Bottom Ash Data

2024 Week 18

The following analytical report represents bottom ash composite results for week 18 of 2024 (April 28, 2024 to May 4, 2024).

The bottom ash meets the conditions of Metro Vancouver's 2020 Bottom Ash Management Plan and is suitable for disposal.

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B0192**	Page	: 1 of 11
Client	: **Covanta Burnaby Renewable Energy, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 08-May-2024 13:05
PO	: VANCO0000052919	Date Analysis Commenced	: 11-May-2024
C-O-C number	: ----	Issue Date	: 15-May-2024 22:45
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
No. of samples received	: 12		
No. of samples analysed	: 12		

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*
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

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*
%	percent
mg/kg	milligrams per kilogram
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.

Qualifiers

Qualifier	*Description*
DUPH	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-1	BA2418-A-2	BA2418-A-3	BA2418-A-4	BA2418-A-5
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
						VA24B0192-001	VA24B0192-002	VA24B0192-003	VA24B0192-004	VA24B0192-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		21.4	22.0	22.1	23.2	23.0
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.0	12.0	11.8	11.9	12.0
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		59600	32100	34400	38200	33900
Antimony	7440-36-0	E440/VA	0.10	mg/kg		98.0	100	115	93.8	112
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		18.3	17.5	22.1	18.1	18.8
Barium	7440-39-3	E440/VA	0.50	mg/kg		618	638	522	638	495
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.35	0.34	0.33	0.35	0.36
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		8.65	15.7	12.7	8.37	10.8
Boron	7440-42-8	E440/VA	5.0	mg/kg		174	172	221	197	228
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		8.26	9.13	8.97	7.03	10.3
Calcium	7440-70-2	E440/VA	50	mg/kg		130000	127000	132000	130000	138000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		155	197	120	142	124
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		156	591	107	112	157
Copper	7440-50-8	E440/VA	0.50	mg/kg		2800	3620	3050	3840	5300
Iron	7439-89-6	E440/VA	50	mg/kg		60500	89300	52600	92600	47200
Lead	7439-92-1	E440/VA	0.50	mg/kg		645	323	398	334	1300
Lithium	7439-93-2	E440/VA	2.0	mg/kg		27.6	38.0	32.3	46.7	27.8
Magnesium	7439-95-4	E440/VA	20	mg/kg		11300	10500	10200	9910	11400
Manganese	7439-96-5	E440/VA	1.0	mg/kg		1070	860	759	1250	747
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.175 DUPH	0.244	0.196	0.253	0.182
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		39.7	69.7	74.3	38.9	38.6
Nickel	7440-02-0	E440/VA	0.50	mg/kg		372	153	187	211	310
Phosphorus	7723-14-0	E440/VA	50	mg/kg		8260	8980	8050	7950	8980
Potassium	7440-09-7	E440/VA	100	mg/kg		5650	5520	5870	5130	5800
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.37	0.29	0.38	0.30	0.36
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.38	4.79	7.65	>159	20.6
Sodium	7440-23-5	E440/VA	50	mg/kg		15600	15900	15300	15300	15600
Strontium	7440-24-6	E440/VA	0.50	mg/kg		340	284	330	261	351

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-1	BA2418-A-2	BA2418-A-3	BA2418-A-4	BA2418-A-5
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
						VA24B0192-001	VA24B0192-002	VA24B0192-003	VA24B0192-004	VA24B0192-005
						Result	Result	Result	Result	Result
Metals										
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10800	10300	10100	8500	10800
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	0.079	<0.050	0.051
Tin	7440-31-5	E440/VA	2.0	mg/kg		423	98.5	90.8	105	317
Titanium	7440-32-6	E440/VA	1.0	mg/kg		1430	373	344	1020	437
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		18.8	21.0	28.7	63.3	27.5
Uranium	7440-61-1	E440/VA	0.050	mg/kg		3.16	3.16	3.26	2.73	3.46
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		49.2	47.8	40.5	37.2	42.3
Zinc	7440-66-6	E440/VA	2.0	mg/kg		2740	3620	5440	4050	4170
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		4.2	1.9	2.4	2.5	2.6
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.8	11.8	11.8	11.8	11.9
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.64	6.88	6.65	7.18	7.15
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.87	2.87	2.87	2.87	2.87
pH, TCLP final	----	EPP444/VA	0.010	pH units		7.13	7.29	7.08	7.04	7.41
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		1.68	1.69	1.62	1.68	1.70
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	0.079	0.060	<0.050
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1740	1760	1690	1750	1820
Chromium, TCLP	7440-47-3	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt, TCLP	7440-48-4	E444/VA	0.050	mg/L		0.492	0.369	0.581	0.755	0.360
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.895	0.944	1.06	0.879	0.907
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		92.5	95.5	99.1	100	102
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-1	BA2418-A-2	BA2418-A-3	BA2418-A-4	BA2418-A-5
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
						VA24B0192-001	VA24B0192-002	VA24B0192-003	VA24B0192-004	VA24B0192-005
						Result	Result	Result	Result	Result
TCLP Metals										
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		6.30	1.32	4.73	2.90	1.80
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-6	BA2418-A-7	BA2418-A-8	BA2418-A-9	BA2418-A-10
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
						VA24B0192-006	VA24B0192-007	VA24B0192-008	VA24B0192-009	VA24B0192-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		24.4	22.7	23.4	23.0	23.0
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.6	11.7	11.8	12.0	11.9
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		31300	47600	39700	36700	49700
Antimony	7440-36-0	E440/VA	0.10	mg/kg		107	113	101	102	100
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		25.0	18.5	19.6	21.2	18.8
Barium	7440-39-3	E440/VA	0.50	mg/kg		578	531	632	600	580
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.38	0.34	0.75	0.36	0.35
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		8.58	9.93	8.75	11.0	8.18
Boron	7440-42-8	E440/VA	5.0	mg/kg		192	168	203	183	247
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		12.0	10.5	10.4	10.4	11.9
Calcium	7440-70-2	E440/VA	50	mg/kg		139000	128000	128000	135000	135000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		422	129	201	151	128
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		127	55.4	284	304	189
Copper	7440-50-8	E440/VA	0.50	mg/kg		3590	5950	2240	12300	1550
Iron	7439-89-6	E440/VA	50	mg/kg		58800	47000	72700	78100	48600
Lead	7439-92-1	E440/VA	0.50	mg/kg		404	1780	416	388	395
Lithium	7439-93-2	E440/VA	2.0	mg/kg		23.9	30.7	31.8	36.2	31.2
Magnesium	7439-95-4	E440/VA	20	mg/kg		12800	10600	10600	10500	10900
Manganese	7439-96-5	E440/VA	1.0	mg/kg		805	922	895	1400	854
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.202	0.220	0.281	0.232	0.263
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		45.1	45.2	34.4	47.3	49.6
Nickel	7440-02-0	E440/VA	0.50	mg/kg		280	271	418	214	154
Phosphorus	7723-14-0	E440/VA	50	mg/kg		8970	8410	9270	10200	8300
Potassium	7440-09-7	E440/VA	100	mg/kg		5270	5400	4990	5920	5670
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.31	0.31	0.37	2.16	0.34
Silver	7440-22-4	E440/VA	0.10	mg/kg		7.97	5.69	11.6	>77.0	4.91
Sodium	7440-23-5	E440/VA	50	mg/kg		16600	14600	14100	16600	16600
Strontium	7440-24-6	E440/VA	0.50	mg/kg		274	344	302	276	306
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10800	11100	10000	10900	10800

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-6	BA2418-A-7	BA2418-A-8	BA2418-A-9	BA2418-A-10
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
						VA24B0192-006	VA24B0192-007	VA24B0192-008	VA24B0192-009	VA24B0192-010
						Result	Result	Result	Result	Result
Metals										
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.061	0.061	0.058	0.052	0.051
Tin	7440-31-5	E440/VA	2.0	mg/kg		150	97.5	116	3630	94.4
Titanium	7440-32-6	E440/VA	1.0	mg/kg		305	667	444	360	616
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		42.6	30.1	60.8	19.4	20.5
Uranium	7440-61-1	E440/VA	0.050	mg/kg		4.09	3.70	3.48	3.31	3.34
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		46.0	43.8	40.3	42.7	46.1
Zinc	7440-66-6	E440/VA	2.0	mg/kg		3950	3380	5860	5820	3630
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.1	2.9	2.2	2.5	3.1
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.8	11.8	11.8	11.8	11.8
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.51	6.71	6.68	6.41	6.70
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.87	2.87	2.87	2.87	2.87
pH, TCLP final	----	EPP444/VA	0.010	pH units		7.35	7.24	6.84	6.85	6.81
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		1.67	1.73	1.82	1.74	1.76
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	0.087	0.078	0.518	0.086
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1740	1720	1880	1910	1780
Chromium, TCLP	7440-47-3	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt, TCLP	7440-48-4	E444/VA	0.050	mg/L		0.446	0.630	0.769	1.56	0.681
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.00	0.950	1.20	0.970	0.965
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		98.3	99.8	106	103	103
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		<0.25	<0.25	0.26	0.27	<0.25
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2418-A-6	BA2418-A-7	BA2418-A-8	BA2418-A-9	BA2418-A-10
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00	01-May-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B0192-006	VA24B0192-007	VA24B0192-008	VA24B0192-009	VA24B0192-010
						Result	Result	Result	Result	Result
TCLP Metals										
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		0.98	2.18	7.87	7.79	7.14
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2418-A-11	BA2418-A-12	----	----	----
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	----	----	----
						VA24B0192-011	VA24B0192-012	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		20.2	21.7	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.0	12.0	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		39800	38700	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		101	74.5	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		17.5	17.9	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		587	576	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.37	0.35	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		18.9	6.87	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		154	169	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		9.40	6.94	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		132000	123000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		528	107	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		62.0	52.3	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		3880	5600	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		46500	37000	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		442	296	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		29.4	25.2	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		10800	9420	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		861	808	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.281	0.167	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		90.5	44.7	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		394	253	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		8160	8960	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg		5550	5220	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.40	0.25	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.08	5.10	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		16000	15700	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		302	260	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10700	8200	----	----	----

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2418-A-11	BA2418-A-12	----	----	----
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B0192-011	VA24B0192-012	--------	--------	--------
						Result	Result	----	----	----
Metals										
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	0.109	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		1390	170	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		463	540	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		17.9	24.2	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		3.24	2.73	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		43.1	39.4	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		4990	8680	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.2	1.8	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.9	11.8	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.43	6.12	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.87	2.87	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.72	6.55	----	----	----
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	----	----	----
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	----	----	----
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	----	----	----
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		1.76	1.80	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.087	0.108	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1860	1870	----	----	----
Chromium, TCLP	7440-47-3	E444/VA	0.25	mg/L		<0.25	<0.25	----	----	----
Cobalt, TCLP	7440-48-4	E444/VA	0.050	mg/L		0.954	0.589	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.15	1.01	----	----	----
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	----	----	----
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		0.49	<0.25	----	----	----
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		106	105	----	----	----
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		0.26	0.29	----	----	----
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	----	----	----
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2418-A-11	BA2418-A-12	----	----	----
					Client sampling date / time	01-May-2024 09:00	01-May-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B0192-011	VA24B0192-012	--------	--------	--------
						Result	Result	----	----	----
TCLP Metals										
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	----	----	----
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	----	----	----
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		10.4	20.5	----	----	----
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	----	----	----

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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B0192**	Page	: 1 of 16
Client	: **Covanta Burnaby Renewable Energy, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 08-May-2024 13:05
PO	: VANCO0000052919	Issue Date	: 15-May-2024 22:45
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
No. of samples received	: 12		
No. of samples analysed	: 12		

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 Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- 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.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	VA24B0192-001	BA2418-A-1	Arsenic	7440-38-2	E440	35.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Barium	7440-39-3	E440	56.4 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Boron	7440-42-8	E440	54.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Chromium	7440-47-3	E440	32.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Cobalt	7440-48-4	E440	102 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Copper	7440-50-8	E440	78.0 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Nickel	7440-02-0	E440	100 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Tin	7440-31-5	E440	144 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Titanium	7440-32-6	E440	95.6 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Zinc	7440-66-6	E440	55.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24B0192-001	BA2418-A-1	Zirconium	7440-67-7	E440	2.2 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Metals	VA24B0192-001	BA2418-A-1	Mercury	7439-97-6	E510	0.125 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

Result Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

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: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-1	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-10	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-11	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-12	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-2	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-3	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-4	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-5	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-6	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-7	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-8	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2418-A-9	E510	01-May-2024	14-May-2024	28 days	13 days	✓	14-May-2024	28 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-1	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-10	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-11	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-12	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-2	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-3	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-4	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-5	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-6	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-7	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-8	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2418-A-9	E440	01-May-2024	14-May-2024	180 days	13 days	✓	14-May-2024	180 days	13 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-1	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-10	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-11	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-12	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-2	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-3	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-4	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-5	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-6	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-7	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-8	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2418-A-9	E144	01-May-2024	----	----	----		11-May-2024	----	10 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-1	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-10	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-11	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-12	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-2	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-3	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-4	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-5	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-6	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-7	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-8	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2418-A-9	E108	01-May-2024	14-May-2024	30 days	13 days	✓	14-May-2024	30 days	13 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-1	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-10	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-11	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-12	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-2	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-3	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-4	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-5	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-6	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-7	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-8	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2418-A-9	E512	13-May-2024	15-May-2024	41 days	14 days	✓	15-May-2024	41 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-1	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-10	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-11	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-12	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-2	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-3	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-4	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-5	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-6	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-7	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓

Matrix: **Soil/Solid**

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* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-8	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2418-A-9	E444	13-May-2024	15-May-2024	193 days	14 days	✓	15-May-2024	193 days	15 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-1	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-10	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-11	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-12	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-2	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-3	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-4	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓

Matrix: **Soil/Solid**

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*	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-5	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-6	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-7	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-8	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2418-A-9	EPP444	01-May-2024	13-May-2024	----	----		----	28 days	13 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: **Soil/Solid**

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)							
Mercury by CVAAS (TCLP)	E512	1443646	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1438241	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1443647	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1438242	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1438246	1	19	5.2	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1438243	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	1438241	2	12	16.6	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1438242	2	12	16.6	10.0	✓
Moisture Content by Gravimetry	E144	1438246	1	19	5.2	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1438243	1	12	8.3	5.0	✓
Method Blanks (MB)							
Mercury by CVAAS (TCLP)	E512	1443646	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1438241	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1443647	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1438242	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1438246	1	19	5.2	5.0	✓
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	1443646	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1443647	1	12	8.3	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 (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Metals by CRC ICPMS (TCLP)	E444 ALS Environmental - Vancouver	Soil/Solid	EPA 1311/6020B (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Mercury by CVAAS (TCLP)	E512 ALS Environmental - Vancouver	Soil/Solid	SW 846 -1311/245.1 CVAA ON TCLP LEACHATE	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 ALS Environmental - Vancouver	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.

QUALITY CONTROL REPORT

Work Order	: **VA24B0192**	Page	: 1 of 12
Client	: Covanta Burnaby Renewable Energy, ULC	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 08-May-2024 13:05
PO	: VANCO0000052919	Date Analysis Commenced	: 11-May-2024
C-O-C number	: ----	Issue Date	: 15-May-2024 22:45
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
No. of samples received	: 12		
No. of samples analysed	: 12		

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
- Reference Material (RM) 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*
Ghazaleh Khanmirzaei	Analyst	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Analyst	Vancouver Metals, Burnaby, British Columbia

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: **Soil/Solid**

					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: 1438243)											
VA24B0192-001	BA2418-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	12.0	12.1	0.3%	5%	----
Physical Tests (QC Lot: 1438246)											
VA24B0108-001	Anonymous	Moisture	----	E144	0.25	%	7.34	7.60	3.38%	20%	----
Metals (QC Lot: 1438241)											
VA24B0192-001	BA2418-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	0.175	# <0.0500	0.125	Diff <2x LOR	DUP-H
Metals (QC Lot: 1438242)											
VA24B0192-001	BA2418-A-1	Aluminum	7429-90-5	E440	50	mg/kg	59600	41700	35.2%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	98.0	86.5	12.4%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	18.3	26.3	35.8%	30%	DUP-H
		Barium	7440-39-3	E440	0.50	mg/kg	618	346	56.4%	40%	DUP-H
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.35	0.38	0.03	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	8.65	6.97	21.6%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	174	304	54.2%	30%	DUP-H
		Cadmium	7440-43-9	E440	0.020	mg/kg	8.26	7.62	8.05%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	130000	125000	4.11%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	155	112	32.9%	30%	DUP-H
		Cobalt	7440-48-4	E440	0.10	mg/kg	156	50.4	102%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	2800	1230	78.0%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	60500	68700	12.7%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	645	446	36.6%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	27.6	26.9	2.52%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	11300	9830	13.8%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	1070	848	23.3%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	39.7	34.1	15.1%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	372	124	100%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	8260	9820	17.2%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5650	4990	12.5%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.37	0.33	0.04	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	5.38	4.28	22.7%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	15600	14900	4.25%	40%	----

Sub-Matrix: **Soil/Solid**

					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*
Metals (QC Lot: 1438242) - continued											
VA24B0192-001	BA2418-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	340	310	9.18%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	10800	8400	25.3%	30%	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	423	68.2	144%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	1430	506	95.6%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	18.8	16.8	10.8%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	3.16	2.96	6.58%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	49.2	40.5	19.4%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	2740	4850	55.8%	30%	DUP-H
		Zirconium	7440-67-7	E440	1.0	mg/kg	4.2	# 2.0	2.2	Diff <2x LOR	DUP-H
TCLP Metals (QC Lot: 1443646)											
VA24B0192-001	BA2418-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 1443647)											
VA24B0192-001	BA2418-A-1	Antimony, TCLP	7440-36-0	E444	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
		Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	0	Diff <2x LOR	----
		Boron, TCLP	7440-42-8	E444	0.50	mg/L	1.68	1.59	0.10	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	0.050	0.0006	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	1740	1690	2.62%	30%	----
		Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.492	0.504	2.47%	30%	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.895	0.908	1.47%	30%	----
		Iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	92.5	93.6	1.21%	30%	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	0	Diff <2x LOR	----
		Zinc, TCLP	7440-66-6	E444	0.50	mg/L	6.30	6.42	1.97%	30%	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

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: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1438246)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1438241)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1438242)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1438242) - continued						
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
TCLP Metals (QCLot: 1443646)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP Metals (QCLot: 1443647)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----

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: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1438243)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 1438246)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Metals (QCLot: 1438241)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	99.8	80.0	120	----
Metals (QCLot: 1438242)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	103	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	98.9	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	99.4	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	102	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	95.2	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	101	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	102	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	105	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	100	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	102	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	107	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	111	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	105	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	99.4	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	92.4	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	98.0	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1438242) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	106	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	104	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	106	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	106	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	105	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	100	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: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
TCLP Metals (QCLot: 1443646)										
VA24B0192-001	BA2418-A-1	Mercury, TCLP	7439-97-6	E512	0.0009 mg/L	0.001 mg/L	95.0	50.0	140	----
TCLP Metals (QCLot: 1443647)										
VA24B0192-001	BA2418-A-1	Antimony, TCLP	7440-36-0	E444	4.71 mg/L	5 mg/L	94.2	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.8 mg/L	5 mg/L	96.7	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.2 mg/L	12.5 mg/L	98.0	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.235 mg/L	0.25 mg/L	93.9	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.72 mg/L	10 mg/L	87.2	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.217 mg/L	0.25 mg/L	86.9	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.18 mg/L	1.25 mg/L	94.8	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	ND mg/L	----	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.21 mg/L	2.5 mg/L	88.5	50.0	140	----
		Iron, TCLP	7439-89-6	E444	234 mg/L	250 mg/L	93.6	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.41 mg/L	10 mg/L	94.1	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	242 mg/L	250 mg/L	96.7	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.26 mg/L	2.5 mg/L	90.6	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.90 mg/L	5 mg/L	98.0	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.070 mg/L	0.1 mg/L	69.7	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.9 mg/L	5 mg/L	98.4	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.84 mg/L	5 mg/L	96.9	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.72 mg/L	0.75 mg/L	95.9	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	9.21 mg/L	10 mg/L	92.1	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	79.5	50.0	150	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1438241)									
QC-1438241-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	101	70.0	130	----
Metals (QCLot: 1438242)									
QC-1438242-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	104	70.0	130	----
QC-1438242-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	99.6	70.0	130	----
QC-1438242-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	96.1	70.0	130	----
QC-1438242-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	108	70.0	130	----
QC-1438242-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	94.0	70.0	130	----
QC-1438242-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	106	70.0	130	----
QC-1438242-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	98.8	70.0	130	----
QC-1438242-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	108	70.0	130	----
QC-1438242-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	95.0	70.0	130	----
QC-1438242-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	108	70.0	130	----
QC-1438242-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	101	70.0	130	----
QC-1438242-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	103	70.0	130	----
QC-1438242-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	98.4	70.0	130	----
QC-1438242-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	104	70.0	130	----
QC-1438242-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	108	70.0	130	----
QC-1438242-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	104	60.0	140	----
QC-1438242-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	97.9	70.0	130	----
QC-1438242-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	112	70.0	130	----
QC-1438242-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	104	70.0	130	----
QC-1438242-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	111	50.0	150	----
QC-1438242-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	97.6	70.0	130	----
QC-1438242-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	101	40.0	160	----
QC-1438242-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	109	70.0	130	----
QC-1438242-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	123	70.0	130	----
QC-1438242-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	94.4	70.0	130	----
QC-1438242-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	101	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1438242) - continued									
QC-1438242-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	102	70.0	130	----
QC-1438242-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	89.9	70.0	130	----

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page ____ of ____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Covanta Energy	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Nicole Victor / Dan Skrypnyk	☑ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5150 Riverbend Drive	Email 1: nvictor@covanta.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Burnaby BC	Email 2: ofetherstonhaugh@covanta.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-521-1025 Fax:	Email 3: dskrypnyk@covanta.com	**Analysis Request**
	☐ Yes ☐ No	brent.kirkpatrick@metrovancouver.org	
		Sarah.Wellman@metrovancouver.org	

Invoice To	Same as Report ?	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #:	
Company:		PO / AFE: PO# 46693 Weekly Bottom Ash - Suite	
Contact:		LSD: (includes 2:1 pH)	
Address:			
Phone:	Fax:	Quote #:	

Lab Work Order # (lab use only)	B0192	ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)	Number of Containers
	BA2418-A-1	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-2	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-3	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-4	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-5	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-6	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-7	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-8	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-9	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-10	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-11	01-May-24	9:00	Soil	X	X		X	1
	BA2418-A-12	01-May-24	9:00	Soil	X	X		X	1

Environmental Division
Vancouver
Work Order Reference
VA24B0192

Telephone : +1 604 253 4188

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	8-May-24	0800				20 °C	AB	5/8/24	1:05pm	

GENF 20.00 Front