

## Bottom Ash Data

2024 Week 33

---

The following analytical report represents bottom ash composite results for week 33 of 2024 (August 11, 2024 to August 17, 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** : **VA24C1398**  
**Client** : **Reworld Renewable Burnaby, ULC**  
**Contact** : Nicole Victor  
**Address** : 5150 Riverbend Drive  
                   Burnaby BC Canada V3N 4V3  
**Telephone** : ----  
**Project** : Weekly Bottom Ash - Suite  
**PO** : VANCO0000052919  
**C-O-C number** : ----  
**Sampler** : ----  
**Site** : (includes 2:1 pH)  
**Quote number** : Covanta Burnaby Standing Offer 2024  
**No. of samples received** : 12  
**No. of samples analysed** : 12

**Page** : 1 of 11  
**Laboratory** : ALS Environmental - Vancouver  
**Account Manager** : Ian Chen  
**Address** : 8081 Lougheed Highway  
                   Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 21-Aug-2024 13:00  
**Date Analysis Commenced** : 23-Aug-2024  
**Issue Date** : 28-Aug-2024 16:36

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
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Owen Cheng		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).

<i>Unit</i>	<i>Description</i>
%	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					Client sample ID				
(Matrix: Soil/Solid)					BA2433-A-1	BA2433-A-2	BA2433-A-3	BA2433-A-4	BA2433-A-5
Client sampling date / time					14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-001	VA24C1398-002	VA24C1398-003	VA24C1398-004	VA24C1398-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Moisture	----	E144/VA	0.25	%	19.6	20.1	19.7	20.8	19.4
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.7	12.2	12.0	12.4	12.1
<b>Metals</b>									
Aluminum	7429-90-5	E440/VA	50	mg/kg	31600	40000	38300	43400	28300
Antimony	7440-36-0	E440/VA	0.10	mg/kg	119	92.0	143	84.5	99.8
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	31.0	26.8	31.8	27.6	25.2
Barium	7440-39-3	E440/VA	0.50	mg/kg	380	513	541	575	550
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.36	0.36	0.34	0.35	0.35
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	92.2	6.28	7.86	5.83	6.23
Boron	7440-42-8	E440/VA	5.0	mg/kg	170	175	212	156	169
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	12.1	7.63	10.8	9.10	6.48
Calcium	7440-70-2	E440/VA	50	mg/kg	123000	120000	125000	120000	121000
Chromium	7440-47-3	E440/VA	0.50	mg/kg	165	113	137	219	157
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	20.9	79.3	177	25.5	228
Copper	7440-50-8	E440/VA	0.50	mg/kg	1030	1000	2020	2420	5960
Iron	7439-89-6	E440/VA	50	mg/kg	43100	48000	61400	53700	59200
Lead	7439-92-1	E440/VA	0.50	mg/kg	462	283	5710	788	764
Lithium	7439-93-2	E440/VA	2.0	mg/kg	23.9	27.0	45.0	22.4	34.6
Magnesium	7439-95-4	E440/VA	20	mg/kg	11300	11000	11100	11200	12000
Manganese	7439-96-5	E440/VA	1.0	mg/kg	777	648	684	3840	754
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	0.259	<0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	29.6	26.5	33.4	19.8	30.0
Nickel	7440-02-0	E440/VA	0.50	mg/kg	289	74.9	274	202	170
Phosphorus	7723-14-0	E440/VA	50	mg/kg	9800	8480	8260	8910	8450
Potassium	7440-09-7	E440/VA	100	mg/kg	7140	6650	6460	5360	5890
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.48	0.31	0.32	0.24	0.27
Silver	7440-22-4	E440/VA	0.10	mg/kg	5.81	12.2	6.00	3.65	3.29
Sodium	7440-23-5	E440/VA	50	mg/kg	17400	16100	16300	14100	14600
Strontium	7440-24-6	E440/VA	0.50	mg/kg	363	274	291	313	286



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2433-A-1	BA2433-A-2	BA2433-A-3	BA2433-A-4	BA2433-A-5
(Matrix: Soil/Solid)					Client sampling date / time	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-001	VA24C1398-002	VA24C1398-003	VA24C1398-004	VA24C1398-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Sulfur	7704-34-9	E440/VA	1000	mg/kg	15500	14000	15200	11700	13300	
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	136	76.3	1960	75.0	78.5	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	244	271	453	420	320	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	9.28	5.33	11.5	5.67	7.76	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.49	1.68	1.29	1.16	1.33	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	73.7	36.6	38.6	41.3	33.6	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3440	2780	2650	3440	4810	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.9	2.2	1.3	1.4	1.0	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.8	12.0	11.9	12.0	11.9	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	6.60	6.82	7.09	6.69	6.63	
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	6.90	7.06	6.95	7.24	6.47	
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	2.41	2.40	2.36	2.53	2.20	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.103	0.151	0.074	0.064	0.109	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	1910	1930	1920	1900	1750	
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	0.799	1.20	0.741	0.412	0.870	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.946	0.776	0.774	0.773	0.733	
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	112	114	115	108	113	
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	0.26	<0.25	<0.25	<0.25	0.34	
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	



## Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2433-A-1	BA2433-A-2	BA2433-A-3	BA2433-A-4	BA2433-A-5
Client sampling date / time					14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-001	VA24C1398-002	VA24C1398-003	VA24C1398-004	VA24C1398-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L	<0.050	<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	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L	<0.20	<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	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L	16.1	4.08	9.37	2.18	22.9	
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L	<10	<10	<10	<10	<10	<10

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

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



## Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2433-A-6	BA2433-A-7	BA2433-A-8	BA2433-A-9	BA2433-A-10
Client sampling date / time					14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-006	VA24C1398-007	VA24C1398-008	VA24C1398-009	VA24C1398-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	---	E144/VA	0.25	%	21.0	20.5	21.4	20.6	20.2	
pH (1:2 soil:water)	---	E108/VA	0.10	pH units	12.2	12.1	12.0	11.9	12.0	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	39500	43900	38100	33100	39400	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	105	112	91.2	111	105	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	39.2	31.9	30.3	27.5	25.6	
Barium	7440-39-3	E440/VA	0.50	mg/kg	586	590	427	478	447	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.40	0.41	0.36	0.48	0.36	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	6.20	7.62	8.49	8.22	6.53	
Boron	7440-42-8	E440/VA	5.0	mg/kg	210	214	181	156	224	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.20	9.19	10.5	9.28	6.66	
Calcium	7440-70-2	E440/VA	50	mg/kg	128000	138000	121000	125000	122000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	142	150	121	172	111	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	127	30.1	29.4	310	63.5	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2280	1820	1030	2280	2180	
Iron	7439-89-6	E440/VA	50	mg/kg	60400	47800	43900	40600	37300	
Lead	7439-92-1	E440/VA	0.50	mg/kg	290	1410	339	287	298	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	24.8	35.3	23.5	54.9	62.0	
Magnesium	7439-95-4	E440/VA	20	mg/kg	11200	12800	10600	11200	9800	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	767	812	609	828	1050	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	0.136	<0.0500	0.0945	<0.0500	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	67.7	25.0	20.1	17.3	18.5	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	121	104	475	198	110	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	7740	9740	8730	8040	7890	
Potassium	7440-09-7	E440/VA	100	mg/kg	6440	6710	6480	6890	5900	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.29	0.33	0.35	0.41	0.29	
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.46	4.19	6.74	3.99	9.42	
Sodium	7440-23-5	E440/VA	50	mg/kg	15600	17100	15900	15800	14700	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	289	335	291	270	258	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	13000	15200	14000	15400	13100	



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2433-A-6	BA2433-A-7	BA2433-A-8	BA2433-A-9	BA2433-A-10
(Matrix: Soil/Solid)					Client sampling date / time	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-006	VA24C1398-007	VA24C1398-008	VA24C1398-009	VA24C1398-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
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	93.9	91.4	76.7	94.5	83.6	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	526	701	346	366	383	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.30	7.99	14.0	8.56	5.15	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.32	1.54	1.34	1.38	1.36	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	47.8	47.3	34.6	33.3	32.1	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	2540	3940	3930	4240	2770	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.1	1.2	1.9	1.4	1.6	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.9	11.9	11.9	11.8	12.0	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	7.12	6.37	6.86	6.72	7.03	
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	7.05	6.54	6.80	6.94	7.16	
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	2.45	2.27	2.27	2.32	2.35	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.130	0.109	0.074	0.112	<0.050	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	1930	1810	1880	1850	1880	
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	0.544	0.717	1.22	0.669	0.618	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.712	0.939	0.466	0.713	0.604	
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	113	112	117	116	113	
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	0.33	<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					Client sample ID	BA2433-A-6	BA2433-A-7	BA2433-A-8	BA2433-A-9	BA2433-A-10
(Matrix: Soil/Solid)					Client sampling date / time	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00	14-Aug-2024 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-006	VA24C1398-007	VA24C1398-008	VA24C1398-009	VA24C1398-010	
TCLP Metals					Result	Result	Result	Result	Result	
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	4.11	15.1	9.01	7.62	2.66	
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					Client sample ID				
(Matrix: Soil/Solid)					BA2433-A-11	BA2433-A-12	----	----	----
Client sampling date / time					14-Aug-2024 09:00	14-Aug-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-011	VA24C1398-012	-----	-----	-----
					Result	Result	----	----	----
<b>Physical Tests</b>									
Moisture	---	E144/VA	0.25	%	20.4	20.4	----	----	----
pH (1:2 soil:water)	---	E108/VA	0.10	pH units	12.1	12.0	----	----	----
<b>Metals</b>									
Aluminum	7429-90-5	E440/VA	50	mg/kg	36200	33300	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg	103	122	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	30.8	35.4	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg	477	432	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.35	0.48	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	7.35	9.58	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg	150	199	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.76	9.30	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg	129000	140000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg	113	138	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	76.8	165	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg	3580	1320	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg	28200	40300	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg	272	417	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg	27.4	50.3	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg	10200	11100	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg	825	845	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	49.2	32.1	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg	178	308	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg	9510	10500	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg	6800	7050	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.24	0.37	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.89	4.53	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg	17000	17400	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg	297	304	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg	14900	16500	----	----	----



### Analytical Results

Sub-Matrix: Soil					Client sample ID				
(Matrix: Soil/Solid)					BA2433-A-11	BA2433-A-12	----	----	----
Client sampling date / time					14-Aug-2024 09:00	14-Aug-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-011	VA24C1398-012	-----	-----	-----
					Result	Result	---	---	---
<b>Metals</b>									
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	---	---	---
Tin	7440-31-5	E440/VA	2.0	mg/kg	383	95.0	---	---	---
Titanium	7440-32-6	E440/VA	1.0	mg/kg	456	204	---	---	---
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	14.6	7.29	---	---	---
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.54	1.42	---	---	---
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	38.7	34.8	---	---	---
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3560	3560	---	---	---
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.3	1.7	---	---	---
<b>TCLP Metals</b>									
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.9	11.9	---	---	---
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	7.77	8.06	---	---	---
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.90	2.90	---	---	---
pH, TCLP final	----	EPP444/VA	0.010	pH units	7.14	7.41	---	---	---
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	2.35	2.38	---	---	---
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	1820	1910	---	---	---
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	0.812	0.463	---	---	---
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.706	0.640	---	---	---
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	110	111	---	---	---
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					Client sample ID		BA2433-A-11	BA2433-A-12	----	----	----
(Matrix: Soil/Solid)					Client sampling date / time		14-Aug-2024 09:00	14-Aug-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24C1398-011	VA24C1398-012	-----	-----	-----	-----	-----
TCLP Metals					Result	Result	---	---	---	---	---
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	3.43	0.93	---	---	---	---	---
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.



## QUALITY CONTROL INTERPRETIVE REPORT

<p><b>Work Order</b> : <b>VA24C1398</b></p> <p><b>Client</b> : <b>Reworld Renewable Burnaby, ULC</b></p> <p><b>Contact</b> : Nicole Victor</p> <p><b>Address</b> : 5150 Riverbend Drive Burnaby BC Canada V3N 4V3</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : Weekly Bottom Ash - Suite</p> <p><b>PO</b> : VANCO0000052919</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : (includes 2:1 pH)</p> <p><b>Quote number</b> : Covanta Burnaby Standing Offer 2024</p> <p><b>No. of samples received</b> : 12</p> <p><b>No. of samples analysed</b> : 12</p>	<p><b>Page</b> : 1 of 16</p> <p><b>Laboratory</b> : ALS Environmental - Vancouver</p> <p><b>Account Manager</b> : Ian Chen</p> <p><b>Address</b> : 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9</p> <p><b>Telephone</b> : +1 604 253 4188</p> <p><b>Date Samples Received</b> : 21-Aug-2024 13:00</p> <p><b>Issue Date</b> : 28-Aug-2024 16:19</p>
--	--

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
<b>Duplicate (DUP) RPDs</b>								
Metals	Anonymous	Anonymous	Copper	7440-50-8	E440	62.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Tin	7440-31-5	E440	6.2 % DUP-H, J	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.
J	Duplicate results and limits are expressed in terms of absolute difference.



## 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		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-1	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-10	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-11	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-12	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-2	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-3	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2433-A-4	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	





Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2433-A-5	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2433-A-6	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2433-A-7	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2433-A-8	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2433-A-9	E510	14-Aug-2024	27-Aug-2024	28 days	14 days	✔	28-Aug-2024	28 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-1	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-10	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-11	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-12	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-2	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-3	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-4	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-5	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-6	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-7	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-8	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2433-A-9	E440	14-Aug-2024	27-Aug-2024	180 days	14 days	✔	28-Aug-2024	180 days	14 days	✔	
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA2433-A-1	E144	14-Aug-2024	----	----	----		27-Aug-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	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-10	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-11	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-12	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-2	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-3	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-4	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-5	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-6	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-7	E144	14-Aug-2024	----	----	----		27-Aug-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	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-8	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2433-A-9	E144	14-Aug-2024	----	----	----		27-Aug-2024	----	13 days	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-1	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-10	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-11	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-12	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-2	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-3	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
LDPE bag BA2433-A-4	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2433-A-5	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2433-A-6	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2433-A-7	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2433-A-8	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2433-A-9	E108	14-Aug-2024	27-Aug-2024	30 days	14 days	✔	27-Aug-2024	30 days	14 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2433-A-1	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✔	27-Aug-2024	37 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2433-A-10	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✔	27-Aug-2024	37 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2433-A-11	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✔	27-Aug-2024	37 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2433-A-12	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✔	27-Aug-2024	37 days	13 days	✔	



Matrix: Soil/Solid

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-2	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-3	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-4	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-5	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-6	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-7	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-8	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2433-A-9	E512	23-Aug-2024	26-Aug-2024	37 days	12 days	✓	27-Aug-2024	37 days	13 days	✓
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA2433-A-1	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-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		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-10	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-11	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-12	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-2	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-3	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-4	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-5	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-6	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-2024	189 days	12 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-7	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✓	26-Aug-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		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-8	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✔	26-Aug-2024	189 days	12 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2433-A-9	E444	23-Aug-2024	25-Aug-2024	189 days	11 days	✔	26-Aug-2024	189 days	12 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-1	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-10	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-11	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-12	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-2	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-3	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-4	EPP444	14-Aug-2024	23-Aug-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	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-5	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-6	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-7	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-8	EPP444	14-Aug-2024	23-Aug-2024	----	----		----	28 days	9 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2433-A-9	EPP444	14-Aug-2024	23-Aug-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	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Mercury by CVAAS (TCLP)	E512	1615303	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1619267	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1615304	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1619266	1	15	6.6	5.0	✔
Moisture Content by Gravimetry	E144	1619269	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1619268	1	15	6.6	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
Mercury in Soil/Solid by CVAAS	E510	1619267	2	12	16.6	10.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1619266	2	15	13.3	10.0	✔
Moisture Content by Gravimetry	E144	1619269	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1619268	1	15	6.6	5.0	✔
<b>Method Blanks (MB)</b>							
Mercury by CVAAS (TCLP)	E512	1615303	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1619267	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1615304	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1619266	1	15	6.6	5.0	✔
Moisture Content by Gravimetry	E144	1619269	1	12	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
Mercury by CVAAS (TCLP)	E512	1615303	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1615304	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 $105^{\circ}\text{C}$ . 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 $\text{HNO}_3$ and $\text{HCl}$ .  Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, 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 $\text{HNO}_3$ and $\text{HCl}$ , 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.



<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 <sub>3</sub> 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

<b>Work Order</b>	<b>: VA24C1398</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	: Reworld Renewable Burnaby, ULC	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Nicole Victor	<b>Account Manager</b>	: Ian Chen
<b>Address</b>	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	<b>Address</b>	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 604 253 4188
<b>Project</b>	: Weekly Bottom Ash - Suite	<b>Date Samples Received</b>	: 21-Aug-2024 13:00
<b>PO</b>	: VANCO0000052919	<b>Date Analysis Commenced</b>	: 23-Aug-2024
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 28-Aug-2024 16:19
<b>Sampler</b>	: ----		
<b>Site</b>	: (includes 2:1 pH)		
<b>Quote number</b>	: Covanta Burnaby Standing Offer 2024		
<b>No. of samples received</b>	: 12		
<b>No. of samples analysed</b>	: 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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

Page : 2 of 12  
Work Order : VA24C1398  
Client : Reworld Renewable Burnaby, ULC  
Project : Weekly Bottom Ash - Suite

---



## **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
<b>Physical Tests (QC Lot: 1619268)</b>											
VA24B9857-003	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.04	7.03	0.1%	5%	----
<b>Physical Tests (QC Lot: 1619269)</b>											
VA24C1398-001	BA2433-A-1	Moisture	----	E144	0.25	%	19.6	20.7	5.47%	20%	----
<b>Metals (QC Lot: 1619266)</b>											
VA24B9857-003	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	28300	27500	2.98%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	1.47	1.14	25.2%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	6.73	6.33	6.13%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	286	334	15.4%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.51	0.55	0.04	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.30	0.31	0.003	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	8.1	8.7	0.6	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.536	0.661	20.8%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	8630	9080	5.04%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	50.1	48.3	3.63%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	17.5	14.4	19.1%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	150	78.7	62.1%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	32900	31200	5.18%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	152	227	39.2%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	17.3	18.4	6.45%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	7040	6880	2.28%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	754	837	10.4%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.79	0.80	1.59%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	34.2	33.8	1.29%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	1810	2180	18.7%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	1930	1940	0.656%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.30	0.30	0.008	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.29	0.29	0.002	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	412	310	28.0%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	77.7	93.2	18.1%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----



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
<b>Metals (QC Lot: 1619266) - continued</b>											
VA24B9857-003	Anonymous	Thallium	7440-28-0	E440	0.050	mg/kg	0.116	0.110	0.006	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	12.7	# 6.4	6.2	Diff <2x LOR	DUP-H,J
		Titanium	7440-32-6	E440	1.0	mg/kg	1240	1100	12.0%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.697	0.750	7.44%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	83.6	79.6	4.92%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	289	312	7.82%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.2	0.09	Diff <2x LOR	----
<b>Metals (QC Lot: 1619267)</b>											
VA24C1398-001	BA2433-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 1615303)</b>											
VA24C1398-001	BA2433-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 1615304)</b>											
VA24C1398-001	BA2433-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	2.41	2.38	0.04	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.103	0.102	0.001	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	1910	1860	2.41%	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	0.799	0.803	0.414%	30%	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.946	0.934	1.24%	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	112	111	1.25%	30%	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.26	0.26	0.007	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	16.1	16.1	0.155%	30%	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----		





---

## Qualifiers

<i>Qualifier</i>	<i>Description</i>
<i>DUP-H</i>	<i>Duplicate results outside ALS DQO, due to sample heterogeneity.</i>
<i>J</i>	<i>Duplicate results and limits are expressed in terms of absolute difference.</i>

---



## 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
<b>Physical Tests (QCLot: 1619269)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Metals (QCLot: 1619266)</b>						
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	---
Titanium	7440-32-6	E440	1	mg/kg	<1.0	---
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	---



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Metals (QCLot: 1619266) - continued</b>						
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	----
<b>Metals (QCLot: 1619267)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
<b>TCLP Metals (QCLot: 1615303)</b>						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
<b>TCLP Metals (QCLot: 1615304)</b>						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----



## Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1619268)</b>									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	100	95.0	105	---
<b>Physical Tests (QCLot: 1619269)</b>									
Moisture	---	E144	0.25	%	50 %	100	90.0	110	---
<b>Metals (QCLot: 1619266)</b>									
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	100	80.0	120	---
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	105	80.0	120	---
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	101	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	96.7	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	91.4	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	98.0	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	100.0	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	99.9	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	95.4	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	101	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.4	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	104	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	102	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	101	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	96.6	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	110	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	99.4	80.0	120	---
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	96.7	80.0	120	---
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	94.5	80.0	120	---
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	98.1	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	104	80.0	120	---
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	97.3	80.0	120	---
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	101	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
<b>Metals (QCLot: 1619266) - continued</b>									
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	101	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	101	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	104	80.0	120	----
<b>Metals (QCLot: 1619267)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	94.2	80.0	120	----



### Matrix Spike (MS) Report

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

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
<b>TCLP Metals (QCLot: 1615303)</b>										
VA24C1398-001	BA2433-A-1	Mercury, TCLP	7439-97-6	E512	0.0010 mg/L	0.001 mg/L	97.4	50.0	140	----
<b>TCLP Metals (QCLot: 1615304)</b>										
VA24C1398-001	BA2433-A-1	Antimony, TCLP	7440-36-0	E444	5.49 mg/L	5 mg/L	110	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.4 mg/L	5 mg/L	109	50.0	140	----
		Barium, TCLP	7440-39-3	E444	13.1 mg/L	12.5 mg/L	105	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.245 mg/L	0.25 mg/L	98.0	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.00 mg/L	10 mg/L	90.0	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.264 mg/L	0.25 mg/L	106	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	ND mg/L	----	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.46 mg/L	2.5 mg/L	98.4	50.0	140	----
		Iron, TCLP	7439-89-6	E444	249 mg/L	250 mg/L	99.5	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.74 mg/L	10 mg/L	97.4	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	264 mg/L	250 mg/L	106	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.51 mg/L	2.5 mg/L	100	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.08 mg/L	5 mg/L	102	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.080 mg/L	0.1 mg/L	80.4	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	5.0 mg/L	5 mg/L	100	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	5.26 mg/L	5 mg/L	105	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.79 mg/L	0.75 mg/L	105	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	ND mg/L	----	ND	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	1.0 mg/L	1 mg/L	99.5	50.0	150	----



## Reference Material (RM) Report

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

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
<b>Metals (QCLot: 1619266)</b>									
QC-1619266-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	114	70.0	130	----
QC-1619266-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	111	70.0	130	----
QC-1619266-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	108	70.0	130	----
QC-1619266-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	107	70.0	130	----
QC-1619266-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	114	70.0	130	----
QC-1619266-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	116	70.0	130	----
QC-1619266-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	108	70.0	130	----
QC-1619266-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	109	70.0	130	----
QC-1619266-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	107	70.0	130	----
QC-1619266-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	106	70.0	130	----
QC-1619266-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	98.9	70.0	130	----
QC-1619266-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	108	70.0	130	----
QC-1619266-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	101	70.0	130	----
QC-1619266-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	116	70.0	130	----
QC-1619266-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	108	70.0	130	----
QC-1619266-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	105	70.0	130	----
QC-1619266-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	106	70.0	130	----
QC-1619266-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	103	70.0	130	----
QC-1619266-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	109	70.0	130	----
QC-1619266-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	105	70.0	130	----
QC-1619266-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	100	60.0	140	----
QC-1619266-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	106	70.0	130	----
QC-1619266-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	114	70.0	130	----
QC-1619266-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	111	70.0	130	----
QC-1619266-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	111	50.0	150	----
QC-1619266-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	105	70.0	130	----
QC-1619266-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	107	40.0	160	----
QC-1619266-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	114	70.0	130	----
QC-1619266-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	119	70.0	130	----
QC-1619266-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	98.5	70.0	130	----
QC-1619266-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	106	70.0	130	----
QC-1619266-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	108	70.0	130	----
QC-1619266-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	118	70.0	130	----

Page : 12 of 12  
 Work Order : VA24C1398  
 Client : Reworld Renewable Burnaby, ULC  
 Project : Weekly Bottom Ash - Suite



Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
<b>Metals (QCLot: 1619267)</b>									
QC-1619267-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	105	70.0	130	----






C1398

<b>Report To</b>		<b>Report Format / Distribution</b>		<b>Service Requested</b> (Rush for routine analysis subject to availability)	
Company: Covanta Energy		<input type="checkbox"/> Standard <input type="checkbox"/> Other		<input checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days)	
Contact: Nicole Victor / Dan Skrypnik		<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax		<input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	
Address: 5150 Riverbend Drive Burnaby BC		Email 1: nvictor@covanta.com		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
Phone: 604-521-1025		Email 2: rminchin@covanta.com		<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Fax: <input type="checkbox"/> Yes <input type="checkbox"/> No		Email 3: dskrypnik@covanta.com		<b>Analysis Request</b>	
		brent.kirkpatrick@metrovancover.org			
		Sarah.Wellman@metrovancover.org			

<b>Invoice To</b> Same as Report ?		<b>Client / Project Information</b>		Please indicate below Filtered, Preserved or both (F, P, F/P)							
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input type="checkbox"/> No		Job #:		MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR-FULL-VA (all metals)				Number of Containers
Company:		PO / AFE: PO# 40503 Weekly Bottom Ash - Suite									
Contact:		LSD: (includes 2:1 pH)									
Address:		Quote #:									
Phone:		ALS Contact:		Sampler:							

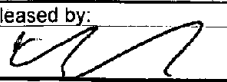

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR-FULL-VA (all metals)											Number of Containers	
BA2433-A-1	Environmental Division Vancouver Work Order Reference <b>VA24C1398</b>  Telephone : +1 604 253 4188	14-Aug-24	9:00	Soil	X	X		X											1	
BA2433-A-2		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-3		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-4		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-5		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-6		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-7		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-8		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-9		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-10		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-11		14-Aug-24	9:00	Soil	X	X		X												1
BA2433-A-12		14-Aug-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-mmm-yy): 21-Aug-24	Time (hh-mm): 08:00	Received by: 	Date: 21/8/24	Time: 1300	Temperature: 20 °C	Verified by:	Date:	Time:	Observations:	
											Yes / No ?
											If Yes add SIF

20