



## CERTIFICATE OF ANALYSIS

<p><b>Work Order</b> : <b>FC2300818</b></p> <p><b>Client</b> : <b>Regional Municipality of Wood Buffalo</b></p> <p><b>Contact</b> : Water Treatment Plant</p> <p><b>Address</b> : 1 Silin Forest Road Fort McMurray AB Canada T9H 5A1</p> <p><b>Telephone</b> : 780-762-5863</p> <p><b>Project</b> : Fort Chipewyan Imperial Release</p> <p><b>PO</b> : 4500049712</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : DM</p> <p><b>Site</b> :</p> <p><b>Quote number</b> : Q61323 (Fort chip)</p> <p><b>No. of samples received</b> : 3</p> <p><b>No. of samples analysed</b> : 3</p>	<p><b>Page</b> : 1 of 8</p> <p><b>Laboratory</b> : Fort McMurray - Environmental</p> <p><b>Account Manager</b> : Megan Trydal</p> <p><b>Address</b> : #4, 340 Macalpine Crescent Fort McMurray AB Canada T9H 4A8</p> <p><b>Telephone</b> : +1 780 791 1524</p> <p><b>Date Samples Received</b> : 05-Apr-2023 12:45</p> <p><b>Date Analysis Commenced</b> : 06-Apr-2023</p> <p><b>Issue Date</b> : 14-Apr-2023 09:57</p>
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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
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Daniel Nguyen	Lab Assistant	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Rebecca McCaig	Lab Assistant	Metals, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia
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.

## Qualifiers

<i>Qualifier</i>	<i>Description</i>
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					05-Apr-2023 09:00	05-Apr-2023 09:00	05-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300818-001 Result	FC2300818-002 Result	FC2300818-003 Result	----- ----	----- ----	
<b>Physical Tests</b>										
Hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	29.9	31.8	35.0	----	----	
Salinity	----	EC100S	1.0	psu	<1.0	<1.0	<1.0	----	----	
Conductivity	----	E100	2.0	µS/cm	77.0	79.6	145	----	----	
pH	----	E108	0.10	pH units	7.42	7.31	8.82	----	----	
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290	1.0	mg/L	32.8	34.9	51.1	----	----	
Alkalinity, carbonate (as CO3)	3812-32-6	E290	1.0	mg/L	<1.0	<1.0	3.6	----	----	
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	26.9	28.6	47.9	----	----	
Solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	43.8	46.0	80.4	----	----	
<b>Anions and Nutrients</b>										
Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.58	3.87	12.8	----	----	
Fluoride	16984-48-8	E235.F	0.020	mg/L	0.079	0.075	0.022	----	----	
Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.075	0.084	0.074	----	----	
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	2.80	2.91	2.47	----	----	
Nitrate + Nitrite (as N)	----	EC235.N+N	0.0500	mg/L	0.0750	0.0840	0.0740	----	----	
<b>Total Sulfides</b>										
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0018	<0.0015	<0.0038 <sup>DLM</sup>	----	----	
Sulfide, total (as H2S)	7783-06-4	E395	0.0016	mg/L	0.0019	<0.0016	<0.0040	----	----	
<b>Ion Balance</b>										
Anion sum	----	EC101	0.10	meq/L	0.71	0.75	1.38	----	----	
Cation sum	----	EC101	0.10	meq/L	0.76	0.80	1.45	----	----	
Ion balance (APHA)	----	EC101	0.01	%	3.40	3.22	2.47	----	----	
Ion balance (cations/anions)	----	EC101	0.010	%	107	107	105	----	----	
<b>Total Metals</b>										
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.304	0.176	0.0202	----	----	
Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	<0.00010	<0.00010	----	----	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00046	0.00033	0.00019	----	----	



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Analyte	CAS Number	Method	LOR	Unit	FC2300818-001	FC2300818-002	FC2300818-003	-----	-----	
					Result	Result	Result	----	----	
<b>Total Metals</b>										
Barium, total	7440-39-3	E420	0.00010	mg/L	0.0184	0.0183	0.0178	----	----	
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	0.014	0.014	0.014	----	----	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000111	<0.0000050	<0.0000050	----	----	
Calcium, total	7440-70-2	E420	0.050	mg/L	8.56	8.64	9.96	----	----	
Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000048	0.000024	<0.000010	----	----	
Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00090	<0.00050	<0.00050	----	----	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00014	<0.00010	<0.00010	----	----	
Copper, total	7440-50-8	E420	0.00050	mg/L	0.00284	0.00149	0.00051	----	----	
Iron, total	7439-89-6	E420	0.010	mg/L	1.88	0.176	<0.010	----	----	
Lead, total	7439-92-1	E420	0.000050	mg/L	0.00147	0.000104	<0.000050	----	----	
Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0038	0.0035	0.0036	----	----	
Magnesium, total	7439-95-4	E420	0.0050	mg/L	2.70	2.66	2.71	----	----	
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0183	0.00557	0.00325	----	----	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000293	0.000255	0.000225	----	----	
Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00136	0.00057	<0.00050	----	----	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	0.151	0.135	0.125	----	----	
Potassium, total	7440-09-7	E420	0.050	mg/L	1.12	1.09	1.04	----	----	
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00161	0.00130	0.00098	----	----	
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000060	<0.000050	<0.000050	----	----	
Silicon, total	7440-21-3	E420	0.10	mg/L	3.01	2.84	2.38	----	----	
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	3.00	3.18	16.9	----	----	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0591	0.0636	0.0632	----	----	
Sulfur, total	7704-34-9	E420	0.50	mg/L	1.48	1.29	1.30	----	----	
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	----	----	



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					05-Apr-2023 09:00	05-Apr-2023 09:00	05-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300818-001 Result	FC2300818-002 Result	FC2300818-003 Result	----- ----	----- ----	
<b>Total Metals</b>										
Tin, total	7440-31-5	E420	0.00010	mg/L	0.00036	<0.00010	<0.00010	----	----	
Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00701	0.00471	<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	0.000128	0.000108	<0.000010	----	----	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00168	0.00150	0.00104	----	----	
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0341	0.0051	0.0032	----	----	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
<b>Dissolved Metals</b>										
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0048	0.0073	0.0168	----	----	
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	0.00018	0.00020	0.00010	----	----	
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0147	0.0168	0.0176	----	----	
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	0.018	0.016	0.016	----	----	
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	7.89	8.34	9.74	----	----	
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	0.00062	0.00101	0.00040	----	----	
Iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.030	<0.030	<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	0.0034	0.0036	0.0034	----	----	
Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.47	2.66	2.59	----	----	
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	0.000224	0.000242	0.000238	----	----	
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	0.098	0.079	0.076	----	----	



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					05-Apr-2023 09:00	05-Apr-2023 09:00	05-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300818-001	FC2300818-002	FC2300818-003	-----	-----	
					Result	Result	Result	----	----	
<b>Dissolved Metals</b>										
Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.985	1.02	1.02	----	----	
Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00107	0.00093	0.00090	----	----	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000051	<0.000050	----	----	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.38	2.41	2.22	----	----	
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	3.05	3.09	16.7	----	----	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0604	0.0612	0.0634	----	----	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.25	1.28	1.11	----	----	
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	0.00033	0.00057	<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	0.000094	0.000083	<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	0.0067	<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	----	----	
<b>Aggregate Organics</b>										
Naphthenic acids	----	E565-L	0.10	mg/L	<0.10	<0.10	<0.10	----	----	
<b>Volatile Organic Compounds [Fuels]</b>										
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	----	----	



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					05-Apr-2023 09:00	05-Apr-2023 09:00	05-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300818-001	FC2300818-002	FC2300818-003	-----	-----	
					Result	Result	Result	----	----	
<b>Volatile Organic Compounds [Fuels]</b>										
BTEX, total	----	E611A	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
<b>Hydrocarbons</b>										
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	----	----	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601	1.0	%	110	115	116	----	----	
Dichlorotoluene, 3,4-	95-75-0	E581.F1	1.0	%	105	104	104	----	----	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	105	105	104	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	108	102	110	----	----	
<b>Polycyclic Aromatic Hydrocarbons</b>										
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	----	----	



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water-Chamber WTP	Treated Water	----	----
Client sampling date / time					05-Apr-2023 09:00	05-Apr-2023 09:00	05-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300818-001 Result	FC2300818-002 Result	FC2300818-003 Result	----- ----	----- ----	
<b>Polycyclic Aromatic Hydrocarbons</b>										
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	----	----	
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	----	----	
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
Chrysene-d12	1719-03-5	E641A	0.1	%	114	114	118	----	----	
Naphthalene-d8	1146-65-2	E641A	0.1	%	105	96.4	98.0	----	----	
Phenanthrene-d10	1517-22-2	E641A	0.1	%	119	125	125	----	----	

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





**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>FC2300818</b>	<b>Page</b>	: 1 of 14
<b>Client</b>	: <b>Regional Municipality of Wood Buffalo</b>	<b>Laboratory</b>	: Fort McMurray - Environmental
<b>Contact</b>	: Water Treatment Plant	<b>Account Manager</b>	: Megan Trydal
<b>Address</b>	: 1 Silin Forest Road Fort McMurray AB Canada T9H 5A1	<b>Address</b>	: #4, 340 Macalpine Crescent Fort McMurray AB Canada T9H 4A8
<b>Telephone</b>	: 780-762-5863	<b>Telephone</b>	: +1 780 791 1524
<b>Project</b>	: Fort Chipewyan Imperial Release	<b>Date Samples Received</b>	: 05-Apr-2023 12:45
<b>PO</b>	: 4500049712	<b>Date Analysis</b>	: 06-Apr-2023
		<b>Commenced</b>	
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 14-Apr-2023 09:57
<b>Sampler</b>	: DM		
<b>Site</b>	:		
<b>Quote number</b>	: Q61323 (Fort chip)		
<b>No. of samples received</b>	: 3		
<b>No. of samples analysed</b>	: 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
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Daniel Nguyen	Lab Assistant	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Rebecca McCaig	Lab Assistant	Metals, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia
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.

## Qualifiers

<i>Qualifier</i>	<i>Description</i>
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).



## Analytical Results

FC2300818-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Physical Tests</b>								
Hardness (as CaCO3), dissolved	----	29.9	0.50	mg/L	EC100	-	08-Apr-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	12-Apr-2023	-
Conductivity	----	77.0	2.0	µS/cm	E100	06-Apr-2023	06-Apr-2023	889672
pH	----	7.42	0.10	pH units	E108	06-Apr-2023	06-Apr-2023	889671
Alkalinity, bicarbonate (as HCO3)	71-52-3	32.8	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, total (as CaCO3)	----	26.9	2.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Solids, total dissolved [TDS], calculated	----	43.8	1.0	mg/L	EC103	-	06-Apr-2023	-
<b>Anions and Nutrients</b>								
Chloride	16887-00-6	3.58	0.50	mg/L	E235.Cl	06-Apr-2023	06-Apr-2023	889473
Fluoride	16984-48-8	0.079	0.020	mg/L	E235.F	06-Apr-2023	06-Apr-2023	889477
Nitrate (as N)	14797-55-8	0.075	0.020	mg/L	E235.NO3	06-Apr-2023	06-Apr-2023	889475
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	06-Apr-2023	06-Apr-2023	889476
Sulfate (as SO4)	14808-79-8	2.80	0.30	mg/L	E235.SO4	06-Apr-2023	06-Apr-2023	889474
Nitrate + Nitrite (as N)	----	0.0750	0.05	mg/L	EC235.N+N	-	08-Apr-2023	-
<b>Total Sulfides</b>								
Sulfide, total (as S)	18496-25-8	0.0018	0.0015	mg/L	E395	-	12-Apr-2023	893854
Sulfide, total (as H2S)	7783-06-4	0.0019	0.0016	mg/L	E395	-	12-Apr-2023	893854
<b>Ion Balance</b>								
Anion sum	----	0.71	0.10	meq/L	EC101	-	06-Apr-2023	-
Cation sum	----	0.76	0.10	meq/L	EC101	-	06-Apr-2023	-
Ion balance (APHA)	----	3.40	0.01	%	EC101	-	06-Apr-2023	-
Ion balance (cations/anions)	----	107	0.010	%	EC101	-	06-Apr-2023	-
<b>Total Metals</b>								
Aluminum, total	7429-90-5	0.304	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Antimony, total	7440-36-0	0.00012	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Arsenic, total	7440-38-2	0.00046	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Barium, total	7440-39-3	0.0184	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Boron, total	7440-42-8	0.014	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cadmium, total	7440-43-9	0.0000111	0.0000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Calcium, total	7440-70-2	8.56	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cesium, total	7440-46-2	0.000048	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Chromium, total	7440-47-3	0.00090	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cobalt, total	7440-48-4	0.00014	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Copper, total	7440-50-8	0.00284	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Iron, total	7439-89-6	1.88	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lead, total	7439-92-1	0.00147	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lithium, total	7439-93-2	0.0038	0.0010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Magnesium, total	7439-95-4	2.70	0.0050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Manganese, total	7439-96-5	0.0183	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Molybdenum, total	7439-98-7	0.000293	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Nickel, total	7440-02-0	0.00136	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Phosphorus, total	7723-14-0	0.151	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085



## Analytical Results

FC2300818-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
<b>Total Metals</b>								
Potassium, total	7440-09-7	1.12	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Rubidium, total	7440-17-7	0.00161	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Selenium, total	7782-49-2	0.000060	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silicon, total	7440-21-3	3.01	0.10	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sodium, total	7440-23-5	3.00	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Strontium, total	7440-24-6	0.0591	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sulfur, total	7704-34-9	1.48	0.50	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tin, total	7440-31-5	0.00036	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Titanium, total	7440-32-6	0.00701	0.00030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Uranium, total	7440-61-1	0.000128	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Vanadium, total	7440-62-2	0.00168	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zinc, total	7440-66-6	0.0341	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
<b>Dissolved Metals</b>								
Aluminum, dissolved	7429-90-5	0.0048	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Arsenic, dissolved	7440-38-2	0.00018	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Barium, dissolved	7440-39-3	0.0147	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Boron, dissolved	7440-42-8	0.018	0.010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Calcium, dissolved	7440-70-2	7.89	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Copper, dissolved	7440-50-8	0.00062	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Iron, dissolved	7439-89-6	<0.030	0.030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lithium, dissolved	7439-93-2	0.0034	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Magnesium, dissolved	7439-95-4	2.47	0.0050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Molybdenum, dissolved	7439-98-7	0.000224	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Phosphorus, dissolved	7723-14-0	0.098	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Potassium, dissolved	7440-09-7	0.985	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Rubidium, dissolved	7440-17-7	0.00107	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silicon, dissolved	7440-21-3	2.38	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sodium, dissolved	7440-23-5	3.05	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087



## Analytical Results

FC2300818-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
<b>Dissolved Metals</b>								
Strontium, dissolved	7440-24-6	0.0604	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sulfur, dissolved	7704-34-9	1.25	0.50	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Titanium, dissolved	7440-32-6	0.00033	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Uranium, dissolved	7440-61-1	0.000094	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zinc, dissolved	7440-66-6	0.0067	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	06-Apr-2023	889087
<b>Aggregate Organics</b>								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	06-Apr-2023	08-Apr-2023	889081
<b>Volatile Organic Compounds [Fuels]</b>								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
BTEX, total	----	<1.0	1.0	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Hydrocarbons</b>								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	06-Apr-2023	06-Apr-2023	889164
F1-BTEX	----	<100	100	µg/L	EC580	-	06-Apr-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F3 (C16-C34)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F4 (C34-C50)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	06-Apr-2023	-
<b>Hydrocarbons Surrogates</b>								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	110	1.0	%	E601	06-Apr-2023	06-Apr-2023	889096
Dichlorotoluene, 3,4-	95-75-0	105	1.0	%	E581.F1	06-Apr-2023	06-Apr-2023	889164
<b>Volatile Organic Compounds Surrogates</b>								
Bromofluorobenzene, 4-	460-00-4	105	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
Difluorobenzene, 1,4-	540-36-3	108	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Polycyclic Aromatic Hydrocarbons</b>								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095



## Analytical Results

FC2300818-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Lake Intake

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Polycyclic Aromatic Hydrocarbons</b>								
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>								
Chrysene-d12	1719-03-5	114	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene-d8	1146-65-2	105	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene-d10	1517-22-2	119	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095

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

## Analytical Results

FC2300818-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Physical Tests</b>								
Hardness (as CaCO3), dissolved	----	31.8	0.50	mg/L	EC100	-	08-Apr-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	12-Apr-2023	-
Conductivity	----	79.6	2.0	µS/cm	E100	06-Apr-2023	06-Apr-2023	889672
pH	----	7.31	0.10	pH units	E108	06-Apr-2023	06-Apr-2023	889671
Alkalinity, bicarbonate (as HCO3)	71-52-3	34.9	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, total (as CaCO3)	----	28.6	2.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Solids, total dissolved [TDS], calculated	----	46.0	1.0	mg/L	EC103	-	06-Apr-2023	-
<b>Anions and Nutrients</b>								
Chloride	16887-00-6	3.87	0.50	mg/L	E235.Cl	06-Apr-2023	06-Apr-2023	889473
Fluoride	16984-48-8	0.075	0.020	mg/L	E235.F	06-Apr-2023	06-Apr-2023	889477





## Analytical Results

FC2300818-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Anions and Nutrients</b>								
Nitrate (as N)	14797-55-8	0.084	0.020	mg/L	E235.NO3	06-Apr-2023	06-Apr-2023	889475
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	06-Apr-2023	06-Apr-2023	889476
Sulfate (as SO4)	14808-79-8	2.91	0.30	mg/L	E235.SO4	06-Apr-2023	06-Apr-2023	889474
Nitrate + Nitrite (as N)	----	0.0840	0.05	mg/L	EC235.N+N	-	08-Apr-2023	-
<b>Total Sulfides</b>								
Sulfide, total (as S)	18496-25-8	<0.0015	0.0015	mg/L	E395	-	12-Apr-2023	893854
Sulfide, total (as H2S)	7783-06-4	<0.0016	0.0016	mg/L	E395	-	12-Apr-2023	893854
<b>Ion Balance</b>								
Anion sum	----	0.75	0.10	meq/L	EC101	-	06-Apr-2023	-
Cation sum	----	0.80	0.10	meq/L	EC101	-	06-Apr-2023	-
Ion balance (APHA)	----	3.22	0.01	%	EC101	-	06-Apr-2023	-
Ion balance (cations/anions)	----	107	0.010	%	EC101	-	06-Apr-2023	-
<b>Total Metals</b>								
Aluminum, total	7429-90-5	0.176	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Arsenic, total	7440-38-2	0.00033	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Barium, total	7440-39-3	0.0183	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Boron, total	7440-42-8	0.014	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cadmium, total	7440-43-9	<0.0000050	0.0000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Calcium, total	7440-70-2	8.64	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cesium, total	7440-46-2	0.000024	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cobalt, total	7440-48-4	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Copper, total	7440-50-8	0.00149	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Iron, total	7439-89-6	0.176	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lead, total	7439-92-1	0.000104	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lithium, total	7439-93-2	0.0035	0.0010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Magnesium, total	7439-95-4	2.66	0.0050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Manganese, total	7439-96-5	0.00557	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Molybdenum, total	7439-98-7	0.000255	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Nickel, total	7440-02-0	0.00057	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Phosphorus, total	7723-14-0	0.135	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Potassium, total	7440-09-7	1.09	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Rubidium, total	7440-17-7	0.00130	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Selenium, total	7782-49-2	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silicon, total	7440-21-3	2.84	0.10	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sodium, total	7440-23-5	3.18	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Strontium, total	7440-24-6	0.0636	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sulfur, total	7704-34-9	1.29	0.50	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085



## Analytical Results

FC2300818-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
<b>Total Metals</b>								
Titanium, total	7440-32-6	0.00471	0.00030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Uranium, total	7440-61-1	0.000108	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Vanadium, total	7440-62-2	0.00150	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zinc, total	7440-66-6	0.0051	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
<b>Dissolved Metals</b>								
Aluminum, dissolved	7429-90-5	0.0073	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Arsenic, dissolved	7440-38-2	0.00020	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Barium, dissolved	7440-39-3	0.0168	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Boron, dissolved	7440-42-8	0.016	0.010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cadmium, dissolved	7440-43-9	<0.0000050	0.0000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Calcium, dissolved	7440-70-2	8.34	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Copper, dissolved	7440-50-8	0.00101	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Iron, dissolved	7439-89-6	<0.030	0.030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lithium, dissolved	7439-93-2	0.0036	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Magnesium, dissolved	7439-95-4	2.66	0.0050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Molybdenum, dissolved	7439-98-7	0.000242	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Phosphorus, dissolved	7723-14-0	0.079	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Potassium, dissolved	7440-09-7	1.02	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Rubidium, dissolved	7440-17-7	0.00093	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Selenium, dissolved	7782-49-2	0.000051	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silicon, dissolved	7440-21-3	2.41	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sodium, dissolved	7440-23-5	3.09	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Strontium, dissolved	7440-24-6	0.0612	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sulfur, dissolved	7704-34-9	1.28	0.50	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Titanium, dissolved	7440-32-6	0.00057	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Uranium, dissolved	7440-61-1	0.000083	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087





## Analytical Results

FC2300818-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Dissolved Metals</b>								
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	06-Apr-2023	889087
<b>Aggregate Organics</b>								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	06-Apr-2023	08-Apr-2023	889081
<b>Volatile Organic Compounds [Fuels]</b>								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
BTEX, total	----	<1.0	1.0	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Hydrocarbons</b>								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	06-Apr-2023	06-Apr-2023	889164
F1-BTEX	----	<100	100	µg/L	EC580	-	06-Apr-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F3 (C16-C34)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F4 (C34-C50)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	06-Apr-2023	-
<b>Hydrocarbons Surrogates</b>								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	115	1.0	%	E601	06-Apr-2023	06-Apr-2023	889096
Dichlorotoluene, 3,4-	95-75-0	104	1.0	%	E581.F1	06-Apr-2023	06-Apr-2023	889164
<b>Volatile Organic Compounds Surrogates</b>								
Bromofluorobenzene, 4-	460-00-4	105	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
Difluorobenzene, 1,4-	540-36-3	102	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Polycyclic Aromatic Hydrocarbons</b>								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095



## Analytical Results

FC2300818-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Raw Water-Chamber WTP

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Polycyclic Aromatic Hydrocarbons</b>								
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>								
Chrysene-d12	1719-03-5	114	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene-d8	1146-65-2	96.4	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene-d10	1517-22-2	125	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095

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

## Analytical Results

FC2300818-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Physical Tests</b>								
Hardness (as CaCO <sub>3</sub> ), dissolved	----	35.0	0.50	mg/L	EC100	-	08-Apr-2023	-
Salinity	----	<1.0	1.0	psu	EC100S	-	12-Apr-2023	-
Conductivity	----	145	2.0	µS/cm	E100	06-Apr-2023	06-Apr-2023	889672
pH	----	8.82	0.10	pH units	E108	06-Apr-2023	06-Apr-2023	889671
Alkalinity, bicarbonate (as HCO <sub>3</sub> )	71-52-3	51.1	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, carbonate (as CO <sub>3</sub> )	3812-32-6	3.6	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	1.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Alkalinity, total (as CaCO <sub>3</sub> )	----	47.9	2.0	mg/L	E290	06-Apr-2023	06-Apr-2023	889673
Solids, total dissolved [TDS], calculated	----	80.4	1.0	mg/L	EC103	-	06-Apr-2023	-
<b>Anions and Nutrients</b>								
Chloride	16887-00-6	12.8	0.50	mg/L	E235.Cl	06-Apr-2023	06-Apr-2023	889473
Fluoride	16984-48-8	0.022	0.020	mg/L	E235.F	06-Apr-2023	06-Apr-2023	889477
Nitrate (as N)	14797-55-8	0.074	0.020	mg/L	E235.NO3	06-Apr-2023	06-Apr-2023	889475
Nitrite (as N)	14797-65-0	<0.010	0.010	mg/L	E235.NO2	06-Apr-2023	06-Apr-2023	889476
Sulfate (as SO <sub>4</sub> )	14808-79-8	2.47	0.30	mg/L	E235.SO4	06-Apr-2023	06-Apr-2023	889474
Nitrate + Nitrite (as N)	----	0.0740	0.05	mg/L	EC235.N+N	-	08-Apr-2023	-
<b>Total Sulfides</b>								
Sulfide, total (as S)	18496-25-8	<0.0038 <sup>DLM</sup>	0.0038	mg/L	E395	-	12-Apr-2023	893854
Sulfide, total (as H <sub>2</sub> S)	7783-06-4	<0.0040	0.0040	mg/L	E395	-	12-Apr-2023	893854
<b>Ion Balance</b>								
Anion sum	----	1.38	0.10	meq/L	EC101	-	06-Apr-2023	-
Cation sum	----	1.45	0.10	meq/L	EC101	-	06-Apr-2023	-
Ion balance (APHA)	----	2.47	0.01	%	EC101	-	06-Apr-2023	-
Ion balance (cations/anions)	----	105	0.010	%	EC101	-	06-Apr-2023	-



## Analytical Results

FC2300818-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Total Metals</b>								
Aluminum, total	7429-90-5	0.0202	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Antimony, total	7440-36-0	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Arsenic, total	7440-38-2	0.00019	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Barium, total	7440-39-3	0.0178	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Beryllium, total	7440-41-7	<0.000020	0.000020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Boron, total	7440-42-8	0.014	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cadmium, total	7440-43-9	<0.0000050	0.0000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Calcium, total	7440-70-2	9.96	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cesium, total	7440-46-2	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Chromium, total	7440-47-3	<0.00050	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Cobalt, total	7440-48-4	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Copper, total	7440-50-8	0.00051	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Iron, total	7439-89-6	<0.010	0.010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lead, total	7439-92-1	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Lithium, total	7439-93-2	0.0036	0.0010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Magnesium, total	7439-95-4	2.71	0.0050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Manganese, total	7439-96-5	0.00325	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Molybdenum, total	7439-98-7	0.000225	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Nickel, total	7440-02-0	<0.00050	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Phosphorus, total	7723-14-0	0.125	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Potassium, total	7440-09-7	1.04	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Rubidium, total	7440-17-7	0.00098	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Selenium, total	7782-49-2	<0.000050	0.000050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silicon, total	7440-21-3	2.38	0.10	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Silver, total	7440-22-4	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sodium, total	7440-23-5	16.9	0.050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Strontium, total	7440-24-6	0.0632	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Sulfur, total	7704-34-9	1.30	0.50	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tellurium, total	13494-80-9	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thallium, total	7440-28-0	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Thorium, total	7440-29-1	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tin, total	7440-31-5	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Titanium, total	7440-32-6	<0.00030	0.00030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Uranium, total	7440-61-1	<0.000010	0.000010	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Vanadium, total	7440-62-2	0.00104	0.00050	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zinc, total	7440-66-6	0.0032	0.0030	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
Zirconium, total	7440-67-7	<0.00020	0.00020	mg/L	E420	06-Apr-2023	06-Apr-2023	889085
<b>Dissolved Metals</b>								
Aluminum, dissolved	7429-90-5	0.0168	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Antimony, dissolved	7440-36-0	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Arsenic, dissolved	7440-38-2	0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Barium, dissolved	7440-39-3	0.0176	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087



## Analytical Results

FC2300818-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLOT
<b>Dissolved Metals</b>								
Boron, dissolved	7440-42-8	0.016	0.010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cadmium, dissolved	7440-43-9	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Calcium, dissolved	7440-70-2	9.74	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Chromium, dissolved	7440-47-3	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Copper, dissolved	7440-50-8	0.00040	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Iron, dissolved	7439-89-6	<0.030	0.030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Lithium, dissolved	7439-93-2	0.0034	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Magnesium, dissolved	7439-95-4	2.59	0.0050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Manganese, dissolved	7439-96-5	<0.00500	0.00500	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Molybdenum, dissolved	7439-98-7	0.000238	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Phosphorus, dissolved	7723-14-0	0.076	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Potassium, dissolved	7440-09-7	1.02	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Rubidium, dissolved	7440-17-7	0.00090	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Selenium, dissolved	7782-49-2	<0.000050	0.000050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silicon, dissolved	7440-21-3	2.22	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Silver, dissolved	7440-22-4	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sodium, dissolved	7440-23-5	16.7	0.050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Strontium, dissolved	7440-24-6	0.0634	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Sulfur, dissolved	7704-34-9	1.11	0.50	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tin, dissolved	7440-31-5	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Titanium, dissolved	7440-32-6	<0.00030	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Uranium, dissolved	7440-61-1	<0.000010	0.000010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zinc, dissolved	7440-66-6	<0.0010	0.0010	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	06-Apr-2023	06-Apr-2023	889087
Dissolved metals filtration location	----	Laboratory	-	-	EP421	-	06-Apr-2023	889087
<b>Aggregate Organics</b>								
Naphthenic acids	----	<0.10	0.10	mg/L	E565-L	06-Apr-2023	08-Apr-2023	889081
<b>Volatile Organic Compounds [Fuels]</b>								
Benzene	71-43-2	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Styrene	100-42-5	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Toluene	108-88-3	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
BTEX, total	----	<1.0	1.0	µg/L	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Hydrocarbons</b>								



## Analytical Results

FC2300818-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: Treated Water

Client sampling date / time: 05-Apr-2023 09:00

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
<b>Hydrocarbons</b>								
F1 (C6-C10)	----	<100	100	µg/L	E581.F1	06-Apr-2023	06-Apr-2023	889164
F1-BTEX	----	<100	100	µg/L	EC580	-	06-Apr-2023	-
F2 (C10-C16)	----	<100	100	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F3 (C16-C34)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
F4 (C34-C50)	----	<250	250	µg/L	E601	06-Apr-2023	06-Apr-2023	889096
Hydrocarbons, total (C6-C50)	----	<380	380	µg/L	EC581	-	06-Apr-2023	-
<b>Hydrocarbons Surrogates</b>								
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	116	1.0	%	E601	06-Apr-2023	06-Apr-2023	889096
Dichlorotoluene, 3,4-	95-75-0	104	1.0	%	E581.F1	06-Apr-2023	06-Apr-2023	889164
<b>Volatile Organic Compounds Surrogates</b>								
Bromofluorobenzene, 4-	460-00-4	104	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
Difluorobenzene, 1,4-	540-36-3	110	1.0	%	E611A	06-Apr-2023	06-Apr-2023	889163
<b>Polycyclic Aromatic Hydrocarbons</b>								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Acridine	260-94-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(b+j+k)fluoranthene	n/a	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 1+2-	----	<0.015	0.015	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
Quinoline	91-22-5	<0.050	0.050	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
B(a)P total potency equivalents [B(a)P TPE]	----	<0.010	0.010	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, high molecular weight (BC AWQ)	n/a	<0.030	0.03	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, low molecular weight (BC AWQ)	n/a	<0.060	0.06	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
PAHs, total (EPA 16)	n/a	<0.065	0.065	µg/L	E641A	06-Apr-2023	06-Apr-2023	889095
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>								
Chrysene-d12	1719-03-5	118	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Naphthalene-d8	1146-65-2	98.0	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095
Phenanthrene-d10	1517-22-2	125	0.1	%	E641A	06-Apr-2023	06-Apr-2023	889095

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

