



CERTIFICATE OF ANALYSIS

Work Order	: EO2407158	Page	: 1 of 8
Client	: Teck Metals Ltd	Laboratory	: ALS Environmental - Edmonton
Contact	: Neil MacDonald	Account Manager	: Megha Walia
Address	: 601 Knighton Road Kimberley BC Canada V1A 3E1	Address	: 9450 - 17 Avenue NW Edmonton AB Canada T6N 1M9
Telephone	: 250 427 8415	Telephone	: +1 780 413 5227
Project	: PINE POINT	Date Samples Received	: 20-Aug-2024 10:00
PO	: 10262	Date Analysis Commenced	: 21-Aug-2024
C-O-C number	: 2024-19-08	Issue Date	: 22-Aug-2024 15:38
Sampler	: KC		
Site	: ----		
Quote number	: Annual Pine Point Water Treatment Testing		
No. of samples received	: 8		
No. of samples analysed	: 8		

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

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

Signatories

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

Signatories	Position	Laboratory Department
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Brayden Ginther	Laboratory Analyst	Inorganics, Edmonton, Alberta
Daniel Nguyen	Laboratory Analyst	Metals, Edmonton, Alberta
Jing Liu	Laboratory Analyst	Inorganics, Edmonton, Alberta
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Metals, Edmonton, Alberta



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	Description
-	no units
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Sample(s) -005 and -008: Cyanide Container not received at laboratory, but requested on Chain of Custody / analytical request form; subsample cannot be obtained from other containers to meet request. The requested analysis cannot be performed.

Corrected the sample dates and times

Qualifiers

Qualifier	Description
SP	Sample was preserved at the laboratory.



Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					PP_35-1B_202 40816	PP_35-1B_202 40817	PP_35-1B_202 40818	PP_35-1BD_20 240819	PP_35-1A_202 40819
Client sampling date / time					16-Aug-2024 12:00	17-Aug-2024 13:30	18-Aug-2024 14:30	15-Aug-2024 12:30	19-Aug-2024 13:20
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-001	EO2407158-002	EO2407158-003	EO2407158-004	EO2407158-005
					Result	Result	Result	Result	Result
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/EO	0.60	mg/L	----	----	----	----	459
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/EO	0.60	mg/L	----	----	----	----	442
pH	----	E108/EO	0.10	pH units	8.31	8.46	8.48	8.46	8.46
Solids, total suspended [TSS]	----	E160/EO	3.0	mg/L	3.2	3.4	<3.0	<3.0	3.8
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	0.0071	<0.0050 ^{SP}	<0.0050 ^{SP}	<0.0050	<0.0050
Total Metals									
Aluminum, total	7429-90-5	E420/EO	0.0030	mg/L	0.0102	0.0108	0.0111	0.0107	0.0099
Antimony, total	7440-36-0	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/EO	0.00010	mg/L	0.00022	0.00024	0.00021	0.00020	0.00027
Barium, total	7440-39-3	E420/EO	0.00010	mg/L	0.0325	0.0350	0.0328	0.0331	0.0390
Beryllium, total	7440-41-7	E420/EO	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, total	7440-69-9	E420/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/EO	0.010	mg/L	0.018	0.017	0.017	0.018	0.018
Cadmium, total	7440-43-9	E420/EO	0.0000050	mg/L	0.0000839	0.0000996	0.0000852	0.0000833	0.000429
Calcium, total	7440-70-2	E420/EO	0.050	mg/L	105	101	103	107	130
Cesium, total	7440-46-2	E420/EO	0.000010	mg/L	0.000011	0.000012	0.000016	0.000012	----
Chromium, total	7440-47-3	E420/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00027
Copper, total	7440-50-8	E420/EO	0.00050	mg/L	0.00643	0.00700	0.00678	0.00674	0.00710
Iron, total	7439-89-6	E420/EO	0.010	mg/L	0.011	0.012	0.013	0.014	0.032
Lead, total	7439-92-1	E420/EO	0.000050	mg/L	0.00234	0.00241	0.00249	0.00238	0.0207
Lithium, total	7439-93-2	E420/EO	0.0010	mg/L	0.0035	0.0033	0.0035	0.0035	0.0038
Magnesium, total	7439-95-4	E420/EO	0.0050	mg/L	26.7	29.0	27.8	27.6	----
Magnesium, total	7439-95-4	E420/EO	0.100	mg/L	----	----	----	----	28.4
Manganese, total	7439-96-5	E420/EO	0.00010	mg/L	0.00278	0.00315	0.00278	0.00271	0.00872
Mercury, total	7439-97-6	E508/EO	0.0000050	mg/L	----	----	----	----	<0.0000050
Molybdenum, total	7439-98-7	E420/EO	0.000050	mg/L	0.00110	0.00106	0.00113	0.00112	0.00118
Nickel, total	7440-02-0	E420/EO	0.00050	mg/L	0.00157	0.00174	0.00169	0.00169	0.00277



Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					PP_35-1B_202 40816	PP_35-1B_202 40817	PP_35-1B_202 40818	PP_35-1BD_20 240819	PP_35-1A_202 40819
Client sampling date / time					16-Aug-2024 12:00	17-Aug-2024 13:30	18-Aug-2024 14:30	15-Aug-2024 12:30	19-Aug-2024 13:20
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-001	EO2407158-002	EO2407158-003	EO2407158-004	EO2407158-005
					Result	Result	Result	Result	Result
Total Metals									
Phosphorus, total	7723-14-0	E420/EO	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/EO	0.050	mg/L	1.33	1.46	1.40	1.41	----
Potassium, total	7440-09-7	E420/EO	0.100	mg/L	----	----	----	----	1.32
Rubidium, total	7440-17-7	E420/EO	0.00020	mg/L	0.00119	0.00132	0.00127	0.00134	----
Selenium, total	7782-49-2	E420/EO	0.000050	mg/L	0.000076	<0.000050	0.000070	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/EO	0.10	mg/L	0.81	0.80	0.83	0.87	1.04
Silver, total	7440-22-4	E420/EO	0.000010	mg/L	0.000013	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/EO	0.050	mg/L	2.54	2.80	2.68	2.70	2.80
Strontium, total	7440-24-6	E420/EO	0.00020	mg/L	0.314	0.319	0.328	0.316	0.380
Sulfur, total	7704-34-9	E420/EO	0.50	mg/L	119	115	118	122	135
Tellurium, total	13494-80-9	E420/EO	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, total	7440-28-0	E420/EO	0.000010	mg/L	0.000194	0.000195	0.000193	0.000203	0.000266
Thorium, total	7440-29-1	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, total	7440-31-5	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/EO	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, total	7440-33-7	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, total	7440-61-1	E420/EO	0.000010	mg/L	0.000347	0.000321	0.000317	0.000309	0.000294
Vanadium, total	7440-62-2	E420/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/EO	0.0030	mg/L	0.148	0.140	0.127	0.123	0.698
Zirconium, total	7440-67-7	E420/EO	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L	----	----	----	----	0.0012
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L	----	----	----	----	<0.00010
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L	----	----	----	----	0.00018
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L	----	----	----	----	0.0398
Beryllium, dissolved	7440-41-7	E421/EO	0.000100	mg/L	----	----	----	----	<0.000100
Bismuth, dissolved	7440-69-9	E421/EO	0.000050	mg/L	----	----	----	----	<0.000050
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L	----	----	----	----	0.020
Cadmium, dissolved	7440-43-9	E421/EO	0.0000050	mg/L	----	----	----	----	0.000391
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L	----	----	----	----	137



Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					PP_35-1B_202 40816	PP_35-1B_202 40817	PP_35-1B_202 40818	PP_35-1BD_20 240819	PP_35-1A_202 40819
Client sampling date / time					16-Aug-2024 12:00	17-Aug-2024 13:30	18-Aug-2024 14:30	15-Aug-2024 12:30	19-Aug-2024 13:20
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-001	EO2407158-002	EO2407158-003	EO2407158-004	EO2407158-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L	----	----	----	----	<0.00050
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L	----	----	----	----	0.00027
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L	----	----	----	----	0.00534
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L	----	----	----	----	<0.010
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L	----	----	----	----	0.0144
Lithium, dissolved	7439-93-2	E421/EO	0.0010	mg/L	----	----	----	----	0.0038
Magnesium, dissolved	7439-95-4	E421/EO	0.100	mg/L	----	----	----	----	28.3
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L	----	----	----	----	0.00632
Mercury, dissolved	7439-97-6	E509/EO	0.0000050	mg/L	----	----	----	----	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L	----	----	----	----	0.00128
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L	----	----	----	----	0.00259
Phosphorus, dissolved	7723-14-0	E421/EO	0.300	mg/L	----	----	----	----	<0.300
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L	----	----	----	----	1.35
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L	----	----	----	----	<0.000050
Silicon, dissolved	7440-21-3	E421/EO	0.050	mg/L	----	----	----	----	1.05
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L	----	----	----	----	<0.000010
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L	----	----	----	----	2.86
Strontium, dissolved	7440-24-6	E421/EO	0.00020	mg/L	----	----	----	----	0.378
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L	----	----	----	----	0.000271
Tin, dissolved	7440-31-5	E421/EO	0.00010	mg/L	----	----	----	----	<0.00010
Titanium, dissolved	7440-32-6	E421/EO	0.0100	mg/L	----	----	----	----	<0.0100
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L	----	----	----	----	0.000275
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L	----	----	----	----	<0.00050
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L	----	----	----	----	0.681
Dissolved mercury filtration location	----	EP509/EO	-	-	----	----	----	----	Field
Dissolved metals filtration location	----	EP421/EO	-	-	----	----	----	----	Field

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

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



Analytical Results

Sub-Matrix: Water				Client sample ID	PP_35-1B_202 40819	PP_DUP_20240 819	PP_FB_202408 19	----	----
(Matrix: Water)									
				Client sampling date / time	19-Aug-2024 13:30	19-Aug-2024 13:35	19-Aug-2024 13:45	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-006	EO2407158-007	EO2407158-008	-----	-----
					Result	Result	Result	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/EO	0.60	mg/L	402	377	<0.60	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/EO	0.60	mg/L	374	371	<0.60	----	----
pH	----	E108/EO	0.10	pH units	8.48	8.47	5.83	----	----
Solids, total suspended [TSS]	----	E160/EO	3.0	mg/L	<3.0	<3.0	<3.0	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	0.0106	0.0090	<0.0050	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0020	mg/L	<0.0020	<0.0020	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/EO	0.0030	mg/L	0.0099	0.0099	<0.0030	----	----
Antimony, total	7440-36-0	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Arsenic, total	7440-38-2	E420/EO	0.00010	mg/L	0.00023	0.00021	<0.00010	----	----
Barium, total	7440-39-3	E420/EO	0.00010	mg/L	0.0334	0.0327	<0.00010	----	----
Beryllium, total	7440-41-7	E420/EO	0.000020	mg/L	<0.000020	<0.000020	<0.000020	----	----
Bismuth, total	7440-69-9	E420/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Boron, total	7440-42-8	E420/EO	0.010	mg/L	0.017	0.017	<0.010	----	----
Cadmium, total	7440-43-9	E420/EO	0.0000050	mg/L	0.0000869	0.0000839	<0.0000050	----	----
Calcium, total	7440-70-2	E420/EO	0.050	mg/L	104	102	<0.050	----	----
Chromium, total	7440-47-3	E420/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
Cobalt, total	7440-48-4	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Copper, total	7440-50-8	E420/EO	0.00050	mg/L	0.00676	0.00684	<0.00050	----	----
Iron, total	7439-89-6	E420/EO	0.010	mg/L	0.013	0.014	<0.010	----	----
Lead, total	7439-92-1	E420/EO	0.000050	mg/L	0.00247	0.00243	<0.000050	----	----
Lithium, total	7439-93-2	E420/EO	0.0010	mg/L	0.0035	0.0036	<0.0010	----	----
Magnesium, total	7439-95-4	E420/EO	0.100	mg/L	27.7	28.2	<0.100	----	----
Manganese, total	7439-96-5	E420/EO	0.00010	mg/L	0.00278	0.00283	<0.00010	----	----
Mercury, total	7439-97-6	E508/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, total	7439-98-7	E420/EO	0.000050	mg/L	0.00105	0.00106	<0.000050	----	----
Nickel, total	7440-02-0	E420/EO	0.00050	mg/L	0.00178	0.00168	<0.00050	----	----
Phosphorus, total	7723-14-0	E420/EO	0.050	mg/L	<0.050	<0.050	<0.050	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	PP_35-1B_202 40819	PP_DUP_20240 819	PP_FB_202408 19	----	----
(Matrix: Water)					Client sampling date / time	19-Aug-2024 13:30	19-Aug-2024 13:35	19-Aug-2024 13:45	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-006	EO2407158-007	EO2407158-008	-----	-----	
					Result	Result	Result	----	----	
Total Metals										
Potassium, total	7440-09-7	E420/EO	0.100	mg/L	1.39	1.42	<0.100	----	----	
Selenium, total	7782-49-2	E420/EO	0.000050	mg/L	0.000059	<0.000050	<0.000050	----	----	
Silicon, total	7440-21-3	E420/EO	0.10	mg/L	0.90	0.89	<0.10	----	----	
Silver, total	7440-22-4	E420/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, total	7440-23-5	E420/EO	0.050	mg/L	2.70	2.71	<0.050	----	----	
Strontium, total	7440-24-6	E420/EO	0.00020	mg/L	0.316	0.325	<0.00020	----	----	
Sulfur, total	7704-34-9	E420/EO	0.50	mg/L	123	120	<0.50	----	----	
Thallium, total	7440-28-0	E420/EO	0.000010	mg/L	0.000203	0.000204	<0.000010	----	----	
Tin, total	7440-31-5	E420/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Titanium, total	7440-32-6	E420/EO	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	
Uranium, total	7440-61-1	E420/EO	0.000010	mg/L	0.000308	0.000314	<0.000010	----	----	
Vanadium, total	7440-62-2	E420/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, total	7440-66-6	E420/EO	0.0030	mg/L	0.124	0.125	<0.0030	----	----	
Zirconium, total	7440-67-7	E420/EO	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L	0.0042	0.0039	<0.0010	----	----	
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L	0.00016	0.00018	<0.00010	----	----	
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L	0.0328	0.0330	<0.00010	----	----	
Beryllium, dissolved	7440-41-7	E421/EO	0.000100	mg/L	<0.000100	<0.000100	<0.000100	----	----	
Bismuth, dissolved	7440-69-9	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L	0.018	0.018	<0.010	----	----	
Cadmium, dissolved	7440-43-9	E421/EO	0.0000050	mg/L	0.0000728	0.0000648	<0.0000050	----	----	
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L	115	106	<0.050	----	----	
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L	0.00600	0.00589	<0.00020	----	----	
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L	<0.010	<0.010	<0.010	----	----	
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L	0.00123	0.00116	<0.000050	----	----	
Lithium, dissolved	7439-93-2	E421/EO	0.0010	mg/L	0.0036	0.0035	<0.0010	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	PP_35-1B_202 40819	PP_DUP_20240 819	PP_FB_202408 19	----	----
(Matrix: Water)										
					Client sampling date / time	19-Aug-2024 13:30	19-Aug-2024 13:35	19-Aug-2024 13:45	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2407158-006	EO2407158-007	EO2407158-008	-----	-----	
					Result	Result	Result	----	----	
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E421/EO	0.100	mg/L	27.8	27.3	<0.100	----	----	
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L	0.00166	0.00174	<0.00010	----	----	
Mercury, dissolved	7439-97-6	E509/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L	0.00123	0.00112	<0.000050	----	----	
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L	0.00162	0.00157	<0.00050	----	----	
Phosphorus, dissolved	7723-14-0	E421/EO	0.300	mg/L	<0.300	<0.300	<0.300	----	----	
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L	1.39	1.38	<0.050	----	----	
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Silicon, dissolved	7440-21-3	E421/EO	0.050	mg/L	0.882	0.873	<0.050	----	----	
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L	2.65	2.65	<0.050	----	----	
Strontium, dissolved	7440-24-6	E421/EO	0.00020	mg/L	0.346	0.327	<0.00020	----	----	
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L	0.000221	0.000193	<0.000010	----	----	
Tin, dissolved	7440-31-5	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Titanium, dissolved	7440-32-6	E421/EO	0.0100	mg/L	<0.0100	<0.0100	<0.0100	----	----	
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L	0.000331	0.000308	<0.000010	----	----	
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L	0.112	0.109	<0.0010	----	----	
Dissolved mercury filtration location	----	EP509/EO	-	-	Field	Field	Field	----	----	
Dissolved metals filtration location	----	EP421/EO	-	-	Field	Field	Field	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	:EO2407158	Page	: 1 of 11
Client	: Teck Metals Ltd	Laboratory	: ALS Environmental - Edmonton
Contact	: Neil MacDonald	Account Manager	: Megha Walia
Address	: 601 Knighton Road Kimberley BC Canada V1A 3E1	Address	: 9450 - 17 Avenue NW Edmonton, Alberta Canada T6N 1M9
Telephone	: 250 427 8415	Telephone	: +1 780 413 5227
Project	: PINE POINT	Date Samples Received	: 20-Aug-2024 10:00
PO	: 10262	Issue Date	: 22-Aug-2024 15:39
C-O-C number	: 2024-19-08		
Sampler	: KC		
Site	: ---		
Quote number	: Annual Pine Point Water Treatment Testing		
No. of samples received	: 8		
No. of samples analysed	: 8		

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

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1A_20240819	E298	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1B_20240819	E298	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_DUP_20240819	E298	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_FB_20240819	E298	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1B_20240818	E298	18-Aug-2024	21-Aug-2024	28 days	3 days	✓	21-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1B_20240817	E298	17-Aug-2024	21-Aug-2024	28 days	4 days	✓	21-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1B_20240816	E298	16-Aug-2024	21-Aug-2024	28 days	5 days	✓	21-Aug-2024	28 days	5 days	✓



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PP_35-1BD_20240819	E298	15-Aug-2024	21-Aug-2024	28 days	6 days	✓	21-Aug-2024	28 days	6 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PP_35-1B_20240819	E333	19-Aug-2024	22-Aug-2024	14 days	3 days	✓	22-Aug-2024	14 days	3 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PP_DUP_20240819	E333	19-Aug-2024	22-Aug-2024	14 days	3 days	✓	22-Aug-2024	14 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) PP_35-1A_20240819	E509	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) PP_35-1B_20240819	E509	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) PP_DUP_20240819	E509	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) PP_FB_20240819	E509	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PP_35-1A_20240819	E421	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PP_35-1B_20240819	E421	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PP_DUP_20240819	E421	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PP_FB_20240819	E421	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Physical Tests : pH by Meter										
HDPE PP_35-1B_20240816	E108	16-Aug-2024	21-Aug-2024	0.25 hrs	118 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	124 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_35-1BD_20240819	E108	15-Aug-2024	21-Aug-2024	0.25 hrs	142 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	148 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_FB_20240819	E108	19-Aug-2024	21-Aug-2024	0.25 hrs	44 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	51 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_35-1A_20240819	E108	19-Aug-2024	21-Aug-2024	0.25 hrs	45 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	51 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_35-1B_20240819	E108	19-Aug-2024	21-Aug-2024	0.25 hrs	45 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	51 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_DUP_20240819	E108	19-Aug-2024	21-Aug-2024	0.25 hrs	45 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	51 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE PP_35-1B_20240818	E108	18-Aug-2024	21-Aug-2024	0.25 hrs	68 hrs	✗ EHTR-FM	21-Aug-2024	0.25 hrs	74 hrs	✗ EHTR-FM



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE PP_35-1B_20240817	E108	17-Aug-2024	21-Aug-2024	0.25 hrs	93 hrs	✖ EHTR-FM	21-Aug-2024	0.25 hrs	99 hrs	✖ EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1A_20240819	E160	19-Aug-2024	----	----	----		22-Aug-2024	7 days	3 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1B_20240819	E160	19-Aug-2024	----	----	----		22-Aug-2024	7 days	3 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_DUP_20240819	E160	19-Aug-2024	----	----	----		22-Aug-2024	7 days	3 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_FB_20240819	E160	19-Aug-2024	----	----	----		22-Aug-2024	7 days	3 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1B_20240818	E160	18-Aug-2024	----	----	----		22-Aug-2024	7 days	4 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1B_20240817	E160	17-Aug-2024	----	----	----		22-Aug-2024	7 days	5 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1B_20240816	E160	16-Aug-2024	----	----	----		22-Aug-2024	7 days	6 days	✔
Physical Tests : TSS by Gravimetry										
HDPE PP_35-1BD_20240819	E160	15-Aug-2024	----	----	----		22-Aug-2024	7 days	7 days	✔



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) PP_35-1A_20240819	E508	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) PP_35-1B_20240819	E508	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) PP_DUP_20240819	E508	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) PP_FB_20240819	E508	19-Aug-2024	21-Aug-2024	28 days	2 days	✓	21-Aug-2024	28 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1A_20240819	E420	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1B_20240819	E420	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_DUP_20240819	E420	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_FB_20240819	E420	19-Aug-2024	21-Aug-2024	180 days	2 days	✓	21-Aug-2024	180 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1B_20240818	E420	18-Aug-2024	21-Aug-2024	180 days	3 days	✓	21-Aug-2024	180 days	3 days	✓

Page : 8 of 11
 Work Order : EO2407158
 Client : Teck Metals Ltd
 Project : PINE POINT



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1B_20240817	E420	17-Aug-2024	21-Aug-2024	180 days	4 days	✓	21-Aug-2024	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1B_20240816	E420	16-Aug-2024	21-Aug-2024	180 days	5 days	✓	21-Aug-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PP_35-1BD_20240819	E420	15-Aug-2024	21-Aug-2024	180 days	6 days	✓	21-Aug-2024	180 days	6 days	✓

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Ammonia by Fluorescence	E298	1608516	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1607555	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1607558	1	5	20.0	5.0	✓
pH by Meter	E108	1608036	1	20	5.0	5.0	✓
Total Cyanide	E333	1609908	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1607557	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1607559	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1608784	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Ammonia by Fluorescence	E298	1608516	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1607555	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1607558	1	5	20.0	5.0	✓
pH by Meter	E108	1608036	1	20	5.0	5.0	✓
Total Cyanide	E333	1609908	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1607557	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1607559	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1608784	1	20	5.0	5.0	✓
Method Blanks (MB)							
Ammonia by Fluorescence	E298	1608516	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1607555	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1607558	1	5	20.0	5.0	✓
Total Cyanide	E333	1609908	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1607557	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1607559	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1608784	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1608516	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1607555	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1607558	1	5	20.0	5.0	✓
Total Cyanide	E333	1609908	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1607557	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1607559	1	8	12.5	5.0	✓



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Edmonton	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Edmonton	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^{\circ}\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Ammonia by Fluorescence	E298 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Cyanide	E333 ALS Environmental - Waterloo	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Edmonton	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Edmonton	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 μm), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Edmonton	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Edmonton	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 μm), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Edmonton	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Edmonton	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Edmonton	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Edmonton	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Edmonton	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: EO2407158	Page	: 1 of 14
Client	: Teck Metals Ltd	Laboratory	: ALS Environmental - Edmonton
Contact	: Neil MacDonald	Account Manager	: Megha Walia
Address	: 601 Knighton Road Kimberley BC Canada V1A 3E1	Address	: 9450 - 17 Avenue NW Edmonton, Alberta Canada T6N 1M9
Telephone	: 250 427 8415	Telephone	: +1 780 413 5227
Project	: PINE POINT	Date Samples Received	: 20-Aug-2024 10:00
PO	: 10262	Date Analysis Commenced	: 21-Aug-2024
C-O-C number	: 2024-19-08	Issue Date	: 22-Aug-2024 15:39
Sampler	: KC		
Site	: ---		
Quote number	: Annual Pine Point Water Treatment Testing		
No. of samples received	: 8		
No. of samples analysed	: 8		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Alex Drake	Lab Analyst	Edmonton Metals, Edmonton, Alberta
Brayden Ginther	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Daniel Nguyen	Laboratory Analyst	Edmonton Metals, Edmonton, Alberta
Jing Liu	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Shruti Mudliar	Lab Analyst	Edmonton Inorganics, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Edmonton Metals, Edmonton, Alberta



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1608036)											
EO2407160-002	Anonymous	pH	----	E108	0.10	pH units	7.45	7.47	0.268%	3%	----
Physical Tests (QC Lot: 1608784)											
EO2405926-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1608516)											
EO2407158-001	PP_35-1B_20240816	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0071	0.0077	0.0006	Diff <2x LOR	----
Cyanides (QC Lot: 1609908)											
TY2408917-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1607557)											
EO2407012-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1607559)											
EO2407158-001	PP_35-1B_20240816	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0102	0.0098	0.0004	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00022	0.00020	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0325	0.0336	3.36%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.018	0.018	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000839	0.0000900	6.98%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	105	103	1.62%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000011	0.000011	0.0000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00643	0.00673	4.63%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.011	0.012	0.001	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00234	0.00234	0.437%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0035	0.0033	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	26.7	28.6	6.83%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00278	0.00299	7.26%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00110	0.00112	1.64%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00157	0.00163	0.00006	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1607559) - continued											
EO2407158-001	PP_35-1B_20240816	Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.33	1.44	7.46%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00119	0.00123	0.00004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000076	<0.000050	0.000026	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	0.81	0.82	0.02	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000013	<0.000010	0.000003	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	2.54	2.65	4.21%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.314	0.323	2.80%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	119	121	1.42%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000194	0.000191	1.90%	20%	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000347	0.000344	0.938%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.148	0.156	4.91%	20%	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1607555)											
EO2407100-012	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1607558)											
EO2407103-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0240	0.0223	7.35%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00109	0.00105	3.77%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0184	0.0184	0.407%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0438	0.0441	0.548%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.925	0.944	2.05%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000300	0.000284	5.45%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	48.6	48.0	1.38%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00208	0.00207	0.253%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00763	0.00773	1.37%	20%	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1607558) - continued											
EO2407103-001	Anonymous	Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000524	0.000493	6.08%	20%	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0805	0.0808	0.334%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	22.8	23.0	1.23%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.110	0.112	1.37%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.870	0.856	1.70%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0194	0.0196	1.21%	20%	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.314	0.335	0.021	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	10.5	10.4	0.146%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00522	0.00509	2.38%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.69	1.67	1.18%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	300	304	1.26%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.493	0.483	1.95%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00103	0.00104	0.00001	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00539	0.00528	2.05%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.0189	0.0190	0.840%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0237	0.0239	0.817%	20%	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1608784)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1608516)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Cyanides (QCLot: 1609908)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1607557)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1607559)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1607559) - continued						
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1607555)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1607558)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1607558) - continued						
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1608036)									
pH	----	E108	----	pH units	6 pH units	102	97.0	103	----
Physical Tests (QCLot: 1608784)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	97.2	85.0	115	----
Anions and Nutrients (QCLot: 1608516)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	109	85.0	115	----
Cyanides (QCLot: 1609908)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	91.8	80.0	120	----
Total Metals (QCLot: 1607557)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	99.2	80.0	120	----
Total Metals (QCLot: 1607559)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	103	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	106	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	97.7	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.4	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	107	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	107	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1607559) - continued									
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	114	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	99.4	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	95.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.7	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	108	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.6	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	107	80.0	120	----
Dissolved Metals (QCLot: 1607558)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.6	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.3	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.3	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	95.3	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.7	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.0	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1607558) - continued									
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.2	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.6	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.3	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.5	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.5	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1608516)										
EO2407158-001	PP_35-1B_20240816	Ammonia, total (as N)	7664-41-7	E298	0.107 mg/L	0.1 mg/L	107	75.0	125	----
Cyanides (QCLot: 1609908)										
TY2408917-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.217 mg/L	0.25 mg/L	86.8	75.0	125	----
Total Metals (QCLot: 1607557)										
EO2407012-001	Anonymous	Mercury, total	7439-97-6	E508	0.000108 mg/L	0 mg/L	108	70.0	130	----
Total Metals (QCLot: 1607559)										
EO2407158-002	PP_35-1B_20240817	Aluminum, total	7429-90-5	E420	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0221 mg/L	0.02 mg/L	111	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0460 mg/L	0.04 mg/L	115	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0108 mg/L	0.01 mg/L	108	70.0	130	----
		Boron, total	7440-42-8	E420	0.110 mg/L	0.1 mg/L	110	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00436 mg/L	0.004 mg/L	109	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0114 mg/L	0.01 mg/L	114	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0422 mg/L	0.04 mg/L	105	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Copper, total	7440-50-8	E420	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Iron, total	7439-89-6	E420	2.02 mg/L	2 mg/L	101	70.0	130	----
		Lead, total	7439-92-1	E420	0.0220 mg/L	0.02 mg/L	110	70.0	130	----
		Lithium, total	7439-93-2	E420	0.113 mg/L	0.1 mg/L	113	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0224 mg/L	0.02 mg/L	112	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.6 mg/L	10 mg/L	106	70.0	130	----
		Potassium, total	7440-09-7	E420	3.97 mg/L	4 mg/L	99.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0447 mg/L	0.04 mg/L	112	70.0	130	----
		Silicon, total	7440-21-3	E420	10.3 mg/L	10 mg/L	103	70.0	130	----
		Silver, total	7440-22-4	E420	0.00428 mg/L	0.004 mg/L	107	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0444 mg/L	0.04 mg/L	111	70.0	130	----
Thallium, total	7440-28-0	E420	0.00437 mg/L	0.004 mg/L	109	70.0	130	----		
Thorium, total	7440-29-1	E420	0.0223 mg/L	0.02 mg/L	112	70.0	130	----		



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1607559) - continued										
EO2407158-002	PP_35-1B_20240817	Tin, total	7440-31-5	E420	0.0215 mg/L	0.02 mg/L	108	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0420 mg/L	0.04 mg/L	105	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0220 mg/L	0.02 mg/L	110	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00441 mg/L	0.004 mg/L	110	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Zinc, total	7440-66-6	E420	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0443 mg/L	0.04 mg/L	111	70.0	130	----
Dissolved Metals (QCLot: 1607555)										
EO2407101-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 1607558)										
EO2407158-005	PP_35-1A_20240819	Aluminum, dissolved	7429-90-5	E421	0.214 mg/L	0.2 mg/L	107	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0234 mg/L	0.02 mg/L	117	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0233 mg/L	0.02 mg/L	117	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0478 mg/L	0.04 mg/L	120	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0105 mg/L	0.01 mg/L	105	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.115 mg/L	0.1 mg/L	115	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00474 mg/L	0.004 mg/L	119	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0466 mg/L	0.04 mg/L	116	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0231 mg/L	0.02 mg/L	115	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0226 mg/L	0.02 mg/L	113	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.22 mg/L	2 mg/L	111	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0233 mg/L	0.02 mg/L	117	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.120 mg/L	0.1 mg/L	120	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0219 mg/L	0.02 mg/L	109	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0232 mg/L	0.02 mg/L	116	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0442 mg/L	0.04 mg/L	110	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	11.9 mg/L	10 mg/L	119	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.42 mg/L	4 mg/L	110	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0496 mg/L	0.04 mg/L	124	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	11.0 mg/L	10 mg/L	110	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00438 mg/L	0.004 mg/L	109	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00465 mg/L	0.004 mg/L	116	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0234 mg/L	0.02 mg/L	117	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0458 mg/L	0.04 mg/L	114	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00464 mg/L	0.004 mg/L	116	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.118 mg/L	0.1 mg/L	118	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	ND mg/L	----	ND	70.0	130	----





www.alsglobal.com

Chain of Custody (COC) / Analytical
Request Form - Annual

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 2024-19-08

Environmental Division
Edmonton
Work Order Reference
E02407158



Telephone : +1 780 413 5227

Report To		Neil MacDonald		Report Format / Distribution		Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)		Select Service Level Below (Rush Turnaround)	
Company:		Teck Metals Ltd.		Quality Control (QC) Report with Report		☐ Yes ☐ No		R ☒ Regular (Standard TAT if received by 3 pm - bu)	
Contact:		Neil MacDonald		Criteria on Report - provide details below if box checked		☐ Yes ☐ No		P ☐ Priority (2-4 bus. days if received by 3pm) 50%	
Address:		Bag 2000, Kimberley, BC		Select Distribution:		☐ EMAIL ☐ MAIL ☐ FAX		E ☐ Emergency (1-2 bus. days if received by 3pm)	
Phone:		250-427-5415		Email 1 or Fax		☐ EMAIL ☐ MAIL ☐ FAX		E2 ☐ Same day or weekend emergency - contact Al	
Invoice To		Same as Report To		Email 2		teckmb@equisonline.com; dhasi@barr.com		Specify Date Required for E2, E or P:	
Copy of Invoice with Report		☐ Yes ☐ No		Select Invoice Distribution:		☒ EMAIL ☐ MAIL ☐ FAX		Indicate Filled (F), Preserved (P) or Filter	
Company:		Teck Metals Ltd.		Email 1 or Fax		roxanne.menear@teck.com		F	
Contact:		Roxanne Menear		Email 2				F	
ALS Quote #:		Project Information		Oil and Gas Required Fields (client use)					
Job #:		Pine Point		Approver ID:		Cost Center:			
PO / A/E:		10262		GL Account:		Routing Code:			
LSD:				Activity Code:					
Location:									
ALS Lab Work Order # (lab use only)				ALS Contact:		Kieren Tordoff		Sampler:	
								KC	
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mm-yy)		Time (hh:mm)		Sample Type	
PP_35-1B_20240816				16-08-2024		12:00		Water	
PP_35-1B_20240817				17-08-2024		13:30		Water	
PP_35-1B_20240818				18-08-2024		14:30		Water	
PP_35-1BD_20240819				15-08-2024		12:30		Water	
PP_35-1A_20240819				19-08-2024		13:20		Water	
PP_35-1B_20240819				19-08-2024		13:30		Water	
PP_DUP_20240819				19-08-2024		13:35		Water	
PP_FB_20240819				19-08-2024		13:45		Water	
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report (client use)							
Are samples taken from a Regulated DW System?		☐ Yes ☐ No		Samples have not been filtered in the field. Please filter as required in the lab.		None of the samples have been preserved.			
Are samples for human drinking water use?		☐ Yes ☐ No							
Released by: kc		Date: 19-08-2024 Time: 15:30		Received by: [Signature]		Date: 08/20/24 Time: 10:00 AM		Received by: [Signature]	
REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION		WHITE - LABORATORY COPY		YELLOW - CLIENT COPY		FINAL SHIPMENT RECEPTION (lab use only)		Date: Time:	
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.		1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.							
FROZEN		☐ Frozen		SIF Observations		Yes ☐ No ☐		Yes ☐ No ☐	
Ice packs		Yes ☒ No ☐		Custody seal intact		Yes ☐ No ☐		Yes ☐ No ☐	
Cooling Initiated		☐		INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C	
INITIAL COOLER TEMPERATURES °C		13.4							
Number of Containers									