

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: VA23A7572	Page	: 1 of 5
Client	: Lafarge Canada Inc.	Laboratory	: Vancouver - Environmental
Contact	: Louise Bantok	Account Manager	: Ian Chen
Address	: 2300 Rogers Ave Coquitlam BC Canada V3K 5X6	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: VAID - Texada	Date Samples Received	: 06-Apr-2023 10:40
PO	: 4501719953	Date Analysis Commenced	: 10-Apr-2023
C-O-C number	: ----	Issue Date	: 17-Apr-2023 16:39
Sampler	: ----		
Site	: ----		
Quote number	: 2022 PRICING		
No. of samples received	: 12		
No. of samples analysed	: 11		

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
- Guideline Comparison

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
Kaitlyn Gardner	Account Manager Assistant	Administration, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kinny Wu	Lab Analyst	Metals, Burnaby, British Columbia



No Breaches Found

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
mg/L	milligrams per litre

>: greater than.

<: less than.

Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).

For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.



Analytical Results Evaluation

Matrix:

Client sample ID			----	----	----	----	----	----	----
Sampling date/time			----	----	----	----	----	----	----
Sub-Matrix			----	----	----	----	----	----	----
Analyte	CAS Number	Unit	----	----	----	----	----	----	----
		-							

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



Chlorine, free, field	7782-50-5	mg/L							
Chlorine, total, field	7782-50-5	mg/L							
Hardness (as CaCO3), from total Ca/Mg	----	mg/L							
Aluminum, total	7429-90-5	mg/L							
Antimony, total	7440-36-0	mg/L							
Arsenic, total	7440-38-2	mg/L							
Barium, total	7440-39-3	mg/L							
Beryllium, total	7440-41-7	mg/L							
Bismuth, total	7440-69-9	mg/L							
Boron, total	7440-42-8	mg/L							
Cadmium, total	7440-43-9	mg/L							
Calcium, total	7440-70-2	mg/L							
Cesium, total	7440-46-2	mg/L							
Chromium, total	7440-47-3	mg/L							
Cobalt, total	7440-48-4	mg/L							
Copper, total	7440-50-8	mg/L							
Iron, total	7439-89-6	mg/L							
Lead, total	7439-92-1	mg/L							
Lithium, total	7439-93-2	mg/L							
Magnesium, total	7439-95-4	mg/L							
Manganese, total	7439-96-5	mg/L							
Mercury, total	7439-97-6	mg/L							
Molybdenum, total	7439-98-7	mg/L							
Nickel, total	7440-02-0	mg/L							
Phosphorus, total	7723-14-0	mg/L							
Potassium, total	7440-09-7	mg/L							
Rubidium, total	7440-17-7	mg/L							
Selenium, total	7782-49-2	mg/L							
Silicon, total	7440-21-3	mg/L							
Silver, total	7440-22-4	mg/L							
Sodium, total	7440-23-5	mg/L							
Strontium, total	7440-24-6	mg/L							
Sulfur, total	7704-34-9	mg/L							
Tellurium, total	13494-80-9	mg/L							
Thallium, total	7440-28-0	mg/L							
Thorium, total	7440-29-1	mg/L							
Tin, total	7440-31-5	mg/L							
Titanium, total	7440-32-6	mg/L							
Tungsten, total	7440-33-7	mg/L							
Uranium, total	7440-61-1	mg/L							
Vanadium, total	7440-62-2	mg/L							
Zinc, total	7440-66-6	mg/L							



Zirconium, total	7440-67-7	mg/L							
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CERTIFICATE OF ANALYSIS

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- Analytical Results

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Signatories	Position	Laboratory Department
Kaitlyn Gardner	Account Manager Assistant	Administration, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kinny Wu	Lab Analyst	Metals, Burnaby, British Columbia



General Comments

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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
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	VA1 - SITE#1 HOTEL	VA2 - SITE#2 EARLE ST	VA3 - SITE#3 MARBLE BAY @ VAN ANDA	VA4 - SITE#4 MARBLE BAY @ Smelter	VA5 - SITE#5 SELLENTIN @ STURT BAY
Client sampling date / time					04-Apr-2023 12:28	04-Apr-2023 13:35	04-Apr-2023 14:24	04-Apr-2023 14:34	04-Apr-2023 12:50	
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-001	VA23A7572-002	VA23A7572-003	VA23A7572-004	VA23A7572-005	
					Result	Result	Result	Result	Result	
Field Tests										
Chlorine, free, field	7782-50-5	EF001	0.01	mg/L	0.3	0.5	0.7	0.6	0.4	
Chlorine, total, field	7782-50-5	EF001	0.01	mg/L	0.7	0.9	1.5	1.0	0.9	
Physical Tests										
Hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L	120	120	117	119	123	
Total Metals										
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0077	0.0087	0.0074	0.0097	0.0088	
Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00152	0.00156	0.00150	0.00154	0.00155	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00198	0.00202	0.00200	0.00205	0.00196	
Barium, total	7440-39-3	E420	0.00010	mg/L	0.00577	0.00590	0.00580	0.00589	0.00598	
Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium, total	7440-70-2	E420	0.050	mg/L	43.8	43.9	42.9	43.7	45.0	
Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000021	0.000022	0.000023	0.000023	0.000026	
Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper, total	7440-50-8	E420	0.00050	mg/L	0.00319	0.00323	0.00782	0.0959	0.00278	
Iron, total	7439-89-6	E420	0.010	mg/L	0.012	0.015	0.014	0.022	0.016	
Lead, total	7439-92-1	E420	0.000050	mg/L	0.000097	<0.000050	<0.000050	0.000282	<0.000050	
Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420	0.0050	mg/L	2.47	2.46	2.47	2.44	2.56	
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00047	0.00163	0.00051	0.00157	0.00082	
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0106	0.0108	0.0106	0.0107	0.0107	
Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420	0.050	mg/L	0.315	0.314	0.311	0.312	0.317	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	VA1 - SITE#1 HOTEL	VA2 - SITE#2 EARLE ST	VA3 - SITE#3 MARBLE BAY @ VAN ANDA	VA4 - SITE#4 MARBLE BAY @ Smelter	VA5 - SITE#5 SELLENTIN @ STURT BAY
Client sampling date / time					04-Apr-2023 12:28	04-Apr-2023 13:35	04-Apr-2023 14:24	04-Apr-2023 14:34	04-Apr-2023 12:50	
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-001	VA23A7572-002	VA23A7572-003	VA23A7572-004	VA23A7572-005	
					Result	Result	Result	Result	Result	
Total Metals										
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00042	0.00043	0.00037	0.00039	0.00044	
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000929	0.00102	0.000947	0.000973	0.00105	
Silicon, total	7440-21-3	E420	0.10	mg/L	2.55	2.56	2.52	2.61	2.64	
Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420	0.050	mg/L	4.95	5.05	5.07	5.02	5.00	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.194	0.200	0.191	0.196	0.198	
Sulfur, total	7704-34-9	E420	0.50	mg/L	16.1	16.2	16.2	16.2	16.7	
Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00628	<0.00010	
Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00164	0.00170	0.00177	0.00171	0.00170	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00079	0.00082	0.00076	0.00084	0.00078	
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0032	0.0101	0.0058	0.0037	0.0042	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	VA6 - SITE#6 WALL ST PUMPHOUSE	VA7 - SITE#7 COPPER QUEEN @ ALLADIN	VA8 - SITE#8 TANK OUTLET	VA-DUP	END OF WALL STREET #9
Client sampling date / time					04-Apr-2023 14:10	04-Apr-2023 13:58	04-Apr-2023 09:04	04-Apr-2023 01:00	04-Apr-2023 14:05	
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-006	VA23A7572-007	VA23A7572-008	VA23A7572-009	VA23A7572-011	
					Result	Result	Result	Result	Result	
Field Tests										
Chlorine, free, field	7782-50-5	EF001	0.01	mg/L	0.5	0.6	1.8	----	0.1	
Chlorine, total, field	7782-50-5	EF001	0.01	mg/L	0.7	1.3	2.3	----	0.3	
Physical Tests										
Hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L	121	117	117	117	115	
Total Metals										
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0081	0.0082	0.0175	0.0084	0.0068	
Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00156	0.00155	0.00154	0.00154	0.00149	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00204	0.00206	0.00198	0.00200	0.00205	
Barium, total	7440-39-3	E420	0.00010	mg/L	0.00577	0.00567	0.00591	0.00580	0.00567	
Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium, total	7440-70-2	E420	0.050	mg/L	44.5	42.9	42.6	42.7	42.2	
Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000025	0.000022	0.000026	0.000022	0.000022	
Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper, total	7440-50-8	E420	0.00050	mg/L	0.00376	0.00492	0.00544	0.00273	0.00599	
Iron, total	7439-89-6	E420	0.010	mg/L	0.017	0.015	0.014	0.016	0.025	
Lead, total	7439-92-1	E420	0.000050	mg/L	0.000090	0.000074	0.000634	<0.000050	0.000091	
Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420	0.0050	mg/L	2.46	2.47	2.50	2.46	2.45	
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00050	0.00048	0.00077	0.00163	0.00057	
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0107	0.0107	0.0108	0.0104	0.00937	
Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420	0.050	mg/L	0.314	0.307	0.313	0.314	0.309	
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00043	0.00043	0.00042	0.00040	0.00038	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	VA6 - SITE#6 WALL ST PUMPHOUSE	VA7 - SITE#7 COPPER QUEEN @ ALLADIN	VA8 - SITE#8 TANK OUTLET	VA-DUP	END OF WALL STREET #9
Client sampling date / time					04-Apr-2023 14:10	04-Apr-2023 13:58	04-Apr-2023 09:04	04-Apr-2023 01:00	04-Apr-2023 14:05	
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-006	VA23A7572-007	VA23A7572-008	VA23A7572-009	VA23A7572-011	
					Result	Result	Result	Result	Result	
Total Metals										
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000964	0.000907	0.000912	0.00104	0.000961	
Silicon, total	7440-21-3	E420	0.10	mg/L	2.56	2.53	2.49	2.53	2.55	
Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420	0.050	mg/L	4.95	5.12	5.10	5.05	5.00	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.199	0.196	0.196	0.195	0.192	
Sulfur, total	7704-34-9	E420	0.50	mg/L	16.1	16.0	16.5	16.6	15.8	
Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00168	0.00171	0.00179	0.00170	0.00140	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00081	0.00077	0.00075	0.00078	0.00076	
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0087	0.0042	0.0143	0.0095	0.0047	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	

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



Analytical Results

Sub-Matrix: Water					Client sample ID	NEW 8" LINE #10	----	----	----	----
(Matrix: Water)					Client sampling date / time	04-Apr-2023 13:12	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-012	Result	----	----	----	----
Field Tests										
Chlorine, free, field	7782-50-5	EF001	0.01	mg/L	0.5	----	----	----	----	----
Chlorine, total, field	7782-50-5	EF001	0.01	mg/L	1.0	----	----	----	----	----
Physical Tests										
Hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L	116	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0086	----	----	----	----	----
Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00149	----	----	----	----	----
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00198	----	----	----	----	----
Barium, total	7440-39-3	E420	0.00010	mg/L	0.00590	----	----	----	----	----
Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	----	----	----	----	----
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Calcium, total	7440-70-2	E420	0.050	mg/L	42.5	----	----	----	----	----
Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000023	----	----	----	----	----
Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	----	----	----	----	----
Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	----	----	----	----	----
Copper, total	7440-50-8	E420	0.00050	mg/L	0.00359	----	----	----	----	----
Iron, total	7439-89-6	E420	0.010	mg/L	0.012	----	----	----	----	----
Lead, total	7439-92-1	E420	0.000050	mg/L	0.000116	----	----	----	----	----
Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	----	----	----	----	----
Magnesium, total	7439-95-4	E420	0.0050	mg/L	2.51	----	----	----	----	----
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00050	----	----	----	----	----
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0104	----	----	----	----	----
Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	----	----	----	----	----
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420	0.050	mg/L	0.308	----	----	----	----	----
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00040	----	----	----	----	----
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00102	----	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	NEW 8" LINE #10	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	04-Apr-2023 13:12	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	VA23A7572-012	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Total Metals										
Silicon, total	7440-21-3	E420	0.10	mg/L	2.58	----	----	----	----	----
Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420	0.050	mg/L	5.02	----	----	----	----	----
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.194	----	----	----	----	----
Sulfur, total	7704-34-9	E420	0.50	mg/L	17.0	----	----	----	----	----
Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	----	----	----	----	----
Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00167	----	----	----	----	----
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00077	----	----	----	----	----
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0047	----	----	----	----	----
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	----	----	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA23A7572	Page	: 1 of 8
Client	: Lafarge Canada Inc.	Laboratory	: Vancouver - Environmental
Contact	: Louise Bantok	Account Manager	: Ian Chen
Address	: 2300 Rogers Ave Coquitlam BC Canada V3K 5X6	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: VAID - Texada	Date Samples Received	: 06-Apr-2023 10:40
PO	: 4501719953	Issue Date	: 17-Apr-2023 16:40
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2022 PRICING		
No. of samples received	: 12		
No. of samples analysed	: 11		

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)

- No Analysis Holding Time Outliers exist.

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	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) END OF WALL STREET #9	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) NEW 8" LINE #10	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA1 - SITE#1 HOTEL	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA2 - SITE#2 EARLE ST	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA3 - SITE#3 MARBLE BAY @ VAN ANDA	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA4 - SITE#4 MARBLE BAY @ Smelter	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA5 - SITE#5 SELLENTIN @ STURT BAY	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	



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

Analyte Group 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	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA6 - SITE#6 WALL ST PUMPHOUSE	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA7 - SITE#7 COPPER QUEEN @ ALLADIN	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Field Tests : Field pH,EC,Salinity,Ci2,CiO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial total (hydrochloric acid) VA8 - SITE#8 TANK OUTLET	EF001	04-Apr-2023	----	----	----		13-Apr-2023	----	----	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) END OF WALL STREET #9	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) NEW 8" LINE #10	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA1 - SITE#1 HOTEL	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA2 - SITE#2 EARLE ST	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA3 - SITE#3 MARBLE BAY @ VAN ANDA	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA4 - SITE#4 MARBLE BAY @ Smelter	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓



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

Analyte Group 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 Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA5 - SITE#5 SELLENTIN @ STURT BAY	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA6 - SITE#6 WALL ST PUMPHOUSE	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA7 - SITE#7 COPPER QUEEN @ ALLADIN	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA8 - SITE#8 TANK OUTLET	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) VA-DUP	E508	04-Apr-2023	12-Apr-2023	----	----		12-Apr-2023	28 days	8 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) END OF WALL STREET #9	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) NEW 8" LINE #10	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA1 - SITE#1 HOTEL	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA2 - SITE#2 EARLE ST	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓



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

Analyte Group 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 (nitric acid) VA3 - SITE#3 MARBLE BAY @ VAN ANDA	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA4 - SITE#4 MARBLE BAY @ Smelter	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA5 - SITE#5 SELLENTIN @ STURT BAY	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA6 - SITE#6 WALL ST PUMPHOUSE	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA7 - SITE#7 COPPER QUEEN @ ALLADIN	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	6 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA8 - SITE#8 TANK OUTLET	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	7 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) VA-DUP	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	7 days	✓

Legend & Qualifier Definitions

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)							
Total Mercury in Water by CVAAS	E508	894060	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	892148	1	18	5.5	5.0	✔
Laboratory Control Samples (LCS)							
Total Mercury in Water by CVAAS	E508	894060	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	892148	1	18	5.5	5.0	✔
Method Blanks (MB)							
Total Mercury in Water by CVAAS	E508	894060	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	892148	1	18	5.5	5.0	✔
Matrix Spikes (MS)							
Total Mercury in Water by CVAAS	E508	894060	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	892148	1	18	5.5	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
Total metals in Water by CRC ICPMS	E420 Vancouver - Environmental	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.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	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.
Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ ,Chloramine	EF001 Vancouver - Environmental	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

QUALITY CONTROL REPORT

Work Order	: VA23A7572	Page	: 1 of 10
Client	: Lafarge Canada Inc.	Laboratory	: Vancouver - Environmental
Contact	: Louise Bantok	Account Manager	: Ian Chen
Address	: 2300 Rogers Ave Coquitlam BC Canada V3K 5X6	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: VAID - Texada	Date Samples Received	: 06-Apr-2023 10:40
PO	: 4501719953	Date Analysis Commenced	: 10-Apr-2023
C-O-C number	: ----	Issue Date	: 17-Apr-2023 16:40
Sampler	: ----		
Site	: ----		
Quote number	: 2022 PRICING		
No. of samples received	: 12		
No. of samples analysed	: 11		

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
Kaitlyn Gardner	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kinny Wu	Lab Analyst	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 10
Work Order : VA23A7572
Client : Lafarge Canada Inc.
Project : VAID - Texada



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
Total Metals (QC Lot: 892148)											
VA23A7581-001	Anonymous	Aluminum, total	7429-90-5	E420	15.0	mg/L	<15.0	<15.0	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	50.0	mg/L	<50.0	<50.0	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	250	mg/L	<250	<250	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	50.0	mg/L	<50.0	<50.0	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	5.00	mg/L	2370	2350	1.02%	20%	----
		Magnesium, total	7439-95-4	E420	25.0	mg/L	<25.0	<25.0	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	250	mg/L	<250	<250	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	250	mg/L	<250	<250	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	500	mg/L	<500	<500	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	250	mg/L	776	773	2.58	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	2500	mg/L	<2500	<2500	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	1.00	mg/L	<1.00	<1.00	0	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: 892148) - continued											
VA23A7581-001	Anonymous	Thallium, total	7440-28-0	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	1.50	mg/L	<1.50	<1.50	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	15.0	mg/L	<15.0	<15.0	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
Total Metals (QC Lot: 894060)											
VA23A7556-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000065	0.0000060	0.0000005	Diff <2x LOR	----



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
Total Metals (QCLot: 892148)						
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	----
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	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 892148) - continued						
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	----
Total Metals (QCLot: 894060)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----



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	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 892148)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.4	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	96.6	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	98.2	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.7	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.8	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.3	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	95.0	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.3	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	95.5	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.7	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	96.2	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	94.9	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	95.8	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	97.0	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	94.0	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.6	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	99.5	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	97.3	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.8	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	105	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	90.6	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.5	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit					
Total Metals (QCLot: 892148) - continued									
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	91.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.5	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	93.9	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	91.8	80.0	120	----
Total Metals (QCLot: 894060)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	94.2	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.

					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: 892148)										
VA23A7581-002	Anonymous	Aluminum, total	7429-90-5	E420	1970 mg/L	2000 mg/L	98.5	70.0	130	----
		Antimony, total	7440-36-0	E420	194 mg/L	200 mg/L	96.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	199 mg/L	200 mg/L	99.6	70.0	130	----
		Barium, total	7440-39-3	E420	203 mg/L	200 mg/L	102	70.0	130	----
		Beryllium, total	7440-41-7	E420	385 mg/L	400 mg/L	96.2	70.0	130	----
		Bismuth, total	7440-69-9	E420	87.5 mg/L	100 mg/L	87.5	70.0	130	----
		Boron, total	7440-42-8	E420	960 mg/L	1000 mg/L	96.0	70.0	130	----
		Cadmium, total	7440-43-9	E420	41.0 mg/L	40 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	37700 mg/L	40000 mg/L	94.4	70.0	130	----
		Cesium, total	7440-46-2	E420	94.1 mg/L	100 mg/L	94.1	70.0	130	----
		Chromium, total	7440-47-3	E420	400 mg/L	400 mg/L	100.0	70.0	130	----
		Cobalt, total	7440-48-4	E420	198 mg/L	200 mg/L	99.2	70.0	130	----
		Copper, total	7440-50-8	E420	200 mg/L	200 mg/L	100	70.0	130	----
		Iron, total	7439-89-6	E420	19200 mg/L	20000 mg/L	96.3	70.0	130	----
		Lead, total	7439-92-1	E420	193 mg/L	200 mg/L	96.5	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	1000 mg/L	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	9930 mg/L	10000 mg/L	99.3	70.0	130	----
		Manganese, total	7439-96-5	E420	198 mg/L	200 mg/L	98.8	70.0	130	----
		Molybdenum, total	7439-98-7	E420	190 mg/L	200 mg/L	95.0	70.0	130	----
		Nickel, total	7440-02-0	E420	398 mg/L	400 mg/L	99.4	70.0	130	----
		Phosphorus, total	7723-14-0	E420	94500 mg/L	100000 mg/L	94.5	70.0	130	----
		Potassium, total	7440-09-7	E420	40100 mg/L	40000 mg/L	100	70.0	130	----
		Rubidium, total	7440-17-7	E420	198 mg/L	200 mg/L	99.2	70.0	130	----
		Selenium, total	7782-49-2	E420	390 mg/L	400 mg/L	97.5	70.0	130	----
		Silicon, total	7440-21-3	E420	94400 mg/L	100000 mg/L	94.4	70.0	130	----
		Silver, total	7440-22-4	E420	37.4 mg/L	40 mg/L	93.4	70.0	130	----
		Sodium, total	7440-23-5	E420	20800 mg/L	20000 mg/L	104	70.0	130	----
		Strontium, total	7440-24-6	E420	201 mg/L	200 mg/L	100	70.0	130	----
		Sulfur, total	7704-34-9	E420	196000 mg/L	200000 mg/L	98.0	70.0	130	----
		Tellurium, total	13494-80-9	E420	400 mg/L	400 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E420	38.6 mg/L	40 mg/L	96.6	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: 892148) - continued										
VA23A7581-002	Anonymous	Thorium, total	7440-29-1	E420	206 mg/L	200 mg/L	103	70.0	130	----
		Tin, total	7440-31-5	E420	191 mg/L	200 mg/L	95.3	70.0	130	----
		Titanium, total	7440-32-6	E420	375 mg/L	400 mg/L	93.8	70.0	130	----
		Tungsten, total	7440-33-7	E420	184 mg/L	200 mg/L	92.1	70.0	130	----
		Uranium, total	7440-61-1	E420	38.5 mg/L	40 mg/L	96.3	70.0	130	----
		Vanadium, total	7440-62-2	E420	993 mg/L	1000 mg/L	99.3	70.0	130	----
		Zinc, total	7440-66-6	E420	3840 mg/L	4000 mg/L	96.1	70.0	130	----
		Zirconium, total	7440-67-7	E420	399 mg/L	400 mg/L	99.7	70.0	130	----
Total Metals (QCLot: 894060)										
VA23A7556-003	Anonymous	Mercury, total	7439-97-6	E508	0.000105 mg/L	0.0001 mg/L	105	70.0	130	----



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 15 -

Environmental Division
Vancouver

Work Order Reference
VA23A7572



Telephone : + 1 604 253 4188

[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FROM

April/4/23

La Forge Data

① Hot #1 0:37 free total 12:28 PM

② East Street + Duplicate 0:5 free 0:9 total 1:35 PM

③ Van Anda Ave + Prospect #3 0:25 free 1:5 total 2:24 PM

④ Smelter #4 0:6 free 1:0 total 2:34 PM

⑤ Sellenin + Sturt Bay 0:4 free 0:9 total 12:50 PM

⑥ Pump House #6 0:5 free 0:7 total 9:50 AM + 2:10 PM

⑦ Copper Queen #7 0:6 free 1:3 total 1:58 PM

⑧ Storage Tank Inlet + Outlet #8 1:8 free 2:3 total 9:01 AM

⑨ End of Wall Street #9 0:1 free 0:3 total 9:45 AM + 2:05 PM

⑩ New 8" Line #10 0:5 free 1:0 total 1:12 PM