023	30-Mar-2023	881652
Nitrate (as N)	14797-55-8	0.077	0.020	mg/L	E235.NO3	30-Mar-2023	30-Mar-2023	881656
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	30-Mar-2023	30-Mar-2023	881653
Sulfate (as SO4)	14808-79-8	2.91	0.30	mg/L	E235.SO4	30-Mar-2023	30-Mar-2023	881654
Nitrate + Nitrite (as N)	----	0.0770	0.05	mg/L	EC235.N+N	-	31-Mar-2023	-
Total Sulfides								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395	-	31-Mar-2023	883294
Ion Balance								
Anion sum	----	0.76	0.10	meq/L	EC101	-	30-Mar-2023	-
Cation sum	----	0.74	0.10	meq/L	EC101	-	30-Mar-2023	-
Ion balance (APHA)	----	-1.33	0.01	%	EC101	-	30-Mar-2023	-
Ion balance (cations/anions)	----	97.4	0.010	%	EC101	-	30-Mar-2023	-
Total Metals								
Aluminum, total	7429-90-5	0.214	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Arsenic, total	7440-38-2	0.00031	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Barium, total	7440-39-3	0.0176	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Boron, total	7440-42-8	0.015	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cadmium, total	7440-43-9	0.0000123	0.0000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Calcium, total	7440-70-2	8.47	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cesium, total	7440-46-2	0.000040	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cobalt, total	7440-48-4	0.00011	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Copper, total	7440-50-8	0.00136	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Iron, total	7439-89-6	0.601	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lead, total	7439-92-1	0.00110	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lithium, total	7439-93-2	0.0031	0.0010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Magnesium, total	7439-95-4	3.05	0.0050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Manganese, total	7439-96-5	0.00987	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Molybdenum, total	7439-98-7	0.000252	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Nickel, total	7440-02-0	0.00085	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Phosphorus, total	7723-14-0	<0.050	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Potassium, total	7440-09-7	1.09	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919



Analytical Results

FC2300738-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
Total Metals								
Rubidium, total	7440-17-7	0.00140	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Selenium, total	7782-49-2	0.000135	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silicon, total	7440-21-3	3.02	0.10	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sodium, total	7440-23-5	2.99	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Strontium, total	7440-24-6	0.0616	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sulfur, total	7704-34-9	2.10	0.50	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Titanium, total	7440-32-6	0.00490	0.00030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Uranium, total	7440-61-1	0.000114	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Vanadium, total	7440-62-2	0.00070	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zinc, total	7440-66-6	0.0161	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0048	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Arsenic, dissolved	7440-38-2	0.00023	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Barium, dissolved	7440-39-3	0.0156	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Boron, dissolved	7440-42-8	0.013	0.010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Calcium, dissolved	7440-70-2	8.06	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Copper, dissolved	7440-50-8	0.00052	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Iron, dissolved	7439-89-6	<0.030	0.030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lithium, dissolved	7439-93-2	0.0030	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Magnesium, dissolved	7439-95-4	2.42	0.0050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Molybdenum, dissolved	7439-98-7	0.000220	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Potassium, dissolved	7440-09-7	0.976	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Rubidium, dissolved	7440-17-7	0.00092	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silicon, dissolved	7440-21-3	2.45	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Sodium, dissolved	7440-23-5	2.66	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Strontium, dissolved	7440-24-6	0.0583	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927



Analytical Results

FC2300738-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Dissolved Metals								
Sulfur, dissolved	7704-34-9	1.12	0.50	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Titanium, dissolved	7440-32-6	<0.00030	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Uranium, dissolved	7440-61-1	0.000082	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zinc, dissolved	7440-66-6	0.0084	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	31-Mar-2023	882927
Aggregate Organics								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	30-Mar-2023	30-Mar-2023	881440
Volatile Organic Compounds [Fuels]								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
BTEX, total	----	<1.0	1.0	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Hydrocarbons								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	30-Mar-2023	30-Mar-2023	881084
F1-BTEX	----	<100	100	µg/L	EC580	-	31-Mar-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F3 (C16-C34)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F4 (C34-C50)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	31-Mar-2023	-
Hydrocarbons Surrogates								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	95.9	1.0	%	E601	30-Mar-2023	30-Mar-2023	881266
Dichlorotoluene, 3,4-	95-75-0	103	1.0	%	E581.F1	30-Mar-2023	30-Mar-2023	881084
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	117	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Diffluorobenzene, 1,4-	540-36-3	103	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267



Analytical Results

FC2300738-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Polycyclic Aromatic Hydrocarbons								
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	100	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene-d8	1146-65-2	108	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene-d10	1517-22-2	115	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267

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

Analytical Results

FC2300738-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 29-Mar-2023 09:45

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Physical Tests								
Hardness (as CaCO ₃), dissolved	----	32.4	0.50	mg/L	EC100	-	31-Mar-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	01-Apr-2023	-
Conductivity	----	78.7	2.0	µS/cm	E100	30-Mar-2023	30-Mar-2023	881545
pH	----	7.32	0.10	pH units	E108	30-Mar-2023	30-Mar-2023	881544
Alkalinity, bicarbonate (as HCO ₃)	71-52-3	38.3	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, carbonate (as CO ₃)	3812-32-6	<1.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, total (as CaCO ₃)	----	31.4	2.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Solids, total dissolved [TDS], calculated	----	47.6	1.0	mg/L	EC103	-	30-Mar-2023	-
Anions and Nutrients								
Chloride	16887-00-6	3.48	0.50	mg/L	E235.Cl	30-Mar-2023	30-Mar-2023	881655
Fluoride	16984-48-8	0.077	0.020	mg/L	E235.F	30-Mar-2023	30-Mar-2023	881652
Nitrate (as N)	14797-55-8	0.082	0.020	mg/L	E235.NO3	30-Mar-2023	30-Mar-2023	881656



Analytical Results

FC2300738-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 29-Mar-2023 09:45

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
Anions and Nutrients								
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	30-Mar-2023	30-Mar-2023	881653
Sulfate (as SO4)	14808-79-8	2.93	0.30	mg/L	E235.SO4	30-Mar-2023	30-Mar-2023	881654
Nitrate + Nitrite (as N)	----	0.0820	0.05	mg/L	EC235.N+N	-	31-Mar-2023	-
Total Sulfides								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395	-	31-Mar-2023	883294
Ion Balance								
Anion sum	----	0.80	0.10	meq/L	EC101	-	30-Mar-2023	-
Cation sum	----	0.80	0.10	meq/L	EC101	-	30-Mar-2023	-
Ion balance (APHA)	----	<0.01	0.01	%	EC101	-	30-Mar-2023	-
Ion balance (cations/anions)	----	100	0.010	%	EC101	-	30-Mar-2023	-
Total Metals								
Aluminum, total	7429-90-5	0.114	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Arsenic, total	7440-38-2	0.00025	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Barium, total	7440-39-3	0.0181	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Boron, total	7440-42-8	0.014	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cadmium, total	7440-43-9	0.0000066	0.0000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Calcium, total	7440-70-2	8.85	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cesium, total	7440-46-2	0.000018	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cobalt, total	7440-48-4	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Copper, total	7440-50-8	0.00134	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Iron, total	7439-89-6	0.188	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lead, total	7439-92-1	0.000087	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lithium, total	7439-93-2	0.0030	0.0010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Magnesium, total	7439-95-4	2.74	0.0050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Manganese, total	7439-96-5	0.00682	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Molybdenum, total	7439-98-7	0.000221	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Nickel, total	7440-02-0	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Phosphorus, total	7723-14-0	<0.050	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Potassium, total	7440-09-7	1.06	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Rubidium, total	7440-17-7	0.00124	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Selenium, total	7782-49-2	0.000111	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silicon, total	7440-21-3	2.85	0.10	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sodium, total	7440-23-5	3.00	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Strontium, total	7440-24-6	0.0648	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sulfur, total	7704-34-9	1.78	0.50	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Titanium, total	7440-32-6	0.00194	0.00030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919



Analytical Results

FC2300738-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 29-Mar-2023 09:45

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Total Metals								
Uranium, total	7440-61-1	0.000093	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Vanadium, total	7440-62-2	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zinc, total	7440-66-6	<0.0030	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0074	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Arsenic, dissolved	7440-38-2	0.00017	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Barium, dissolved	7440-39-3	0.0178	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Boron, dissolved	7440-42-8	0.014	0.010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Calcium, dissolved	7440-70-2	8.74	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Copper, dissolved	7440-50-8	0.00100	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Iron, dissolved	7439-89-6	0.033	0.030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lithium, dissolved	7439-93-2	0.0030	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Magnesium, dissolved	7439-95-4	2.57	0.0050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Molybdenum, dissolved	7439-98-7	0.000209	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Potassium, dissolved	7440-09-7	1.03	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Rubidium, dissolved	7440-17-7	0.00098	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Selenium, dissolved	7782-49-2	0.000053	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silicon, dissolved	7440-21-3	2.51	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Sodium, dissolved	7440-23-5	2.76	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Strontium, dissolved	7440-24-6	0.0610	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Sulfur, dissolved	7704-34-9	1.30	0.50	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Titanium, dissolved	7440-32-6	0.00065	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Uranium, dissolved	7440-61-1	0.000076	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	31-Mar-2023	882927
Aggregate Organics								



Analytical Results

FC2300738-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 29-Mar-2023 09:45

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Aggregate Organics								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	30-Mar-2023	30-Mar-2023	881440
Volatile Organic Compounds [Fuels]								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
BTEX, total	----	<1.0	1.0	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Hydrocarbons								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	30-Mar-2023	30-Mar-2023	881084
F1-BTEX	----	<100	100	µg/L	EC580	-	31-Mar-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F3 (C16-C34)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F4 (C34-C50)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	31-Mar-2023	-
Hydrocarbons Surrogates								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	96.8	1.0	%	E601	30-Mar-2023	30-Mar-2023	881266
Dichlorotoluene, 3,4-	95-75-0	105	1.0	%	E581.F1	30-Mar-2023	30-Mar-2023	881084
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	111	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Difluorobenzene, 1,4-	540-36-3	103	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267



Analytical Results

FC2300738-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 29-Mar-2023 09:45

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Polycyclic Aromatic Hydrocarbons								
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	105	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene-d8	1146-65-2	104	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene-d10	1517-22-2	114	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267

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

Analytical Results

FC2300738-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Physical Tests								
Hardness (as CaCO ₃), dissolved	----	34.5	0.50	mg/L	EC100	-	31-Mar-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	01-Apr-2023	-
Conductivity	----	142	2.0	µS/cm	E100	30-Mar-2023	30-Mar-2023	881545
pH	----	8.39	0.10	pH units	E108	30-Mar-2023	30-Mar-2023	881544
Alkalinity, bicarbonate (as HCO ₃)	71-52-3	62.1	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, carbonate (as CO ₃)	3812-32-6	1.4	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Alkalinity, total (as CaCO ₃)	----	53.3	2.0	mg/L	E290	30-Mar-2023	30-Mar-2023	881546
Solids, total dissolved [TDS], calculated	----	82.6	1.0	mg/L	EC103	-	30-Mar-2023	-
Anions and Nutrients								
Chloride	16887-00-6	11.5	0.50	mg/L	E235.Cl	30-Mar-2023	30-Mar-2023	881655
Fluoride	16984-48-8	0.049	0.020	mg/L	E235.F	30-Mar-2023	30-Mar-2023	881652
Nitrate (as N)	14797-55-8	0.081	0.020	mg/L	E235.NO3	30-Mar-2023	30-Mar-2023	881656
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	30-Mar-2023	30-Mar-2023	881653
Sulfate (as SO ₄)	14808-79-8	2.55	0.30	mg/L	E235.SO4	30-Mar-2023	30-Mar-2023	881654
Nitrate + Nitrite (as N)	----	0.0810	0.05	mg/L	EC235.N+N	-	31-Mar-2023	-
Total Sulfides								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395	-	31-Mar-2023	883294
Ion Balance								
Anion sum	----	1.45	0.10	meq/L	EC101	-	30-Mar-2023	-
Cation sum	----	1.44	0.10	meq/L	EC101	-	30-Mar-2023	-
Ion balance (APHA)	----	-0.35	0.01	%	EC101	-	30-Mar-2023	-
Ion balance (cations/anions)	----	99.3	0.010	%	EC101	-	30-Mar-2023	-
Total Metals								
Aluminum, total	7429-90-5	0.0177	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919



Analytical Results

FC2300738-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
Total Metals								
Arsenic, total	7440-38-2	0.00011	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Barium, total	7440-39-3	0.0175	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Boron, total	7440-42-8	0.015	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cadmium, total	7440-43-9	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Calcium, total	7440-70-2	9.70	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cesium, total	7440-46-2	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Cobalt, total	7440-48-4	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Copper, total	7440-50-8	0.00059	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Iron, total	7439-89-6	<0.010	0.010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lead, total	7439-92-1	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Lithium, total	7439-93-2	0.0029	0.0010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Magnesium, total	7439-95-4	2.77	0.0050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Manganese, total	7439-96-5	0.00668	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Molybdenum, total	7439-98-7	0.000192	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Nickel, total	7440-02-0	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Phosphorus, total	7723-14-0	<0.050	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Potassium, total	7440-09-7	1.03	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Rubidium, total	7440-17-7	0.00111	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Selenium, total	7782-49-2	<0.000050	0.000050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silicon, total	7440-21-3	2.49	0.10	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sodium, total	7440-23-5	18.4	0.050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Strontium, total	7440-24-6	0.0659	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Sulfur, total	7704-34-9	1.46	0.50	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Titanium, total	7440-32-6	<0.00030	0.00030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Uranium, total	7440-61-1	<0.000010	0.000010	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Vanadium, total	7440-62-2	<0.00050	0.00050	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zinc, total	7440-66-6	<0.0030	0.0030	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	31-Mar-2023	31-Mar-2023	882919
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0134	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Arsenic, dissolved	7440-38-2	0.00011	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Barium, dissolved	7440-39-3	0.0183	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Boron, dissolved	7440-42-8	0.015	0.010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cadmium, dissolved	7440-43-9	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927



Analytical Results

FC2300738-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Dissolved Metals								
Calcium, dissolved	7440-70-2	9.52	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Copper, dissolved	7440-50-8	0.00048	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Iron, dissolved	7439-89-6	<0.030	0.030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Lithium, dissolved	7439-93-2	0.0030	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Magnesium, dissolved	7439-95-4	2.61	0.0050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Molybdenum, dissolved	7439-98-7	0.000211	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Potassium, dissolved	7440-09-7	1.05	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Rubidium, dissolved	7440-17-7	0.00108	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silicon, dissolved	7440-21-3	2.40	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Sodium, dissolved	7440-23-5	16.5	0.050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Strontium, dissolved	7440-24-6	0.0629	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Sulfur, dissolved	7704-34-9	1.19	0.50	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Titanium, dissolved	7440-32-6	<0.00030	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Uranium, dissolved	7440-61-1	<0.000010	0.000010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	31-Mar-2023	31-Mar-2023	882927
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	31-Mar-2023	882927
Aggregate Organics								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	30-Mar-2023	30-Mar-2023	881440
Volatile Organic Compounds [Fuels]								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
BTEX, total	----	<1.0	1.0	µg/L	E611A	30-Mar-2023	30-Mar-2023	881083
Hydrocarbons								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	30-Mar-2023	30-Mar-2023	881084
F1-BTEX	----	<100	100	µg/L	EC580	-	31-Mar-2023	-



Analytical Results

FC2300738-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 29-Mar-2023 09:30

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Hydrocarbons								
F2 (C10-C16)	----	<100	100	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F3 (C16-C34)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
F4 (C34-C50)	----	<250	250	µg/L	E601	30-Mar-2023	30-Mar-2023	881266
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	31-Mar-2023	-
Hydrocarbons Surrogates								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	101	1.0	%	E601	30-Mar-2023	30-Mar-2023	881266
Dichlorotoluene, 3,4-	95-75-0	118	1.0	%	E581.F1	30-Mar-2023	30-Mar-2023	881084
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	113	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Difluorobenzene, 1,4-	540-36-3	101	1.0	%	E611A	30-Mar-2023	30-Mar-2023	881083
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	30-Mar-2023	30-Mar-2023	881267
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	110	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Naphthalene-d8	1146-65-2	115	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267
Phenanthrene-d10	1517-22-2	113	0.1	%	E641A	30-Mar-2023	30-Mar-2023	881267

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