

Bottom Ash Data

2024 Week 51

The following analytical report represents bottom ash composite results for week 51 of 2024 (December 15, 2024 to December 21, 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	: VA24D4269		
Client	: Reworld Renewable Burnaby, ULC	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Drive Burnaby British Columbia 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	: 23-Dec-2024 12:15
PO	: VANCO0000052919	Date Analysis Commenced	: 27-Dec-2024
C-O-C number	: ----	Issue Date	: 02-Jan-2025 23:01
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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	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.

Workorder Comments

Due to the adsorptive nature of VA24D4269-3 to 12 (BA2451-A-3 to 12), double the normal amounts of acids and water were required to conduct the BC SALM metals soil digestion. Test results are not adversely affected.



Analytical Results

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

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-1	BA2451-A-2	BA2451-A-3	BA2451-A-4	BA2451-A-5
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-001	VA24D4269-002	VA24D4269-003	VA24D4269-004	VA24D4269-005	
					Result	Result	Result	Result	Result	
Physical Tests										
Moisture	----	E144/VA	0.25	%	23.9	22.3	22.9	25.2	23.6	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	12.3	12.3	12.3	12.4	12.3	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	32900	56500	50900	47600	36200	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	112	124	156	143	134	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	17.9	15.5	25.8	108	18.7	
Barium	7440-39-3	E440/VA	0.50	mg/kg	567	599	857	1020	903	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.38	0.43	0.41	0.42	0.44	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	5.86	8.33	6.52	9.68	6.84	
Boron	7440-42-8	E440/VA	5.0	mg/kg	225	270	297	182	232	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	6.65	8.39	7.38	7.64	11.2	
Calcium	7440-70-2	E440/VA	50	mg/kg	134000	139000	144000	154000	134000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	214	138	150	160	294	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	58.3	27.4	59.4	62.6	50.5	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1920	4040	1720	2230	1540	
Iron	7439-89-6	E440/VA	50	mg/kg	69400	47600	80300	67300	94900	
Lead	7439-92-1	E440/VA	0.50	mg/kg	293	308	418	322	270	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	24.5	28.5	35.3	30.1	25.6	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12600	12500	13900	13100	13300	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	1100	1040	1040	879	933	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	



Analytical Results

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

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-1	BA2451-A-2	BA2451-A-3	BA2451-A-4	BA2451-A-5
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-001	VA24D4269-002	VA24D4269-003	VA24D4269-004	VA24D4269-005	
					Result	Result	Result	Result	Result	
Metals										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	19.6	14.6	17.6	15.2	21.8	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	198	112	110	234	160	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10600	9090	12800	14400	10700	
Potassium	7440-09-7	E440/VA	100	mg/kg	4880	4670	4900	5900	4990	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.33	0.27	0.41	0.44	0.37	
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.89	8.67	3.12	8.09	7.46	
Sodium	7440-23-5	E440/VA	50	mg/kg	15400	14900	16200	17000	14800	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	637	276	297	346	375	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	10900	11400	11700	12300	11000	
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	113	974	137	193	106	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	277	423	3480	3560	3310	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	3.87	2.73	5.89	6.22	5.57	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.81	1.87	1.94	2.05	1.93	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	35.8	38.0	41.1	42.0	37.3	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3950	5290	3470	3650	7780	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.1	4.0	7.4	7.2	6.4	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	12.0	12.1	12.1	12.1	12.1	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	8.86	8.87	9.02	9.02	6.59	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.93	2.93	2.93	2.93	2.93	



Analytical Results

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

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-1	BA2451-A-2	BA2451-A-3	BA2451-A-4	BA2451-A-5
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-001	VA24D4269-002	VA24D4269-003	VA24D4269-004	VA24D4269-005	
					Result	Result	Result	Result	Result	
TCLP Metals										
pH, TCLP final	----	EPP444/VA	0.010	pH units	8.08	7.16	7.28	8.05	8.02	
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	1.73	2.06	2.01	1.67	1.69	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	<0.050	0.208	<0.050	<0.050	0.187	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	1520	1840	1800	1560	1530	
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	0.119	0.675	0.328	0.084	0.157	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.607	0.663	0.663	0.585	0.578	
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	99.4	122	123	104	104	
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	
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	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-1	BA2451-A-2	BA2451-A-3	BA2451-A-4	BA2451-A-5
					Client sampling date / time	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24D4269-001	VA24D4269-002	VA24D4269-003	VA24D4269-004	VA24D4269-005
						Result	Result	Result	Result	Result
TCLP Metals										
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		<0.50	2.87	1.47	<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.

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-6	BA2451-A-7	BA2451-A-8	BA2451-A-9	BA2451-A-10
					Client sampling date / time	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24D4269-006	VA24D4269-007	VA24D4269-008	VA24D4269-009	VA24D4269-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		24.7	23.4	23.2	22.6	23.4
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		12.4	12.4	12.4	12.4	12.3
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		46800	47600	49800	41200	44600
Antimony	7440-36-0	E440/VA	0.10	mg/kg		140	132	192	125	139
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		25.1	17.8	21.9	48.1	21.8
Barium	7440-39-3	E440/VA	0.50	mg/kg		776	836	868	1020	771
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.43	0.46	0.44	0.40	0.40
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		18.1	7.52	7.76	7.03	8.85
Boron	7440-42-8	E440/VA	5.0	mg/kg		226	326	250	237	240
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		8.03	8.63	7.96	6.98	7.09
Calcium	7440-70-2	E440/VA	50	mg/kg		150000	142000	151000	139000	148000



Analytical Results

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

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-6	BA2451-A-7	BA2451-A-8	BA2451-A-9	BA2451-A-10
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-006	VA24D4269-007	VA24D4269-008	VA24D4269-009	VA24D4269-010	
					Result	Result	Result	Result	Result	
Metals										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	175	171	219	179	239	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	50.9	26.6	65.8	34.2	54.8	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1460	1230	1420	1330	1340	
Iron	7439-89-6	E440/VA	50	mg/kg	40200	51200	62300	67000	54900	
Lead	7439-92-1	E440/VA	0.50	mg/kg	497	267	661	582	273	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	28.4	27.0	32.7	29.3	26.6	
Magnesium	7439-95-4	E440/VA	20	mg/kg	13300	12600	13700	12600	12600	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	890	779	1040	726	764	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	0.0596	<0.0500	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	16.7	21.0	19.6	14.0	18.1	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	159	130	171	130	205	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11700	13100	12400	13000	11800	
Potassium	7440-09-7	E440/VA	100	mg/kg	5620	5180	5410	5340	4620	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.40	0.42	0.53	0.46	0.35	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.08	4.20	6.76	3.46	6.03	
Sodium	7440-23-5	E440/VA	50	mg/kg	16900	17300	17000	15200	14900	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	293	296	325	273	314	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	12200	10400	12800	12200	10700	
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	126	119	3120	115	99.8	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	3260	3310	3140	3160	3190	



Analytical Results

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

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-6	BA2451-A-7	BA2451-A-8	BA2451-A-9	BA2451-A-10
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-006	VA24D4269-007	VA24D4269-008	VA24D4269-009	VA24D4269-010	
					Result	Result	Result	Result	Result	
Metals										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.72	4.63	6.26	5.42	5.19	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	2.11	1.98	1.99	2.04	2.07	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	38.9	44.7	43.4	36.7	40.3	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3530	3200	3460	3440	3620	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	13.5	7.6	10.5	6.2	6.7	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	12.1	12.1	12.1	12.1	12.1	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	8.91	9.27	9.06	8.66	8.93	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.93	2.93	2.93	2.93	2.93	
pH, TCLP final	----	EPP444/VA	0.010	pH units	8.16	8.08	8.13	7.95	7.78	
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	1.69	1.70	1.68	1.69	1.76	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	1560	1590	1540	1550	1530	
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	0.051	0.055	0.149	0.089	0.138	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.586	0.622	0.586	0.565	0.549	
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-6	BA2451-A-7	BA2451-A-8	BA2451-A-9	BA2451-A-10
Client sampling date / time						18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00	18-Dec-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-006	VA24D4269-007	VA24D4269-008	VA24D4269-009	VA24D4269-010	
					Result	Result	Result	Result	Result	
TCLP Metals										
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L	101	98.7	100	101	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	<0.25	<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	
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	<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.

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-11	BA2451-A-12	----	----	----
Client sampling date / time						18-Dec-2024 09:00	18-Dec-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-011	VA24D4269-012	----	----	----	----
					Result	Result	----	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%	24.0	22.6	----	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	12.3	12.4	----	----	----	----



Analytical Results

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

					Client sample ID	BA2451-A-11	BA2451-A-12	----	----	----
					Client sampling date / time	18-Dec-2024 09:00	18-Dec-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-011	VA24D4269-012	----	----	----	----
					Result	Result	----	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	42100	52000	----	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg	130	180	----	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	22.0	20.5	----	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg	700	1160	----	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.59	0.41	----	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	6.80	8.36	----	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg	299	267	----	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.69	9.19	----	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg	139000	154000	----	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg	176	275	----	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	304	72.1	----	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg	3290	4860	----	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg	57300	51300	----	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg	331	354	----	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg	39.7	30.3	----	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg	12400	13200	----	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg	1340	1140	----	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	21.2	17.6	----	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg	166	133	----	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11400	13500	----	----	----	----



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-11	BA2451-A-12	----	----	----
					Client sampling date / time	18-Dec-2024 09:00	18-Dec-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-011	VA24D4269-012	----	----	----	----
					Result	Result	----	----	----	----
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg	5170	4990	----	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.46	0.43	----	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg	>78.3	4.13	----	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg	15500	16100	----	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg	282	358	----	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11700	12100	----	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	----	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg	136	107	----	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg	3370	3410	----	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.22	6.89	----	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.94	2.10	----	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	38.4	37.7	----	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg	4940	7220	----	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	6.7	9.3	----	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	12.1	12.0	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	9.07	8.82	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.93	2.93	----	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units	7.57	8.11	----	----	----	----
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	----	----	----	----



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2451-A-11	BA2451-A-12	----	----	----
Client sampling date / time					18-Dec-2024 09:00	18-Dec-2024 09:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24D4269-011	VA24D4269-012	----	----	----	----
					Result	Result	----	----	----	----
TCLP Metals										
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	1.83	1.64	----	----	----	----
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	1620	1520	----	----	----	----
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	0.287	0.084	----	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.613	0.604	----	----	----	----
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	113	101	----	----	----	----
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	----	----	----	----
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.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24D4269	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	: 23-Dec-2024 12:15
PO	: VANCO0000052919	Issue Date	: 02-Jan-2025 23:00
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	Anonymous	Anonymous	Copper	7440-50-8	E440	48.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Tin	7440-31-5	E440	5.4 % 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	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-1	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-10	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-11	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-12	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-2	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-3	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-4	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 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	
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-5	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-6	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-7	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-8	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2451-A-9	E510	18-Dec-2024	02-Jan-2025	28 days	15 days	✓	02-Jan-2025	28 days	0 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-1	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-10	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-11	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-12	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 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	
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-2	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-3	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-4	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-5	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-6	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-7	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-8	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2451-A-9	E440	18-Dec-2024	02-Jan-2025	180 days	15 days	✓	02-Jan-2025	180 days	15 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-1	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	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	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-10	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-11	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-12	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-2	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-3	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-4	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-5	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-6	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-7	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	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	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-8	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2451-A-9	E144	18-Dec-2024	----	----	----		31-Dec-2024	----	13 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-1	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-10	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-11	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-12	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-2	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-3	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-4	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 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	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-5	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-6	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-7	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-8	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2451-A-9	E108	18-Dec-2024	02-Jan-2025	30 days	15 days	✓	02-Jan-2025	30 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-1	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-10	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-11	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-12	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 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) BA2451-A-2	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-3	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-4	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-5	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-6	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-7	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-8	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2451-A-9	E512	27-Dec-2024	30-Dec-2024	37 days	12 days	✓	30-Dec-2024	37 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-1	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 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 : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-10	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-11	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-12	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-2	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-3	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-4	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-5	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-6	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-7	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 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 : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-8	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2451-A-9	E444	27-Dec-2024	30-Dec-2024	189 days	12 days	✓	30-Dec-2024	189 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-1	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-10	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-11	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-12	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-2	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-3	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-4	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 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) BA2451-A-5	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-6	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-7	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-8	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2451-A-9	EPP444	18-Dec-2024	27-Dec-2024	----	----		----	28 days	9 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	1824817	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1826496	1	18	5.5	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1824816	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1826497	1	18	5.5	5.0	✔
Moisture Content by Gravimetry	E144	1826499	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1826498	1	18	5.5	5.0	✔
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	1826496	2	18	11.1	10.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1826497	2	18	11.1	10.0	✔
Moisture Content by Gravimetry	E144	1826499	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1826498	1	18	5.5	5.0	✔
Method Blanks (MB)							
Mercury by CVAAS (TCLP)	E512	1824817	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1826496	1	18	5.5	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1824816	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1826497	1	18	5.5	5.0	✔
Moisture Content by Gravimetry	E144	1826499	1	12	8.3	5.0	✔
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	1824817	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1824816	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 $20 \pm 5^{\circ}\text{C}$), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at $<60^{\circ}\text{C}$) 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 HNO_3 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 HNO_3 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 $<60^{\circ}\text{C}$) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.

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 Work Order : VA24D4269
 Client : Reworld Renewable Burnaby, ULC
 Project : Weekly Bottom Ash - Suite



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
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 HNO ₃ 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	: VA24D4269	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	: 23-Dec-2024 12:15
PO	: VANCO0000052919	Date Analysis Commenced	: 27-Dec-2024
C-O-C number	: ----	Issue Date	: 02-Jan-2025 23:00
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
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	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: 1826498)											
VA24D3089-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	8.04	8.07	0.4%	5%	----
Physical Tests (QC Lot: 1826499)											
VA24D4269-001	BA2451-A-1	Moisture	----	E144	0.25	%	23.9	22.1	7.83%	20%	----
Metals (QC Lot: 1826496)											
VA24D3089-001	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	0.0746 µg/g	0.0716	0.0030	Diff <2x LOR	----
Metals (QC Lot: 1826497)											
VA24D3089-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	11300 µg/g	11600	2.66%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	2.27 µg/g	2.00	12.7%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	2.60 µg/g	2.66	1.93%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	81.8 µg/g	89.1	8.60%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.12 µg/g	0.12	0.004	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20 µg/g	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0 µg/g	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.294 µg/g	0.277	5.92%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	5070 µg/g	4870	4.04%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	22.4 µg/g	19.9	11.5%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	5.13 µg/g	5.36	4.42%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	79.2 µg/g	48.4	48.2%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	18500 µg/g	20800	11.6%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	71.7 µg/g	75.6	5.20%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	5.6 µg/g	5.5	0.1	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	4400 µg/g	4400	0.172%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	286 µg/g	295	2.81%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	1.72 µg/g	1.74	1.22%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	12.5 µg/g	13.5	7.58%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	422 µg/g	381	10.2%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	930 µg/g	920	1.31%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20 µg/g	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.13 µg/g	0.12	0.010	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	437 µg/g	462	5.76%	40%	----

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 Work Order : VA24D4269
 Client : Reworld Renewable Burnaby, ULC
 Project : Weekly Bottom Ash - Suite



Sub-Matrix: Soil/Solid

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: 1826497) - continued											
VA24D3089-001	Anonymous	Strontium	7440-24-6	E440	0.50	mg/kg	32.8 µg/g	32.6	0.581%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000 µg/g	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	8.3 µg/g	# 2.9	5.4	Diff <2x LOR	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	688 µg/g	703	2.29%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50 µg/g	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.390 µg/g	0.356	9.00%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	45.2 µg/g	51.0	12.1%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	85.8 µg/g	80.1	6.87%	30%	----
Zirconium	7440-67-7	E440	1.0	mg/kg	1.4 µg/g	1.6	0.2	Diff <2x LOR	----		
TCLP Metals (QC Lot: 1824816)											
VA24D4269-001	BA2451-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	1.73	1.69	0.04	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	1520	1520	0.176%	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	0.119	0.118	0.002	Diff <2x LOR	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.607	0.590	2.76%	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	99.4	97.8	1.55%	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: 1824817)											
VA24D4269-001	BA2451-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: 1826499)						
Moisture	---	E144	0.25	%	<0.25	---
Metals (QCLot: 1826496)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
Metals (QCLot: 1826497)						
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	---

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 Work Order : VA24D4269
 Client : Reworld Renewable Burnaby, ULC
 Project : Weekly Bottom Ash - Suite



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1826497) - 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: 1824816)						
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: 1824817)						
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: 1826498)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 1826499)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Metals (QCLot: 1826496)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	97.0	80.0	120	----
Metals (QCLot: 1826497)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	101	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	107	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	106	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	105	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	104	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	103	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	105	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	100	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	101	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	106	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	108	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	112	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	104	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	106	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	100	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	112	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	103	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	97.4	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	98.0	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	99.8	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	93.5	80.0	120	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1826497) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	102	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	106	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	98.8	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	102	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	105	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	106	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	106	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

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: 1824816)										
VA24D4269-001	BA2451-A-1	Antimony, TCLP	7440-36-0	E444	5.15 mg/L	5 mg/L	103	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.3 mg/L	5 mg/L	107	50.0	140	----
		Barium, TCLP	7440-39-3	E444	13.6 mg/L	12.5 mg/L	109	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.245 mg/L	0.25 mg/L	97.9	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.45 mg/L	10 mg/L	94.5	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.247 mg/L	0.25 mg/L	98.8	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.27 mg/L	1.25 mg/L	102	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.258 mg/L	0.25 mg/L	103	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.43 mg/L	2.5 mg/L	97.4	50.0	140	----
		Iron, TCLP	7439-89-6	E444	250 mg/L	250 mg/L	99.8	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.73 mg/L	10 mg/L	97.3	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	250 mg/L	250 mg/L	100	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.48 mg/L	2.5 mg/L	99.2	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.15 mg/L	5 mg/L	103	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.066 mg/L	0.1 mg/L	65.9	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.7 mg/L	5 mg/L	93.8	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.90 mg/L	5 mg/L	98.0	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.78 mg/L	0.75 mg/L	104	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	9.94 mg/L	10 mg/L	99.4	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.9 mg/L	1 mg/L	92.0	50.0	150	----
TCLP Metals (QCLot: 1824817)										
VA24D4269-001	BA2451-A-1	Mercury, TCLP	7439-97-6	E512	0.0009 mg/L	0.001 mg/L	94.7	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:

Sub-Matrix:					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method			Low	High	
Metals (QCLot: 1826496)									
QC-1826496-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	99.5	70.0	130	----
Metals (QCLot: 1826497)									
QC-1826497-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	102	70.0	130	----
QC-1826497-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	98.1	70.0	130	----
QC-1826497-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	98.6	70.0	130	----
QC-1826497-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	94.0	70.0	130	----
QC-1826497-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	108	70.0	130	----
QC-1826497-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	92.9	70.0	130	----
QC-1826497-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	99.8	70.0	130	----
QC-1826497-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	104	70.0	130	----
QC-1826497-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	98.7	70.0	130	----
QC-1826497-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	97.7	70.0	130	----
QC-1826497-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	99.2	70.0	130	----
QC-1826497-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	101	70.0	130	----
QC-1826497-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	96.6	70.0	130	----
QC-1826497-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	112	70.0	130	----
QC-1826497-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	104	70.0	130	----
QC-1826497-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	99.2	70.0	130	----
QC-1826497-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	100	70.0	130	----
QC-1826497-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	98.2	70.0	130	----
QC-1826497-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	98.3	70.0	130	----
QC-1826497-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	101	70.0	130	----
QC-1826497-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	106	60.0	140	----
QC-1826497-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	97.4	70.0	130	----
QC-1826497-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	106	70.0	130	----
QC-1826497-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	101	70.0	130	----
QC-1826497-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	67.7	50.0	150	----
QC-1826497-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	102	70.0	130	----
QC-1826497-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	102	40.0	160	----
QC-1826497-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	99.7	70.0	130	----
QC-1826497-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	114	70.0	130	----
QC-1826497-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	103	70.0	130	----
QC-1826497-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	98.2	70.0	130	----



Sub-Matrix:					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method			Low	High	
Metals (QCLot: 1826497) - continued									
QC-1826497-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	101	70.0	130	----
QC-1826497-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	102	70.0	130	----



Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

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COC #

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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 Skrypnik				☒ PDF ☐ Excel ☐ Digital ☐ Fax				☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT																											
Address: 5150 Riverbend Drive Burnaby BC				Email 1: nvictor@covanta.com				☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT																											
Phone: 604-521-1025 Fax: ☐ Yes ☐ No				Email 2: rminchin@covanta.com				☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT																											
				Email 3: dskrypnik@covanta.com				Analysis Request																											
				brent.kirkpatrick@metrovancover.org																															
				Sarah.Wellman@metrovancover.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:				Quote #:																															
Phone: Fax:				ALS Contact:																															
Lab Work Order # (lab use only)				Sampler:																															
Sample Identification				Date (dd-mm-yy)		Time (hh:mm)		Sample Type		MET-TCLP-VA (all metals, Hg)				MOISTURE				Chrome 6				MET-CSR-FULL-VA (all metals)				Number of Containers									
(This description will appear on the report)																																			
BA2451-A-1				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-2				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-3				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-4				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-5				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-6				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-7				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-8				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-9				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-10				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-11				18-Dec-24		9:00		Soil		X				X								X				1									
BA2451-A-12				18-Dec-24		9:00		Soil		X				X								X				1									
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-mm-yy)		Time (hh-mm)		Received by:		Date:		Time:		Temperature:		Verified by:		Date:		Time:		Observations:															
K. Cheylo		Dec 23/24		10:00		W. Wang		Dec 23		11:15		°C								Yes / No ? If Yes add SIF															
GENF 20.00 Front																																			