

## Bottom Ash Data

2023 Week 37

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The following analytical report represents bottom ash composite results for week 37 of 2023 (September 10, 2023 to September 16, 2023).

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** : **VA23C2612**  
**Client** : **Covanta Burnaby Renewable Energy, ULC**  
**Contact** : Nicole Victor  
**Address** : 5150 Riverbend Drive  
                   Burnaby BC Canada V3N 4V3  
**Telephone** : ----  
**Project** : Weekly Bottom Ash - Suite  
**PO** : VANCO0000051998  
**C-O-C number** : ----  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Standing Offer (BC work)  
**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** : 22-Sep-2023 12:20  
**Date Analysis Commenced** : 24-Sep-2023  
**Issue Date** : 03-Oct-2023 13:33

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
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Metals, Burnaby, British Columbia



## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

<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	BA2337-A-1	BA2337-A-2	BA2337-A-3	BA2337-A-4	BA2337-A-5
(Matrix: Soil/Solid)					Client sampling date / time	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-001	VA23C2612-002	VA23C2612-003	VA23C2612-004	VA23C2612-005	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	23.3	22.6	25.7	24.4	23.7	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.2	11.3	11.6	11.5	11.1	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	28800	26800	33600	31700	31000	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	114	113	110	97.6	150	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	20.2	30.0	22.8	19.5	24.5	
Barium	7440-39-3	E440/VA	0.50	mg/kg	386	307	317	380	287	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.63	0.36	0.34	0.36	0.32	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	9.11	70.0	8.22	6.75	8.55	
Boron	7440-42-8	E440/VA	5.0	mg/kg	232	239	242	246	220	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	9.33	10.1	9.45	7.50	11.0	
Calcium	7440-70-2	E440/VA	50	mg/kg	123000	127000	128000	117000	126000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	173	155	173	158	254	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	114	148	59.1	27.3	220	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2050	17900	7420	1770	4940	
Iron	7439-89-6	E440/VA	50	mg/kg	50300	51800	52400	37600	45800	
Lead	7439-92-1	E440/VA	0.50	mg/kg	399	473	2540	350	454	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	28.0	29.3	32.6	22.9	64.4	
Magnesium	7439-95-4	E440/VA	20	mg/kg	10700	11500	11800	10500	11200	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	725	790	896	620	1430	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	0.133	0.110	<0.0500	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	21.8	17.8	22.0	15.3	18.0	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	209	205	168	117	208	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11000	11900	11800	11400	11800	
Potassium	7440-09-7	E440/VA	100	mg/kg	5020	5330	5310	5240	5430	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.40	0.40	0.38	0.28	0.35	
Silver	7440-22-4	E440.Ag/VA	0.10	mg/kg	----	2.85	----	----	----	
Silver	7440-22-4	E440/VA	0.10	mg/kg	8.18	----	9.82	2.60	3.80	
Sodium	7440-23-5	E440/VA	50	mg/kg	15000	14200	15500	14800	14800	



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2337-A-1	BA2337-A-2	BA2337-A-3	BA2337-A-4	BA2337-A-5
(Matrix: Soil/Solid)					Client sampling date / time	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-001	VA23C2612-002	VA23C2612-003	VA23C2612-004	VA23C2612-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Strontium	7440-24-6	E440/VA	0.50	mg/kg	290	276	270	281	274	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	12100	12200	12200	10500	11400	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	
Tin	7440-31-5	E440/VA	2.0	mg/kg	139	141	129	73.2	440	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	242	201	182	225	209	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	4.39	5.40	4.84	4.46	4.44	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	3.72	3.92	3.94	4.72	3.88	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	42.7	44.4	43.0	46.3	42.9	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	4240	7350	5060	3620	3330	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.2	2.3	3.0	3.1	2.7	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.6	11.6	11.8	11.7	11.6	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	6.19	6.82	7.79	7.36	6.51	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.89	2.89	2.89	2.89	2.89	
pH, TCLP final	----	EPP444/VA	0.010	pH units	6.56	6.58	6.64	6.62	6.60	
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	3.82	2.33	2.35	2.48	2.52	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.094	0.092	0.090	0.094	0.122	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	2020	1980	1990	1950	2050	
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	1.34	0.624	1.80	0.953	1.72	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	1.24	1.19	1.06	1.04	0.963	
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	111	108	106	110	111	
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	0.35	0.29	0.34	0.32	0.34	



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2337-A-1	BA2337-A-2	BA2337-A-3	BA2337-A-4	BA2337-A-5
(Matrix: Soil/Solid)					Client sampling date / time	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-001	VA23C2612-002	VA23C2612-003	VA23C2612-004	VA23C2612-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L	<0.10	<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	<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	18.5	11.1	10.4	12.7	20.0	20.0
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					Client sample ID				
(Matrix: Soil/Solid)					BA2337-A-6	BA2337-A-7	BA2337-A-8	BA2337-A-9	BA2337-A-10
Client sampling date / time					13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-006	VA23C2612-007	VA23C2612-008	VA23C2612-009	VA23C2612-010
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Moisture	---	E144/VA	0.25	%	24.0	24.5	25.4	22.8	20.9
pH (1:2 soil:water)	---	E108/VA	0.10	pH units	11.1	11.4	11.4	11.4	11.7
<b>Metals</b>									
Aluminum	7429-90-5	E440/VA	50	mg/kg	38700	45000	41800	31400	29000
Antimony	7440-36-0	E440/VA	0.10	mg/kg	192	87.5	90.9	89.5	102
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	19.9	17.4	21.1	18.7	21.0
Barium	7440-39-3	E440/VA	0.50	mg/kg	394	406	375	315	319
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.31	0.33	0.31	0.35	0.30
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	6.91	6.15	6.18	7.03	7.74
Boron	7440-42-8	E440/VA	5.0	mg/kg	238	251	212	248	206
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.12	7.37	7.39	7.82	10.3
Calcium	7440-70-2	E440/VA	50	mg/kg	115000	113000	114000	119000	122000
Chromium	7440-47-3	E440/VA	0.50	mg/kg	356	146	138	192	137
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	75.4	18.2	194	77.7	40.5
Copper	7440-50-8	E440/VA	0.50	mg/kg	2050	995	2010	1500	1340
Iron	7439-89-6	E440/VA	50	mg/kg	51400	34300	44400	42300	41300
Lead	7439-92-1	E440/VA	0.50	mg/kg	470	293	348	861	392
Lithium	7439-93-2	E440/VA	2.0	mg/kg	28.2	20.8	27.1	34.2	25.8
Magnesium	7439-95-4	E440/VA	20	mg/kg	10700	10400	10000	11800	9900
Manganese	7439-96-5	E440/VA	1.0	mg/kg	669	542	652	700	912
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	0.0577	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	14.6	17.2	19.2	23.5	17.1
Nickel	7440-02-0	E440/VA	0.50	mg/kg	103	122	139	130	91.8
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10000	11200	9860	9990	10400
Potassium	7440-09-7	E440/VA	100	mg/kg	4930	5310	4980	5470	5480
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.47	0.34	0.24	0.26	0.36
Silver	7440-22-4	E440/VA	0.10	mg/kg	2.33	2.20	2.99	2.69	8.15
Sodium	7440-23-5	E440/VA	50	mg/kg	16100	17300	14600	16400	14800
Strontium	7440-24-6	E440/VA	0.50	mg/kg	273	255	250	257	258
Sulfur	7704-34-9	E440/VA	1000	mg/kg	12000	11200	11400	10600	11600



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2337-A-6	BA2337-A-7	BA2337-A-8	BA2337-A-9	BA2337-A-10
(Matrix: Soil/Solid)					Client sampling date / time	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-006	VA23C2612-007	VA23C2612-008	VA23C2612-009	VA23C2612-010	
					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	242	70.4	123	84.8	97.7	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	224	251	271	172	170	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	9.13	3.72	3.72	3.56	4.24	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	3.77	3.69	3.75	3.75	3.86	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	42.0	44.2	41.5	41.2	41.7	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	2460	2790	2620	3970	3620	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.4	3.4	3.5	3.1	2.5	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.6	11.6	11.7	11.7	11.8	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	6.67	7.30	7.60	7.48	7.60	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.89	2.89	2.89	2.89	2.89	
pH, TCLP final	----	EPP444/VA	0.010	pH units	6.63	6.59	6.58	6.66	6.55	
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	2.47	2.56	2.41	2.92	2.68	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.111	0.098	0.103	0.183	0.097	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	2140	2090	2050	2260	2100	
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	0.755	0.762	1.28	0.744	1.08	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.962	1.23	1.12	1.14	1.44	
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	0.30	<0.25	<0.25	<0.25	<0.25	
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L	112	112	114	122	115	
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	0.38	0.37	0.37	0.41	0.55	
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				
(Matrix: Soil/Solid)					BA2337-A-6	BA2337-A-7	BA2337-A-8	BA2337-A-9	BA2337-A-10
Client sampling date / time					13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00	13-Sep-2023 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-006	VA23C2612-007	VA23C2612-008	VA23C2612-009	VA23C2612-010
					Result	Result	Result	Result	Result
<b>TCLP Metals</b>									
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	12.0	14.6	15.6	11.8	17.2
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)					BA2337-A-11	BA2337-A-12	----	----	----
Client sampling date / time					13-Sep-2023 09:00	13-Sep-2023 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-011	VA23C2612-012	-----	-----	-----
					Result	Result	----	----	----
<b>Physical Tests</b>									
Moisture	---	E144/VA	0.25	%	23.9	24.6	----	----	----
pH (1:2 soil:water)	---	E108/VA	0.10	pH units	11.8	11.5	----	----	----
<b>Metals</b>									
Aluminum	7429-90-5	E440/VA	50	mg/kg	53900	44500	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg	93.2	95.3	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	22.4	22.1	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg	387	406	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.34	0.31	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	9.04	6.27	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg	176	251	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.31	7.70	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg	120000	122000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg	149	143	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	55.6	99.8	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg	1240	1960	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg	42500	32700	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg	375	458	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg	29.6	34.3	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg	9960	10900	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg	849	627	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	0.0545	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	48.8	16.3	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg	125	85.2	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg	12300	12100	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg	5590	5480	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.37	0.29	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.27	2.72	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg	15400	15700	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg	268	261	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11900	11200	----	----	----



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2337-A-11	BA2337-A-12	----	----	----
(Matrix: Soil/Solid)					Client sampling date / time	13-Sep-2023 09:00	13-Sep-2023 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-011	VA23C2612-012	-----	-----	-----	
					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	151	75.7	---	---	---	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	349	327	---	---	---	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.25	4.02	---	---	---	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	3.87	3.43	---	---	---	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	44.1	41.9	---	---	---	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3690	3300	---	---	---	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	4.1	4.1	---	---	---	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.7	11.7	---	---	---	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	7.42	7.37	---	---	---	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.89	2.89	---	---	---	
pH, TCLP final	----	EPP444/VA	0.010	pH units	6.56	6.65	---	---	---	
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	2.65	2.53	---	---	---	
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.106	0.088	---	---	---	
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	2120	2200	---	---	---	
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	1.23	1.36	---	---	---	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	1.36	1.14	---	---	---	
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	125	118	---	---	---	
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	0.52	0.31	---	---	---	
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		BA2337-A-11	BA2337-A-12	----	----	----
(Matrix: Soil/Solid)					Client sampling date / time		13-Sep-2023 09:00	13-Sep-2023 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C2612-011	VA23C2612-012	-----	-----	-----	-----	-----
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	20.3	10.9	---	---	---	---	---
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L	<10	<10	---	---	---	---	---

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

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




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## QUALITY CONTROL INTERPRETIVE REPORT

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<p><b>Work Order</b> : <b>VA23C2612</b></p> <p><b>Client</b> : <b>Covanta Burnaby Renewable Energy, 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> : VANCO0000051998</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : ----</p> <p><b>Quote number</b> : Standing Offer (BC work)</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> : 22-Sep-2023 12:20</p> <p><b>Issue Date</b> : 03-Oct-2023 13:27</p>
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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.

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### ***Workorder Comments***

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### ***Summary of Outliers***

#### ***Outliers : Quality Control Samples***

- No Method Blank value outliers occur.
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) 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	VA23C2612-001	BA2337-A-1	Beryllium	7440-41-7	E440	0.35 % <sup>DUP-H, J</sup>	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Metals	VA23C2612-001	BA2337-A-1	Cadmium	7440-43-9	E440	116 % <sup>DUP-H</sup>	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA23C2612-001	BA2337-A-1	Cobalt	7440-48-4	E440	49.6 % <sup>DUP-H</sup>	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA23C2612-001	BA2337-A-1	Copper	7440-50-8	E440	80.3 % <sup>DUP-H</sup>	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA23C2612-001	BA2337-A-1	Lead	7439-92-1	E440	108 % <sup>DUP-H</sup>	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA23C2612-001	BA2337-A-1	Silver	7440-22-4	E440	62.4 % <sup>DUP-H</sup>	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA23C2612-001	BA2337-A-1	Tin	7440-31-5	E440	70.8 % <sup>DUP-H</sup>	40%	Duplicate RPD does not meet the DQO for this test.

**Result Qualifiers**

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

Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-1158862 002	----	Calcium	7440-70-2	E440	79.5 % <sup>MES</sup>	80.0-120%	Recovery less than lower control limit
Metals	QC-MRG2-1158862 002	----	Silver	7440-22-4	E440	73.8 % <sup>MES</sup>	80.0-120%	Recovery less than lower control limit

**Result Qualifiers**

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



## 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 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 : High Silver in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA2337-A-2	E440.Ag	13-Sep-2023	03-Oct-2023	180 days	20 days	✔	03-Oct-2023	180 days	20 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-1	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-10	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-11	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-12	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-2	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA2337-A-3	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	





Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-4	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-5	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-6	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-7	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-8	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
LDPE bag BA2337-A-9	E510	13-Sep-2023	29-Sep-2023	28 days	16 days	✔	29-Sep-2023	28 days	16 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-1	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-10	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-11	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-2	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-3	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-4	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-5	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-6	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-7	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-8	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-9	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	17 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
LDPE bag BA2337-A-12	E440	13-Sep-2023	29-Sep-2023	180 days	16 days	✔	30-Sep-2023	180 days	18 days	✔	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-1	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-10	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-11	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-12	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-2	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-3	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-4	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-5	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA2337-A-6	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA2337-A-7	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA2337-A-8	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA2337-A-9	E144	13-Sep-2023	----	----	----		28-Sep-2023	----	15 days		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-1	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-10	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-11	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-12	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-2	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-3	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-4	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-5	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-6	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-7	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-8	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA2337-A-9	E108	13-Sep-2023	29-Sep-2023	30 days	16 days	✔	29-Sep-2023	30 days	16 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2337-A-1	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2337-A-10	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA2337-A-11	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-12	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-2	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-3	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-4	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-5	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-6	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-7	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-8	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA2337-A-9	E512	24-Sep-2023	27-Sep-2023	39 days	14 days	✔	27-Sep-2023	39 days	14 days	✔



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-1	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-10	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-11	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-12	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-2	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-3	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-4	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-5	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-6	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✔	28-Sep-2023	191 days	15 days	✔	



Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-7	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✓	28-Sep-2023	191 days	15 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-8	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✓	28-Sep-2023	191 days	15 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA2337-A-9	E444	24-Sep-2023	27-Sep-2023	191 days	14 days	✓	28-Sep-2023	191 days	15 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) BA2337-A-1	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-10	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-11	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-12	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-2	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-3	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 days	✓	





Matrix: Soil/Solid

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2337-A-4	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-5	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-6	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-7	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-8	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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) BA2337-A-9	EPP444	13-Sep-2023	24-Sep-2023	----	----		----	28 days	11 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 in Soil/Solid by CVAAS	E510	1158862	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1158863	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	1158865	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1158864	1	12	8.3	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	1165395	1	1	100.0	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1158862	2	12	16.6	10.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1158863	2	12	16.6	10.0	✔
Moisture Content by Gravimetry	E144	1158865	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	1158864	1	12	8.3	5.0	✔
<b>Method Blanks (MB)</b>							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	1165395	1	1	100.0	5.0	✔
Mercury by CVAAS (TCLP)	E512	1155489	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	1158862	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1155490	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	1158863	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	1158865	1	12	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
Mercury by CVAAS (TCLP)	E512	1155489	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	1155490	1	12	8.3	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 °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 <sub>3</sub> 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.
High Silver in Soil/Solid by CRC ICPMS	E440.Ag ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	Samples are 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. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. 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 <sub>3</sub> 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



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Leach 1:2 Soil:Water for pH/EC	EP108  ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
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.
Digestion for Silver	EP440.Ag  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>VA23C2612</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	: Covanta Burnaby Renewable Energy, 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>	: 22-Sep-2023 12:20
<b>PO</b>	: VANCO0000051998	<b>Date Analysis Commenced</b>	: 24-Sep-2023
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 03-Oct-2023 13:30
<b>Sampler</b>	: ----		
<b>Site</b>	: ----		
<b>Quote number</b>	: Standing Offer (BC work)		
<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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia



## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

# = Indicates a QC result that did not meet the ALS DQO.

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### 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: 1158864)</b>											
VA23C2612-001	BA2337-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	11.2	11.3	0.6%	5%	----
<b>Physical Tests (QC Lot: 1158865)</b>											
VA23C2612-001	BA2337-A-1	Moisture	----	E144	0.25	%	23.3	23.2	0.573%	20%	----
<b>Metals (QC Lot: 1158862)</b>											
VA23C2612-001	BA2337-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
<b>Metals (QC Lot: 1158863)</b>											
VA23C2612-001	BA2337-A-1	Aluminum	7429-90-5	E440	50	mg/kg	28800	26600	7.93%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	114	105	8.30%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	20.2	20.4	1.44%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	386	324	17.4%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.63	# 0.28	0.35	Diff <2x LOR	DUP-H,J
		Bismuth	7440-69-9	E440	0.20	mg/kg	9.11	9.83	7.62%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	232	227	2.21%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	9.33	35.1	116%	30%	DUP-H
		Calcium	7440-70-2	E440	50	mg/kg	123000	120000	2.91%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	173	169	1.98%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	114	68.4	49.6%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	2050	4800	80.3%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	50300	61500	20.1%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	399	1330	108%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	28.0	25.3	10.3%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	10700	10500	2.00%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	725	857	16.7%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	21.8	17.9	19.9%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	209	223	6.74%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	11000	11400	3.52%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5020	5020	0.00637%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.40	0.32	0.08	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	8.18	4.29	62.4%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	15000	14000	6.66%	40%	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Metals (QC Lot: 1158863) - continued</b>											
VA23C2612-001	BA2337-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	290	284	2.30%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	12100	11500	5.59%	30%	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	139	292	70.8%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	242	202	18.2%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	4.39	5.03	13.6%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	3.72	3.70	0.706%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	42.7	39.9	6.72%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	4240	3990	6.03%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.2	2.5	0.2	Diff <2x LOR	----

**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.





## 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: 1158865)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Metals (QCLot: 1158862)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
<b>Metals (QCLot: 1158863)</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	---



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Metals (QCLot: 1158863) - continued</b>						
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	----
<b>Metals (QCLot: 1165395)</b>						
Silver	7440-22-4	E440.Ag	0.1	mg/kg	<0.10	----
<b>TCLP Metals (QCLot: 1155489)</b>						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
<b>TCLP Metals (QCLot: 1155490)</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	Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1158864)</b>									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
<b>Physical Tests (QCLot: 1158865)</b>									
Moisture	----	E144	0.25	%	50 %	98.0	90.0	110	----
<b>Metals (QCLot: 1158862)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	89.2	80.0	120	----
<b>Metals (QCLot: 1158863)</b>									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	89.6	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	85.4	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	89.7	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	86.6	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	108	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	85.2	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	96.4	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	87.1	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	# 79.5	80.0	120	MES
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	90.4	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	86.2	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	84.2	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	93.7	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	87.9	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	120	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	95.3	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	87.3	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	85.2	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	86.4	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	102	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	88.0	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	87.8	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	# 73.8	80.0	120	MES
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	90.3	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	84.0	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	87.7	80.0	120	----



Sub-Matrix: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
<b>Metals (QCLot: 1158863) - continued</b>									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	87.3	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	84.9	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	81.7	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	82.1	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	85.7	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	86.6	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	84.1	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	83.9	80.0	120	----
<b>Metals (QCLot: 1165395)</b>									
Silver	7440-22-4	E440.Ag	0.1	mg/kg	10 mg/kg	99.0	80.0	120	----

### Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



### 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: 1155489)</b>										
VA23C2612-001	BA2337-A-1	Mercury, TCLP	7439-97-6	E512	0.0010 mg/L	0.001 mg/L	100	50.0	140	----
<b>TCLP Metals (QCLot: 1155490)</b>										
VA23C2612-001	BA2337-A-1	Antimony, TCLP	7440-36-0	E444	5.02 mg/L	5 mg/L	100	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.6 mg/L	5 mg/L	92.2	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.2 mg/L	12.5 mg/L	97.8	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.247 mg/L	0.25 mg/L	98.7	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.98 mg/L	10 mg/L	89.8	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.221 mg/L	0.25 mg/L	88.5	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	250 mg/L	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.12 mg/L	1.25 mg/L	89.8	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	ND mg/L	0.25 mg/L	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.04 mg/L	2.5 mg/L	81.8	50.0	140	----
		Iron, TCLP	7439-89-6	E444	223 mg/L	250 mg/L	89.0	50.0	140	----
		Lead, TCLP	7439-92-1	E444	10.3 mg/L	10 mg/L	103	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	239 mg/L	250 mg/L	95.4	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.21 mg/L	2.5 mg/L	88.4	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.64 mg/L	5 mg/L	92.9	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.081 mg/L	0.1 mg/L	80.8	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	5.1 mg/L	5 mg/L	102	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	5.22 mg/L	5 mg/L	104	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.69 mg/L	0.75 mg/L	92.0	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	ND mg/L	10 mg/L	ND	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	81.2	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: 1158862)</b>									
	SCP SS-2	Mercury	7439-97-6	E510	0.059 mg/kg	94.1	70.0	130	----
<b>Metals (QCLot: 1158863)</b>									
	SCP SS-2	Aluminum	7429-90-5	E440	9817 mg/kg	105	70.0	130	----
	SCP SS-2	Antimony	7440-36-0	E440	3.99 mg/kg	87.9	70.0	130	----
	SCP SS-2	Arsenic	7440-38-2	E440	3.73 mg/kg	94.2	70.0	130	----
	SCP SS-2	Barium	7440-39-3	E440	105 mg/kg	92.0	70.0	130	----
	SCP SS-2	Beryllium	7440-41-7	E440	0.349 mg/kg	98.2	70.0	130	----
	SCP SS-2	Boron	7440-42-8	E440	8.5 mg/kg	134	40.0	160	----
	SCP SS-2	Cadmium	7440-43-9	E440	0.91 mg/kg	99.6	70.0	130	----
	SCP SS-2	Calcium	7440-70-2	E440	31082 mg/kg	87.4	70.0	130	----
	SCP SS-2	Chromium	7440-47-3	E440	101 mg/kg	112	70.0	130	----
	SCP SS-2	Cobalt	7440-48-4	E440	6.9 mg/kg	95.4	70.0	130	----
	SCP SS-2	Copper	7440-50-8	E440	123 mg/kg	95.4	70.0	130	----
	SCP SS-2	Iron	7439-89-6	E440	23558 mg/kg	92.2	70.0	130	----
	SCP SS-2	Lead	7439-92-1	E440	267 mg/kg	92.5	70.0	130	----
	SCP SS-2	Lithium	7439-93-2	E440	9.5 mg/kg	98.9	70.0	130	----
	SCP SS-2	Magnesium	7439-95-4	E440	5509 mg/kg	104	70.0	130	----
	SCP SS-2	Manganese	7439-96-5	E440	269 mg/kg	101	70.0	130	----
	SCP SS-2	Molybdenum	7439-98-7	E440	1.03 mg/kg	102	70.0	130	----
	SCP SS-2	Nickel	7440-02-0	E440	26.7 mg/kg	97.6	70.0	130	----
	SCP SS-2	Phosphorus	7723-14-0	E440	752 mg/kg	95.7	70.0	130	----
	SCP SS-2	Potassium	7440-09-7	E440	1587 mg/kg	110	70.0	130	----
	SCP SS-2	Sodium	7440-23-5	E440	797 mg/kg	102	70.0	130	----
	SCP SS-2	Strontium	7440-24-6	E440	86.1 mg/kg	94.0	70.0	130	----
	SCP SS-2	Thallium	7440-28-0	E440	0.0786 mg/kg	94.1	40.0	160	----
	SCP SS-2	Tin	7440-31-5	E440	10.6 mg/kg	89.8	70.0	130	----
	SCP SS-2	Titanium	7440-32-6	E440	839 mg/kg	106	70.0	130	----



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: 1158863) - continued</b>									
	SCP SS-2	Uranium	7440-61-1	E440	0.52 mg/kg	93.8	70.0	130	----
	SCP SS-2	Vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	SCP SS-2	Zinc	7440-66-6	E440	297 mg/kg	87.6	70.0	130	----
	SCP SS-2	Zirconium	7440-67-7	E440	5.73 mg/kg	93.5	70.0	130	----





ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC #

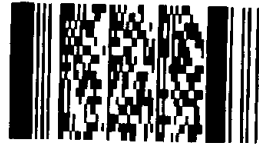
Page of

<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	
Address:	5150 Riverbend Drive	Email 1:	nvictor@covanta.com		<input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	
	Burnaby BC	Email 2:	ofetherstonhaugh@covanta.com		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
Phone:	604-521-1025	Fax:	ds krypnik@covanta.com		<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
	<input type="checkbox"/> Yes <input type="checkbox"/> No		brent.kirkpatrick@metrovancover.org		<b>Analysis Request</b>	
			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 #:					
Company:		PO / AFE: PO# 46693 Weekly Bottom Ash - Suite					
Contact:		LSD: (includes 2:1 pH)					
Address:		Quote #:					
Phone:		Fax:					

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)	Number of Containers
1	BA2337-A-1	13-Sep-23	9:00	Soil	X	X		X	1
2	BA2337-A-2	13-Sep-23	9:00	Soil	X	X		X	1
3	BA2337-A-3	13-Sep-23	9:00	Soil	X	X		X	1
4	BA2337-A-4	13-Sep-23	9:00	Soil	X	X		X	1
5	BA2337-A-5	13-Sep-23	9:00	Soil	X	X		X	1
6	BA2337-A-6	13-Sep-23	9:00	Soil	X	X		X	1
7	BA2337-A-7	13-Sep-23	9:00	Soil	X	X		X	1
8	BA2337-A-8	13-Sep-23	9:00	Soil	X	X		X	1
9	BA2337-A-9	13-Sep-23	9:00	Soil	X	X		X	1
10	BA2337-A-10	13-Sep-23	9:00	Soil	X	X		X	1
11	BA2337-A-11	13-Sep-23	9:00	Soil	X	X		X	1
12	BA2337-A-12	13-Sep-23	9:00	Soil	X	X		X	1

Environmental Division  
Vancouver  
Work Order Reference  
**VA23C2612**



Telephone : +1 604 253 4188

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

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

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

<b>SHIPMENT RELEASE</b> (client use)		<b>SHIPMENT RECEPTION</b> (lab use only)				<b>SHIPMENT VERIFICATION</b> (lab use only)				
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	22-Sep-23	0800				°C	HG	9/22	1200	

GENF 20.00 Front

20°C