metrovancouver

Bottom Ash Data

2024 Week 37

The following analytical report represents bottom ash composite results for week 37 of 2024 (September 8, 2024 to September 14, 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	: **VA24C4585**	Page	: 1 of 11
Client	: **Reworld Renewable Burnaby, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
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	: 18-Sep-2024 13:55
PO	: PO#46693 Weekly Bottom Ash-Suite	Date Analysis Commenced	: 24-Sep-2024
C-O-C number	: ----	Issue Date	: 28-Sep-2024 09:35
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*
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Organics, Burnaby, British Columbia
Maya Urquhart	Lab 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.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-1	BA2437-A-2	BA2437-A-3	BA2437-A-4	BA2437-A-5
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-001	VA24C4585-002	VA24C4585-003	VA24C4585-004	VA24C4585-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		23.6	24.8	23.5	24.4	24.8
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.3	12.4	12.4	12.3	12.4
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		32500	43000	46000	35000	40200
Antimony	7440-36-0	E440/VA	0.10	mg/kg		130	119	156	129	137
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		38.5	39.7	46.1	44.9	39.0
Barium	7440-39-3	E440/VA	0.50	mg/kg		574	626	579	598	581
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.33	0.37	0.33	0.38	0.34
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		10.3	39.3	9.90	9.31	12.2
Boron	7440-42-8	E440/VA	5.0	mg/kg		200	219	145	163	190
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		10.1	9.87	10.7	12.9	10.3
Calcium	7440-70-2	E440/VA	50	mg/kg		135000	143000	159000	147000	146000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		199	192	152	258	470
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		30.7	50.3	45.3	31.9	31.1
Copper	7440-50-8	E440/VA	0.50	mg/kg		929	1360	1150	1030	1230
Iron	7439-89-6	E440/VA	50	mg/kg		55600	68200	39200	41000	36300
Lead	7439-92-1	E440/VA	0.50	mg/kg		310	352	506	546	348
Lithium	7439-93-2	E440/VA	2.0	mg/kg		20.6	24.4	23.0	20.1	22.6
Magnesium	7439-95-4	E440/VA	20	mg/kg		10900	10300	11500	11000	10500
Manganese	7439-96-5	E440/VA	1.0	mg/kg		778	930	748	615	596
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		18.4	34.1	25.0	19.4	42.5
Nickel	7440-02-0	E440/VA	0.50	mg/kg		192	241	91.3	131	238
Phosphorus	7723-14-0	E440/VA	50	mg/kg		9180	8210	11500	9810	9620
Potassium	7440-09-7	E440/VA	100	mg/kg		5820	6060	5850	5940	5840
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.55	0.40	0.66	0.48	0.54
Silver	7440-22-4	E440/VA	0.10	mg/kg		4.31	3.96	5.01	8.05	5.12
Sodium	7440-23-5	E440/VA	50	mg/kg		15400	15600	15200	16300	15400
Strontium	7440-24-6	E440/VA	0.50	mg/kg		303	292	300	297	288

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-1	BA2437-A-2	BA2437-A-3	BA2437-A-4	BA2437-A-5
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-001	VA24C4585-002	VA24C4585-003	VA24C4585-004	VA24C4585-005
						Result	Result	Result	Result	Result
Metals										
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10900	9300	10900	11000	11400
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		118	119	190	108	112
Titanium	7440-32-6	E440/VA	1.0	mg/kg		321	437	352	518	422
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		7.43	7.96	7.47	8.01	8.97
Uranium	7440-61-1	E440/VA	0.050	mg/kg		2.50	2.46	2.66	2.57	2.62
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		40.8	47.9	43.8	44.1	39.1
Zinc	7440-66-6	E440/VA	2.0	mg/kg		4620	2790	2920	2910	3600
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.2	2.5	3.6	2.0	3.2
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.4	12.4	12.4	12.3	12.3
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		10.5	10.2	10.1	10.5	8.97
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444/VA	0.010	pH units		8.12	8.07	8.05	7.30	8.09
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		1.82	1.83	1.91	2.35	1.96
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	0.089	<0.050
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1860	1930	1940	2160	1910
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		0.080	0.169	0.186	0.425	0.096
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.926	0.915	0.923	0.954	0.875
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		94.0	96.7	99.4	116	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	0.26	<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/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-1	BA2437-A-2	BA2437-A-3	BA2437-A-4	BA2437-A-5
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-001	VA24C4585-002	VA24C4585-003	VA24C4585-004	VA24C4585-005
						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		<0.50	<0.50	<0.50	2.77	<0.50
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/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-6	BA2437-A-7	BA2437-A-8	BA2437-A-9	BA2437-A-10
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-006	VA24C4585-007	VA24C4585-008	VA24C4585-009	VA24C4585-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		24.6	24.8	25.5	24.5	23.8
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.4	12.4	12.4	12.4	12.4
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		36200	34600	36100	34400	42100
Antimony	7440-36-0	E440/VA	0.10	mg/kg		127	135	157	136	122
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		42.7	35.8	42.3	39.0	35.6
Barium	7440-39-3	E440/VA	0.50	mg/kg		521	607	662	653	604
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.34	0.36	0.31	0.39	0.30
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		8.82	8.16	8.62	8.10	8.83
Boron	7440-42-8	E440/VA	5.0	mg/kg		148	215	204	294	178
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		9.99	8.90	11.2	10.3	8.93
Calcium	7440-70-2	E440/VA	50	mg/kg		136000	136000	128000	147000	136000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		166	161	139	207	140
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		77.4	36.1	49.8	308	214
Copper	7440-50-8	E440/VA	0.50	mg/kg		1530	2240	9340	1670	1050
Iron	7439-89-6	E440/VA	50	mg/kg		50200	27700	48200	46000	33200
Lead	7439-92-1	E440/VA	0.50	mg/kg		423	919	400	312	319
Lithium	7439-93-2	E440/VA	2.0	mg/kg		30.9	22.8	26.6	31.6	26.3
Magnesium	7439-95-4	E440/VA	20	mg/kg		10200	10900	10300	11000	10000
Manganese	7439-96-5	E440/VA	1.0	mg/kg		743	518	738	918	750
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		22.2	16.5	22.0	26.8	18.6
Nickel	7440-02-0	E440/VA	0.50	mg/kg		134	369	123	174	112
Phosphorus	7723-14-0	E440/VA	50	mg/kg		8000	8300	9040	9490	9100
Potassium	7440-09-7	E440/VA	100	mg/kg		5940	5930	5480	5770	5490
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.42	0.46	0.50	0.47	0.36
Silver	7440-22-4	E440/VA	0.10	mg/kg		4.19	3.67	3.91	3.97	3.33
Sodium	7440-23-5	E440/VA	50	mg/kg		14900	16300	14100	16200	15000
Strontium	7440-24-6	E440/VA	0.50	mg/kg		284	288	261	305	293
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10700	10200	10500	9800	10000

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-6	BA2437-A-7	BA2437-A-8	BA2437-A-9	BA2437-A-10
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-006	VA24C4585-007	VA24C4585-008	VA24C4585-009	VA24C4585-010
						Result	Result	Result	Result	Result
Metals										
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		103	364	154	110	102
Titanium	7440-32-6	E440/VA	1.0	mg/kg		252	607	494	308	348
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		5.90	10.2	8.13	6.65	6.64
Uranium	7440-61-1	E440/VA	0.050	mg/kg		2.40	2.36	2.29	2.55	2.35
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		43.9	39.6	40.1	43.3	40.0
Zinc	7440-66-6	E440/VA	2.0	mg/kg		3540	2880	2910	4190	3000
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		4.0	1.2	1.7	2.1	3.2
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.3	12.3	12.3	12.3	12.3
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		9.05	8.56	8.56	9.14	8.79
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444/VA	0.010	pH units		8.16	7.28	7.63	8.03	8.14
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		1.89	2.16	1.96	1.92	1.91
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	0.072	<0.050	<0.050	<0.050
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1980	2070	1880	1920	1930
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		0.176	0.308	0.213	0.192	0.097
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.897	0.955	0.818	0.895	0.889
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		103	117	103	102	99.6
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	0.27	<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
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/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-6	BA2437-A-7	BA2437-A-8	BA2437-A-9	BA2437-A-10
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00	11-Sep-2024 09:00
						VA24C4585-006	VA24C4585-007	VA24C4585-008	VA24C4585-009	VA24C4585-010
						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		<0.50	3.28	0.66	<0.50	<0.50
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/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2437-A-11	BA2437-A-12	----	----	----
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	----	----	----
						VA24C4585-011	VA24C4585-012	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		24.2	26.1	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.3	12.4	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		37800	33200	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		124	136	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		42.7	36.7	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		690	623	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.35	0.36	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		8.59	8.63	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		216	211	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		9.50	9.97	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		141000	136000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		251	149	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		31.5	43.0	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		1480	1460	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		62900	64300	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		344	940	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		22.2	25.0	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		10200	10600	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		730	962	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	<0.0500	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		22.3	24.6	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		253	173	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		9340	8920	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg		5590	6210	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.56	0.44	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		4.45	5.83	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		14600	16100	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		445	301	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10300	9500	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	BA2437-A-11	BA2437-A-12	----	----	----
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C4585-011	VA24C4585-012	--------	--------	--------
						Result	Result	----	----	----
Metals										
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		181	120	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		603	295	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		10.4	25.2	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		2.63	2.39	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		80.2	43.2	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		2980	3880	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		1.5	3.1	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.3	12.3	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		8.89	8.77	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.90	2.90	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		8.19	7.95	----	----	----
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		1.88	1.98	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1880	2010	----	----	----
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		0.085	0.210	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.02	0.906	----	----	----
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		<0.25	<0.25	----	----	----
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		99.4	106	----	----	----
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		<0.25	<0.25	----	----	----
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/Solid (Matrix: Soil/Solid)					Client sample ID	BA2437-A-11	BA2437-A-12	----	----	----
					Client sampling date / time	11-Sep-2024 09:00	11-Sep-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C4585-011	VA24C4585-012	--------	--------	--------
						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		<0.50	<0.50	----	----	----
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	: **VA24C4585**	Page	: 1 of 16
Client	: **Reworld Renewable Burnaby, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
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	: 18-Sep-2024 13:55
PO	: PO#46693 Weekly Bottom Ash-Suite	Issue Date	: 28-Sep-2024 09:33
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	VA24C4585-001	BA2437-A-1	Aluminum	7429-90-5	E440	54.3 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Copper	7440-50-8	E440	134 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Molybdenum	7439-98-7	E440	61.6 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Nickel	7440-02-0	E440	53.0 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Tin	7440-31-5	E440	60.4 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Titanium	7440-32-6	E440	41.4 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Tungsten	7440-33-7	E440	37.0 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA24C4585-001	BA2437-A-1	Zinc	7440-66-6	E440	36.0 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

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 BA2437-A-1	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-10	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-11	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-12	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-2	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-3	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-4	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 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 BA2437-A-5	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-6	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-7	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-8	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2437-A-9	E510	11-Sep-2024	27-Sep-2024	28 days	16 days	✓	27-Sep-2024	28 days	16 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-1	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-10	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-11	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-12	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 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 BA2437-A-2	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-3	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-4	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-5	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-6	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-7	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-8	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2437-A-9	E440	11-Sep-2024	27-Sep-2024	180 days	16 days	✓	28-Sep-2024	180 days	17 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-1	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	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
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-10	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-11	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-12	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-2	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-3	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-4	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-5	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-6	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-7	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	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
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-8	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2437-A-9	E144	11-Sep-2024	----	----	----		26-Sep-2024	----	15 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-1	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-10	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-11	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-12	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-2	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-3	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-4	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 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 BA2437-A-5	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-6	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-7	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-8	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2437-A-9	E108	11-Sep-2024	27-Sep-2024	30 days	16 days	✓	27-Sep-2024	30 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-1	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-10	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-11	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-12	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 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*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-2	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-3	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-4	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-5	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-6	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-7	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-8	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2437-A-9	E512	24-Sep-2024	26-Sep-2024	41 days	15 days	✓	26-Sep-2024	41 days	15 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-1	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 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) BA2437-A-10	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-11	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-12	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-2	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-3	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-4	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-5	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-6	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2437-A-7	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 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)										
BA2437-A-8	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2437-A-9	E444	24-Sep-2024	26-Sep-2024	193 days	15 days	✓	27-Sep-2024	193 days	16 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS)										
BA2437-A-1	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-10	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-11	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-12	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-2	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-3	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-4	EPP444	11-Sep-2024	24-Sep-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
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS)										
BA2437-A-5	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-6	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-7	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-8	EPP444	11-Sep-2024	24-Sep-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)										
BA2437-A-9	EPP444	11-Sep-2024	24-Sep-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	1674753	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1676295	1	20	5.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1674752	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1676296	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1676298	1	12	8.3	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1676297	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	1676295	2	20	10.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1676296	2	20	10.0	10.0	✓
Moisture Content by Gravimetry	E144	1676298	1	12	8.3	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1676297	1	20	5.0	5.0	✓
Method Blanks (MB)							
Mercury by CVAAS (TCLP)	E512	1674753	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1676295	1	20	5.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1674752	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1676296	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1676298	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	1674753	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1674752	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	: **VA24C4585**	Page	: 1 of 12
Client	: Reworld Renewable Burnaby, ULC	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
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	: 18-Sep-2024 13:55
PO	: PO#46693 Weekly Bottom Ash-Suite	Date Analysis Commenced	: 24-Sep-2024
C-O-C number	: ----	Issue Date	: 28-Sep-2024 09:36
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*
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Organics, Burnaby, British Columbia
Maya Urquhart	Lab 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: 1676297)											
VA24C4585-001	BA2437-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	12.3	12.4	0.5%	5%	----
Physical Tests (QC Lot: 1676298)											
VA24C4585-001	BA2437-A-1	Moisture	----	E144	0.25	%	23.6	23.8	0.909%	20%	----
Metals (QC Lot: 1676295)											
VA24C4585-001	BA2437-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
Metals (QC Lot: 1676296)											
VA24C4585-001	BA2437-A-1	Aluminum	7429-90-5	E440	50	mg/kg	32500	56800	54.3%	40%	DUP-H
		Antimony	7440-36-0	E440	0.10	mg/kg	130	115	12.1%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	38.5	42.4	9.65%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	574	636	10.2%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.33	0.40	0.06	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	10.3	9.88	4.61%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	200	208	3.48%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	10.1	9.59	5.26%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	135000	132000	2.42%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	199	185	7.35%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	30.7	37.2	19.2%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	929	4720	134%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	55600	51800	6.96%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	310	340	9.42%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	20.6	22.4	7.92%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	10900	11700	7.40%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	778	817	4.92%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	18.4	34.8	61.6%	40%	DUP-H
		Nickel	7440-02-0	E440	0.50	mg/kg	192	111	53.0%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	9180	9380	2.22%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5820	5660	2.85%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.55	0.40	0.15	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	4.31	5.32	21.0%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	15400	16000	4.04%	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: 1676296) - continued											
VA24C4585-001	BA2437-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	303	265	13.1%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	10900	9200	16.5%	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	118	219	60.4%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	321	489	41.4%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	7.43	5.11	37.0%	30%	DUP-H
		Uranium	7440-61-1	E440	0.050	mg/kg	2.50	2.30	8.17%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	40.8	44.3	8.08%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	4620	3210	36.0%	30%	DUP-H
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.2	3.5	1.3	Diff <2x LOR	----
TCLP Metals (QC Lot: 1674752)											
VA24C4585-001	BA2437-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	1.82	1.76	0.06	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	1860	1830	1.57%	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	0.080	0.082	0.002	Diff <2x LOR	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.926	0.935	0.986%	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	94.0	94.2	0.212%	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	<0.50	<0.50	0	Diff <2x LOR	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 1674753)											
VA24C4585-001	BA2437-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	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: 1676298)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1676295)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1676296)						
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: 1676296) - 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: 1674752)						
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	----
TCLP Metals (QCLot: 1674753)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **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: 1676297)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	98.8	95.0	105	----
Physical Tests (QCLot: 1676298)									
Moisture	----	E144	0.25	%	50 %	99.0	90.0	110	----
Metals (QCLot: 1676295)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	104	80.0	120	----
Metals (QCLot: 1676296)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	104	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	103	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	109	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	95.5	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	98.8	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	105	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	99.4	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	106	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.7	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	103	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	108	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	107	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	105	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	108	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	92.1	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	103	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	97.6	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: 1676296) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	95.5	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	102	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	98.9	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	96.4	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	98.4	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	104	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	99.6	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	110	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: 1674752)										
VA24C4585-001	BA2437-A-1	Antimony, TCLP	7440-36-0	E444	4.59 mg/L	5 mg/L	91.9	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.7 mg/L	5 mg/L	94.6	50.0	140	----
		Barium, TCLP	7440-39-3	E444	11.6 mg/L	12.5 mg/L	93.3	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.229 mg/L	0.25 mg/L	91.4	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.71 mg/L	10 mg/L	87.1	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.227 mg/L	0.25 mg/L	90.8	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.17 mg/L	1.25 mg/L	93.5	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.228 mg/L	0.25 mg/L	91.3	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.15 mg/L	2.5 mg/L	86.0	50.0	140	----
		Iron, TCLP	7439-89-6	E444	227 mg/L	250 mg/L	90.8	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.06 mg/L	10 mg/L	90.6	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	252 mg/L	250 mg/L	101	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.25 mg/L	2.5 mg/L	89.9	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.66 mg/L	5 mg/L	93.1	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.060 mg/L	0.1 mg/L	60.4	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.5 mg/L	5 mg/L	90.4	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.67 mg/L	5 mg/L	93.4	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.70 mg/L	0.75 mg/L	93.0	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	8.61 mg/L	10 mg/L	86.1	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	77.3	50.0	150	----
TCLP Metals (QCLot: 1674753)										
VA24C4585-001	BA2437-A-1	Mercury, TCLP	7439-97-6	E512	0.0009 mg/L	0.001 mg/L	91.3	50.0	140	----

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: 1676295)									
QC-1676295-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	103	70.0	130	----
Metals (QCLot: 1676296)									
QC-1676296-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	105	70.0	130	----
QC-1676296-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	100	70.0	130	----
QC-1676296-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	103	70.0	130	----
QC-1676296-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	97.1	70.0	130	----
QC-1676296-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	106	70.0	130	----
QC-1676296-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	95.2	70.0	130	----
QC-1676296-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	102	70.0	130	----
QC-1676296-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	103	70.0	130	----
QC-1676296-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	104	70.0	130	----
QC-1676296-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	98.3	70.0	130	----
QC-1676296-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	98.2	70.0	130	----
QC-1676296-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	106	70.0	130	----
QC-1676296-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	95.0	70.0	130	----
QC-1676296-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	111	70.0	130	----
QC-1676296-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	105	70.0	130	----
QC-1676296-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	98.5	70.0	130	----
QC-1676296-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	101	70.0	130	----
QC-1676296-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	103	70.0	130	----
QC-1676296-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	95.9	70.0	130	----
QC-1676296-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	101	70.0	130	----
QC-1676296-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	106	60.0	140	----
QC-1676296-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	95.2	70.0	130	----
QC-1676296-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	109	70.0	130	----
QC-1676296-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	108	70.0	130	----
QC-1676296-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	84.6	50.0	150	----
QC-1676296-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	95.6	70.0	130	----
QC-1676296-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	100	40.0	160	----
QC-1676296-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	101	70.0	130	----
QC-1676296-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	98.4	70.0	130	----
QC-1676296-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	102	70.0	130	----
QC-1676296-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	99.0	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: 1676296) - continued									
QC-1676296-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	97.8	70.0	130	----
QC-1676296-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	93.9	70.0	130	----

ALS Environmental

Chain of Custody / Analytical Request Form

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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:	rminchin@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)	VA24C4585			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
1	BA2437-A-1	11-Sep-24	9:00	Soil	X	X		X	1
2	BA2437-A-2	11-Sep-24	9:00	Soil	X	X		X	1
3	BA2437-A-3	11-Sep-24	9:00	Soil	X	X		X	1
4	BA2437-A-4	11-Sep-24	9:00	Soil	X	X		X	1
5	BA2437-A-5	11-Sep-24	9:00	Soil	X	X		X	1
6	BA2437-A-6	11-Sep-24	9:00	Soil	X	X		X	1
7	BA2437-A-7	11-Sep-24	9:00	Soil	X	X		X	1
8	BA2437-A-8	11-Sep-24	9:00	Soil	X	X		X	1
9	BA2437-A-9	11-Sep-24	9:00	Soil	X	X		X	1
10	BA2437-A-10	11-Sep-24	9:00	Soil	X	X		X	1
11	BA2437-A-11	11-Sep-24	9:00	Soil	X	X		X	1
12	BA2437-A-12	11-Sep-24	9:00	Soil	X	X		X	1

Environmental Division
Vancouver
Work Order Reference
VA24C4585

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
	18-Sep-24	08e	JL	18-9-24	355	21 °C				

GENF 20.00 Front