



CERTIFICATE OF ANALYSIS

<p>Work Order : FC2300886</p> <p>Amendment : 1 (Partial Results)</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 : ----</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 7</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 : 14-Apr-2023 16:10</p> <p>Date Analysis Commenced : 15-Apr-2023</p> <p>Issue Date : 20-Apr-2023 10:14</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
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Project : Fort Chipewyan Imperial Release

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.

(Partial Results)



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 Project : Fort Chipewyan Imperial Release

Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID

					Raw Water-Lake Intake	Raw Water Chamber Tap	Treated Water	----	----
					14-Apr-2023 09:00	14-Apr-2023 09:00	14-Apr-2023 09:00	----	----
Analyte	CAS Number	Method	LOR	Unit	FC2300886-001	FC2300886-002	FC2300886-003	-----	-----
					Result	Result	Result	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	29.7	32.3	34.3	----	----
Salinity	----	EC100S	1.0	psu	<1.0	<1.0	<1.0	----	----
Conductivity	----	E100	2.0	µS/cm	68.0	73.9	125	----	----
pH	----	E108	0.10	pH units	7.33	7.27	8.34	----	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290	1.0	mg/L	36.7	39.3	52.7	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290	1.0	mg/L	<1.0	<1.0	3.4	----	----
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	30.1	32.2	48.8	----	----
Solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	43.9	48.2	78.2	----	----
Anions and Nutrients									
Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.37	3.58	12.5	----	----
Fluoride	16984-48-8	E235.F	0.020	mg/L	0.064	0.087	0.049	----	----
Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.094	0.072	0.068	----	----
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	2.02	3.30	2.94	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N	0.0500	mg/L	0.0940	0.0720	0.0680	----	----
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	0.75	0.82	1.40	----	----
Cation sum	----	EC101	0.10	meq/L	0.74	0.80	1.32	----	----
Ion balance (APHA)	----	EC101	0.01	%	-0.67	-1.23	-2.94	----	----
Ion balance (cations/anions)	----	EC101	0.010	%	98.7	97.6	94.3	----	----
Dissolved Metals									
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	7.96	8.68	9.37	----	----
Iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.030	<0.030	<0.030	----	----
Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.38	2.59	2.64	----	----
Manganese, dissolved	7439-96-5	E421	0.00500	mg/L	<0.00500	<0.00500	<0.00500	----	----

(Partial Results)



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 Project : Fort Chipewyan Imperial Release

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water Chamber Tap	Treated Water	----	----
Client sampling date / time					14-Apr-2023 09:00	14-Apr-2023 09:00	14-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300886-001	FC2300886-002	FC2300886-003	-----	-----	
					Result	Result	Result	----	----	
Dissolved Metals										
Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.890	1.00	1.02	----	----	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.76	2.98	14.1	----	----	
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	----	----	
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	%	94.2	97.3	97.0	----	----	
Dichlorotoluene, 3,4-	95-75-0	E581.F1	1.0	%	110	110	108	----	----	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	92.0	90.4	87.6	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	104	109	104	----	----	
Polycyclic Aromatic Hydrocarbons										
Benzo(e)pyrene	192-97-2	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	

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Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water-Lake Intake	Raw Water Chamber Tap	Treated Water	----	----
Client sampling date / time					14-Apr-2023 09:00	14-Apr-2023 09:00	14-Apr-2023 09:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	FC2300886-001	FC2300886-002	FC2300886-003	-----	-----	
					Result	Result	Result	----	----	
Polycyclic Aromatic Hydrocarbons										
Perylene	198-55-0	E641A	0.010	µg/L	<0.010	<0.010	<0.010	----	----	
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	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
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	----	----	----	
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	----	----	
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	----	----	----	
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	----	----	
PAHs, total (P2MMP)	n/a	E641A	0.040	µg/L	<0.040	<0.040	<0.040	----	----	

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Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Table with columns: Client sample ID, Raw Water-Lake Intake, Raw Water Chamber Tap, Treated Water, and results for Polycyclic Aromatic Hydrocarbons Surrogates (Chrysene-d12, Naphthalene-d8, Phenanthrene-d10).

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