

Bottom Ash Data

2021 Week 7

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on March 4, 2021. The data represents bottom ash composite results for week 7 of 2021 (February 7, 2021 to February 13, 2021).

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



CERTIFICATE OF ANALYSIS

Work Order : **VA21A2728**
Client : **Covanta Burnaby Renewable Energy, ULC**
Contact : Steve McKinney
Address : 5150 Riverbend Drive
Burnaby BC Canada V3N 4V3
Telephone : 604 521 1025
Project : Weekly Bottom Ash-Suite
PO : VANCO 0000050390
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Standing Offer (BC work)
No. of samples received : 16
No. of samples analysed : 16

Page : 1 of 11
Laboratory : Vancouver - Environmental
Account Manager : Brent Mack
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : 778-370-3279
Date Samples Received : 16-Feb-2021 09:56
Date Analysis Commenced : 22-Feb-2021
Issue Date : 03-Mar-2021 15:05

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>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Ann Ho	Laboratory Analyst	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	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 in reports identified as "Preliminary Report" are considered authorized for use.



Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2107-A-1	BA2107-A-2	BA2107-A-3	BA2107-A-4	BA2107-A-5
(Matrix: Soil/Solid)					Client sampling date / time	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-001	VA21A2728-002	VA21A2728-003	VA21A2728-004	VA21A2728-005	
					Result	Result	Result	Result	Result	
Physical Tests										
moisture	----	E144	0.25	%	24.2	23.7	24.2	22.9	23.9	
pH (1:2 soil:water)	----	E108	0.10	pH units	11.7	11.6	11.6	11.6	11.6	
Metals										
aluminum	7429-90-5	E440	50	mg/kg	30100	36700	33800	58400	36200	
antimony	7440-36-0	E440	0.10	mg/kg	115	139	148	138	112	
arsenic	7440-38-2	E440	0.10	mg/kg	20.4	27.8	27.2	21.4	20.7	
barium	7440-39-3	E440	0.50	mg/kg	576	547	579	542	573	
beryllium	7440-41-7	E440	0.10	mg/kg	0.34	0.34	0.39	0.31	0.37	
bismuth	7440-69-9	E440	0.20	mg/kg	5.79	6.32	9.72	6.99	10.4	
boron	7440-42-8	E440	5.0	mg/kg	196	188	169	187	153	
cadmium	7440-43-9	E440	0.020	mg/kg	9.47	13.8	12.1	10.7	12.4	
calcium	7440-70-2	E440	50	mg/kg	129000	141000	146000	141000	132000	
chromium	7440-47-3	E440	0.50	mg/kg	135	132	189	174	156	
cobalt	7440-48-4	E440	0.10	mg/kg	162	31.8	146	136	99.1	
copper	7440-50-8	E440	0.50	mg/kg	2490	2370	8590	4310	21400	
iron	7439-89-6	E440	50	mg/kg	71300	50500	85700	67400	77400	
lead	7439-92-1	E440	0.50	mg/kg	452	2560	1950	442	525	
lithium	7439-93-2	E440	2.0	mg/kg	19.8	22.3	22.4	23.4	34.6	
magnesium	7439-95-4	E440	20	mg/kg	11400	12000	12200	12100	12400	
manganese	7439-96-5	E440	1.0	mg/kg	753	811	1290	1030	1020	
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
molybdenum	7439-98-7	E440	0.10	mg/kg	15.8	22.7	22.0	20.6	18.3	
nickel	7440-02-0	E440	0.50	mg/kg	131	182	618	130	267	
phosphorus	7723-14-0	E440	50	mg/kg	11300	12100	13000	12700	10800	
potassium	7440-09-7	E440	100	mg/kg	3970	4250	4570	4150	3950	
selenium	7782-49-2	E440	0.20	mg/kg	0.43	0.42	0.43	0.37	0.40	
silver	7440-22-4	E440.Ag	0.10	mg/kg	----	----	----	----	9.29	
silver	7440-22-4	E440	0.10	mg/kg	6.72	4.70	4.59	24.1	----	
sodium	7440-23-5	E440	50	mg/kg	14600	14400	15300	14200	13100	
strontium	7440-24-6	E440	0.50	mg/kg	317	324	347	440	521	



Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2107-A-1	BA2107-A-2	BA2107-A-3	BA2107-A-4	BA2107-A-5
(Matrix: Soil/Solid)										
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-001	VA21A2728-002	VA21A2728-003	VA21A2728-004	VA21A2728-005	
					Result	Result	Result	Result	Result	
Metals										
sulfur	7704-34-9	E440	1000	mg/kg	10900	12800	13100	12200	11600	
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	0.057	
tin	7440-31-5	E440	2.0	mg/kg	124	118	4630	131	289	
titanium	7440-32-6	E440	1.0	mg/kg	584	668	470	873	830	
tungsten	7440-33-7	E440	0.50	mg/kg	11.3	11.3	13.0	12.9	15.5	
uranium	7440-61-1	E440	0.050	mg/kg	2.35	2.55	2.66	2.37	2.25	
vanadium	7440-62-2	E440	0.20	mg/kg	26.2	33.4	41.4	30.1	27.2	
zinc	7440-66-6	E440	2.0	mg/kg	4850	4300	6110	4600	12900	
zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.7	1.8	3.5	1.5	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.7	11.8	11.8	11.8	11.9	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	6.78	7.94	9.20	8.66	8.77	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.84	2.84	2.84	2.84	2.84	
pH, TCLP final	----	EPP444	0.010	pH units	6.29	6.04	6.25	6.06	6.20	
antimony, TCLP	7440-36-0	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5	
beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	
boron, TCLP	7440-42-8	E444	0.50	mg/L	1.82	1.80	1.97	1.90	1.86	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.121	1.69	0.126	0.133	0.118	
calcium, TCLP	7440-70-2	E444	10	mg/L	2040	2090	2090	2050	1990	
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	1.28	0.734	1.07	0.645	0.751	
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.499	0.452	0.510	0.197	0.487	
iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	
lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	
magnesium, TCLP	7439-95-4	E444	2.5	mg/L	143	158	143	148	148	
mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.42	0.58	0.55	0.57	0.46	
selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	
silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-1	BA2107-A-2	BA2107-A-3	BA2107-A-4	BA2107-A-5
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-001	VA21A2728-002	VA21A2728-003	VA21A2728-004	VA21A2728-005	
					Result	Result	Result	Result	Result	
TCLP Metals										
thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
zinc, TCLP	7440-66-6	E444	0.50	mg/L	27.6	43.9	31.5	40.6	30.0	

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



Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2107-A-6	BA2107-A-7	BA2107-A-8	BA2107-A-9	BA2107-A-10
(Matrix: Soil/Solid)					Client sampling date / time	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-006	VA21A2728-007	VA21A2728-008	VA21A2728-009	VA21A2728-010	
					Result	Result	Result	Result	Result	
Physical Tests										
moisture	----	E144	0.25	%	23.6	22.9	24.1	21.9	20.0	
pH (1:2 soil:water)	----	E108	0.10	pH units	11.4	11.5	11.5	11.4	11.7	
Metals										
aluminum	7429-90-5	E440	50	mg/kg	29400	37200	35500	30600	29400	
antimony	7440-36-0	E440	0.10	mg/kg	149	124	136	133	146	
arsenic	7440-38-2	E440	0.10	mg/kg	23.5	24.2	28.5	27.1	25.5	
barium	7440-39-3	E440	0.50	mg/kg	462	570	569	453	426	
beryllium	7440-41-7	E440	0.10	mg/kg	0.34	0.35	0.61	0.36	0.40	
bismuth	7440-69-9	E440	0.20	mg/kg	8.53	6.73	7.37	7.30	7.38	
boron	7440-42-8	E440	5.0	mg/kg	155	183	178	180	184	
cadmium	7440-43-9	E440	0.020	mg/kg	12.5	10.2	357	11.3	12.8	
calcium	7440-70-2	E440	50	mg/kg	138000	136000	140000	144000	145000	
chromium	7440-47-3	E440	0.50	mg/kg	168	223	158	171	161	
cobalt	7440-48-4	E440	0.10	mg/kg	180	221	80.3	105	58.9	
copper	7440-50-8	E440	0.50	mg/kg	3540	7880	29500	4920	3670	
iron	7439-89-6	E440	50	mg/kg	65800	81000	60300	79200	67500	
lead	7439-92-1	E440	0.50	mg/kg	510	652	610	472	726	
lithium	7439-93-2	E440	2.0	mg/kg	35.3	40.8	22.7	24.0	24.0	
magnesium	7439-95-4	E440	20	mg/kg	12100	11600	12800	11900	11200	
manganese	7439-96-5	E440	1.0	mg/kg	834	1040	957	2140	954	
mercury	7439-97-6	E510	0.0500	mg/kg	0.123	<0.0500	<0.0500	<0.0500	<0.0500	
molybdenum	7439-98-7	E440	0.10	mg/kg	23.1	22.3	22.6	38.6	21.5	
nickel	7440-02-0	E440	0.50	mg/kg	382	490	369	482	114	
phosphorus	7723-14-0	E440	50	mg/kg	10900	10700	10700	13000	12000	
potassium	7440-09-7	E440	100	mg/kg	4120	4240	4100	4670	4250	
selenium	7782-49-2	E440	0.20	mg/kg	0.44	0.38	0.47	0.44	0.37	
silver	7440-22-4	E440.Ag	0.10	mg/kg	----	----	12.4	----	----	
silver	7440-22-4	E440	0.10	mg/kg	11.6	5.51	----	19.0	5.37	
sodium	7440-23-5	E440	50	mg/kg	12800	13400	13500	14400	14300	
strontium	7440-24-6	E440	0.50	mg/kg	348	328	316	327	346	
sulfur	7704-34-9	E440	1000	mg/kg	12800	12200	12800	14200	12600	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-6	BA2107-A-7	BA2107-A-8	BA2107-A-9	BA2107-A-10
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-006	VA21A2728-007	VA21A2728-008	VA21A2728-009	VA21A2728-010	
					Result	Result	Result	Result	Result	
Metals										
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	
tin	7440-31-5	E440	2.0	mg/kg	183	128	1560	133	386	
titanium	7440-32-6	E440	1.0	mg/kg	412	644	587	369	311	
tungsten	7440-33-7	E440	0.50	mg/kg	12.0	18.7	17.2	12.1	11.6	
uranium	7440-61-1	E440	0.050	mg/kg	2.49	2.55	2.46	2.71	2.88	
vanadium	7440-62-2	E440	0.20	mg/kg	29.3	31.6	29.6	31.1	30.0	
zinc	7440-66-6	E440	2.0	mg/kg	4140	3880	3820	5010	3710	
zirconium	7440-67-7	E440	1.0	mg/kg	1.4	1.4	1.4	1.6	1.8	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.8	11.9	11.9	11.9	12.0	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.71	8.97	8.53	8.93	8.71	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.84	2.84	2.84	2.84	2.84	
pH, TCLP final	----	EPP444	0.010	pH units	6.18	5.96	6.05	6.04	5.97	
antimony, TCLP	7440-36-0	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5	
beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	
boron, TCLP	7440-42-8	E444	0.50	mg/L	1.90	1.87	1.92	1.86	1.86	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.137	0.192	0.245	0.269	0.229	
calcium, TCLP	7440-70-2	E444	10	mg/L	2060	1990	1980	2080	1970	
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.585	1.18	1.19	0.900	0.794	
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.570	1.07	0.527	1.13	0.321	
iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	
lead, TCLP	7439-92-1	E444	0.25	mg/L	0.48	<0.25	0.78	<0.25	<0.25	
magnesium, TCLP	7439-95-4	E444	2.5	mg/L	157	149	161	147	144	
mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.47	0.50	0.51	0.63	0.78	
selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	
silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-6	BA2107-A-7	BA2107-A-8	BA2107-A-9	BA2107-A-10
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-006	VA21A2728-007	VA21A2728-008	VA21A2728-009	VA21A2728-010	
					Result	Result	Result	Result	Result	
TCLP Metals										
vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
zinc, TCLP	7440-66-6	E444	0.50	mg/L	34.5	43.4	41.3	31.5	51.0	

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



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-11	BA2107-A-12	BA2107-A-2 Rep1	BA2107-A-2 Rep2	BA2107-A-2 Rep3
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-011	VA21A2728-012	VA21A2728-013	VA21A2728-014	VA21A2728-015	
					Result	Result	Result	Result	Result	
Physical Tests										
moisture	---	E144	0.25	%	22.1	21.6	---	---	---	
pH (1:2 soil:water)	---	E108	0.10	pH units	11.5	11.5	---	---	---	
Metals										
aluminum	7429-90-5	E440	50	mg/kg	39800	33400	---	---	---	
antimony	7440-36-0	E440	0.10	mg/kg	120	122	---	---	---	
arsenic	7440-38-2	E440	0.10	mg/kg	22.2	22.3	---	---	---	
barium	7440-39-3	E440	0.50	mg/kg	479	463	---	---	---	
beryllium	7440-41-7	E440	0.10	mg/kg	19.1	0.34	---	---	---	
bismuth	7440-69-9	E440	0.20	mg/kg	6.68	9.30	---	---	---	
boron	7440-42-8	E440	5.0	mg/kg	165	182	---	---	---	
cadmium	7440-43-9	E440	0.020	mg/kg	12.9	14.2	---	---	---	
calcium	7440-70-2	E440	50	mg/kg	134000	141000	---	---	---	
chromium	7440-47-3	E440	0.50	mg/kg	160	171	---	---	---	
cobalt	7440-48-4	E440	0.10	mg/kg	61.5	32.2	---	---	---	
copper	7440-50-8	E440	0.50	mg/kg	3450	6220	---	---	---	
iron	7439-89-6	E440	50	mg/kg	61500	60900	---	---	---	
lead	7439-92-1	E440	0.50	mg/kg	523	1210	---	---	---	
lithium	7439-93-2	E440	2.0	mg/kg	21.8	19.4	---	---	---	
magnesium	7439-95-4	E440	20	mg/kg	11000	13100	---	---	---	
manganese	7439-96-5	E440	1.0	mg/kg	983	848	---	---	---	
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	0.0522	---	---	---	
molybdenum	7439-98-7	E440	0.10	mg/kg	17.1	19.6	---	---	---	
nickel	7440-02-0	E440	0.50	mg/kg	138	129	---	---	---	
phosphorus	7723-14-0	E440	50	mg/kg	10100	13000	---	---	---	
potassium	7440-09-7	E440	100	mg/kg	4250	4310	---	---	---	
selenium	7782-49-2	E440	0.20	mg/kg	0.35	0.46	---	---	---	
silver	7440-22-4	E440	0.10	mg/kg	5.81	6.48	---	---	---	
sodium	7440-23-5	E440	50	mg/kg	13900	13900	---	---	---	
strontium	7440-24-6	E440	0.50	mg/kg	368	325	---	---	---	
sulfur	7704-34-9	E440	1000	mg/kg	12500	12700	---	---	---	
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	---	---	---	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-11	BA2107-A-12	BA2107-A-2 Rep1	BA2107-A-2 Rep2	BA2107-A-2 Rep3
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-011	VA21A2728-012	VA21A2728-013	VA21A2728-014	VA21A2728-015	
					Result	Result	Result	Result	Result	
Metals										
tin	7440-31-5	E440	2.0	mg/kg	119	211	----	----	----	
titanium	7440-32-6	E440	1.0	mg/kg	460	410	----	----	----	
tungsten	7440-33-7	E440	0.50	mg/kg	8.77	11.2	----	----	----	
uranium	7440-61-1	E440	0.050	mg/kg	2.51	2.63	----	----	----	
vanadium	7440-62-2	E440	0.20	mg/kg	30.4	29.4	----	----	----	
zinc	7440-66-6	E440	2.0	mg/kg	3510	5140	----	----	----	
zirconium	7440-67-7	E440	1.0	mg/kg	2.3	1.9	----	----	----	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.9	11.9	11.8	11.8	11.8	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.54	9.33	7.94	7.94	7.94	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.84	2.84	2.85	2.85	2.85	
pH, TCLP final	----	EPP444	0.010	pH units	6.06	6.01	6.85	6.40	6.47	
antimony, TCLP	7440-36-0	E444	1.0	mg/L	<1.0	<1.0	----	----	----	
arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	----	----	----	
barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	----	----	----	
beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	----	----	----	
boron, TCLP	7440-42-8	E444	0.50	mg/L	1.83	2.22	----	----	----	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.140	0.148	0.094	0.195	0.160	
calcium, TCLP	7440-70-2	E444	10	mg/L	2010	2040	----	----	----	
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	----	----	----	
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	1.26	1.03	----	----	----	
copper, TCLP	7440-50-8	E444	0.050	mg/L	1.04	0.699	----	----	----	
iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	----	----	----	
lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	----	----	----	
magnesium, TCLP	7439-95-4	E444	2.5	mg/L	143	159	----	----	----	
mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	----	----	----	
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.52	0.70	----	----	----	
selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	----	----	----	
silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	----	----	----	
thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	----	----	----	
vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	----	----	----	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-11	BA2107-A-12	BA2107-A-2 Rep1	BA2107-A-2 Rep2	BA2107-A-2 Rep3
Client sampling date / time					10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	10-Feb-2021 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-011	VA21A2728-012	VA21A2728-013	VA21A2728-014	VA21A2728-015	
TCLP Metals					Result	Result	Result	Result	Result	
zinc, TCLP	7440-66-6	E444	0.50	mg/L	39.1	37.6	----	----	----	

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

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2107-A-2 Rep4	----	----	----	----
Client sampling date / time					10-Feb-2021 09:00	----	----	----	----	
Analyte	CAS Number	Method	LOR	Unit	VA21A2728-016	-----	-----	-----	-----	
TCLP Metals					Result	----	----	----	----	
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.8	----	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	7.94	----	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.85	----	----	----	----	
pH, TCLP final	----	EPP444	0.010	pH units	6.50	----	----	----	----	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.139	----	----	----	----	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA21A2728	Page	: 1 of 17
Client	: Covanta Burnaby Renewable Energy, ULC	Laboratory	: Vancouver - Environmental
Contact	: Steve McKinney	Account Manager	: Brent Mack
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 521 1025	Telephone	: 778-370-3279
Project	: Weekly Bottom Ash-Suite	Date Samples Received	: 16-Feb-2021 09:56
PO	: VANCO 0000050390	Issue Date	: 03-Mar-2021 15:05
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 16		
No. of samples analysed	: 16		

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 Services number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

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
Duplicate (DUP) RPDs								
Metals	VA21A2728-001	BA2107-A-1	bismuth	7440-69-9	E440	55.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA21A2728-001	BA2107-A-1	cobalt	7440-48-4	E440	108 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

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

Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-1539900 02	----	magnesium	7439-95-4	E440	123 % MES	80.0-120%	Recovery greater than upper 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 15:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 15:00 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		
Metals : High Silver in Soil/Solid by CRC ICPMS											
LDPE bag BA2107-A-5	E440.Ag	10-Feb-2021	23-Feb-2021	180 days	13 days	✓	24-Feb-2021	166 days	0 days	✓	
Metals : High Silver in Soil/Solid by CRC ICPMS											
LDPE bag BA2107-A-8	E440.Ag	10-Feb-2021	23-Feb-2021	180 days	13 days	✓	24-Feb-2021	166 days	0 days	✓	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-1	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✓	23-Feb-2021	14 days	0 days	✓	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-10	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✓	23-Feb-2021	14 days	0 days	✓	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-11	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✓	23-Feb-2021	14 days	0 days	✓	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-12	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✓	23-Feb-2021	14 days	0 days	✓	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-2	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✓	23-Feb-2021	14 days	0 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		
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-3	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-4	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-5	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-6	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-7	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-8	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA2107-A-9	E510	10-Feb-2021	23-Feb-2021	28 days	13 days	✔	23-Feb-2021	14 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA2107-A-1	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA2107-A-10	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 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		
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-11	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-12	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-2	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-3	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-4	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-5	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-6	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-7	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Metals : Metals in Soil/Solid by CRC ICPCS											
LDPE bag BA2107-A-8	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 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		
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA2107-A-9	E440	10-Feb-2021	23-Feb-2021	180 days	13 days	✔	23-Feb-2021	166 days	0 days	✔	
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-1	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-10	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-11	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-12	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-2	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-3	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-4	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-5	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		



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		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-6	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-7	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-8	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA2107-A-9	E144	10-Feb-2021	----	----	----		22-Feb-2021	----	----		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-1	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-10	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-11	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-12	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-2	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 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		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-3	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-4	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-5	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-6	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-7	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-8	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA2107-A-9	E108	10-Feb-2021	23-Feb-2021	30 days	13 days	✔	23-Feb-2021	16 days	0 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-1	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-10	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 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		
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-11	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-12	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-2	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-3	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-4	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-5	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-6	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-7	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-8	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 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		
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA2107-A-9	E512	22-Feb-2021	----	----	----		23-Feb-2021	40 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-1	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-10	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-11	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-12	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-2	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-3	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-4	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA2107-A-5	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 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 Rec Actual		Eval	Analysis Date	Holding Times Rec Actual		Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-6	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-7	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-8	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-9	E444	22-Feb-2021	----	----	----		23-Feb-2021	192 days	13 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-2 Rep1	E444	25-Feb-2021	----	----	----		26-Feb-2021	195 days	16 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-2 Rep2	E444	25-Feb-2021	----	----	----		26-Feb-2021	195 days	16 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-2 Rep3	E444	25-Feb-2021	----	----	----		26-Feb-2021	195 days	16 days	✔
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2107-A-2 Rep4	E444	25-Feb-2021	----	----	----		26-Feb-2021	195 days	16 days	✔
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-1	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	



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	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-10	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-11	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-12	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-2	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-2 Rep1	EPP444	10-Feb-2021	25-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-2 Rep2	EPP444	10-Feb-2021	25-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-2 Rep3	EPP444	10-Feb-2021	25-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-2 Rep4	EPP444	10-Feb-2021	25-Feb-2021	----	----		----	----	----	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-3	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----	



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		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-4	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-5	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-6	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-7	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-8	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2107-A-9	EPP444	10-Feb-2021	22-Feb-2021	----	----		----	----	----		

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 (%)		Evaluation
			QC	Regular	Actual	Expected	
Analytical Methods							
Laboratory Duplicates (DUP)							
Mercury in Soil/Solid by CVAAS	E510	153991	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	153990	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	153993	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	153992	1	12	8.3	5.0	✔
Laboratory Control Samples (LCS)							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	154599	1	2	50.0	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	153991	2	12	16.6	10.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	153990	2	12	16.6	10.0	✔
Moisture Content by Gravimetry	E144	153993	1	12	8.3	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	153992	1	12	8.3	5.0	✔
Method Blanks (MB)							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	154599	1	2	50.0	5.0	✔
Mercury by CVAAS (TCLP)	E512	154374	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	153991	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	155938	2	16	12.5	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	153990	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	153993	1	12	8.3	5.0	✔
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	154374	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	155938	2	16	12.5	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	Soil/Solid	EPA 6020B (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available. 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.
High Silver in Soil/Solid by CRC ICPMS	E440.Ag Vancouver - Environmental	Soil/Solid	EPA 6020B (mod)	Samples are sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available. 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 Vancouver - Environmental	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 Vancouver - Environmental	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl, followed by CVAAS analysis.
Mercury by CVAAS (TCLP)	E512 Vancouver - Environmental	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 Vancouver - Environmental	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.



<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 Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available.
Digestion for Silver	EP440.Ag Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 Vancouver - Environmental	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.

QUALITY CONTROL REPORT

Work Order	: VA21A2728	Page	: 1 of 13
Client	: Covanta Burnaby Renewable Energy, ULC	Laboratory	: Vancouver - Environmental
Contact	: Steve McKinney	Account Manager	: Brent Mack
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 521 1025	Telephone	: 778-370-3279
Project	: Weekly Bottom Ash-Suite	Date Samples Received	: 16-Feb-2021 09:56
PO	: VANCO 0000050390	Date Analysis Commenced	: 22-Feb-2021
C-O-C number	: ----	Issue Date	: 03-Mar-2021 15:05
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 16		
No. of samples analysed	: 16		

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 Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

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>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Ann Ho	Laboratory Analyst	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia

Page : 2 of 13
Work Order : VA21A2728
Client : Covanta Burnaby Renewable Energy, 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 Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

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



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: Soil/Solid

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 153992)											
VA21A2728-001	BA2107-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	11.7	11.7	0.684%	5%	----
Physical Tests (QC Lot: 153993)											
VA21A2728-001	BA2107-A-1	moisture	----	E144	0.25	%	24.2	23.1	4.69%	20%	----
Metals (QC Lot: 153990)											
VA21A2728-001	BA2107-A-1	aluminum	7429-90-5	E440	50	mg/kg	30100	33600	11.1%	40%	----
		antimony	7440-36-0	E440	0.10	mg/kg	115	126	9.94%	30%	----
		arsenic	7440-38-2	E440	0.10	mg/kg	20.4	20.2	0.540%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	576	544	5.78%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.34	0.37	0.03	Diff <2x LOR	----
		bismuth	7440-69-9	E440	0.20	mg/kg	5.79	10.2	55.2%	30%	DUP-H
		boron	7440-42-8	E440	5.0	mg/kg	196	194	0.743%	30%	----
		cadmium	7440-43-9	E440	0.020	mg/kg	9.47	12.3	25.8%	30%	----
		calcium	7440-70-2	E440	50	mg/kg	129000	137000	5.45%	30%	----
		chromium	7440-47-3	E440	0.50	mg/kg	135	170	23.0%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	162	48.6	108%	30%	DUP-H
		copper	7440-50-8	E440	0.50	mg/kg	2490	2500	0.328%	30%	----
		iron	7439-89-6	E440	50	mg/kg	71300	71200	0.167%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	452	500	10.0%	40%	----
		lithium	7439-93-2	E440	2.0	mg/kg	19.8	19.4	2.04%	30%	----
		magnesium	7439-95-4	E440	20	mg/kg	11400	11700	2.41%	30%	----
		manganese	7439-96-5	E440	1.0	mg/kg	753	909	18.8%	30%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	15.8	19.0	18.3%	40%	----
		nickel	7440-02-0	E440	0.50	mg/kg	131	144	9.70%	30%	----
		phosphorus	7723-14-0	E440	50	mg/kg	11300	10400	8.58%	30%	----
		potassium	7440-09-7	E440	100	mg/kg	3970	3920	1.15%	40%	----
		selenium	7782-49-2	E440	0.20	mg/kg	0.43	0.42	0.01	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	6.72	5.70	16.5%	40%	----
		sodium	7440-23-5	E440	50	mg/kg	14600	13100	10.9%	40%	----
		strontium	7440-24-6	E440	0.50	mg/kg	317	397	22.3%	40%	----
		sulfur	7704-34-9	E440	1000	mg/kg	10900	12000	9.94%	30%	----
		thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	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
Metals (QC Lot: 153990) - continued											
VA21A2728-001	BA2107-A-1	tin	7440-31-5	E440	2.0	mg/kg	124	137	10.0%	40%	----
		titanium	7440-32-6	E440	1.0	mg/kg	584	537	8.44%	40%	----
		tungsten	7440-33-7	E440	0.50	mg/kg	11.3	14.4	24.4%	30%	----
		uranium	7440-61-1	E440	0.050	mg/kg	2.35	2.58	9.28%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	26.2	29.1	10.7%	30%	----
		zinc	7440-66-6	E440	2.0	mg/kg	4850	3880	22.2%	30%	----
		zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.5	0.2	Diff <2x LOR	----
Metals (QC Lot: 153991)											
VA21A2728-001	BA2107-A-1	mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----

Qualifiers

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



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 153993)						
moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 153990)						
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	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 153990) - continued						
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	---
Metals (QCLot: 153991)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
Metals (QCLot: 154599)						
silver	7440-22-4	E440.Ag	0.1	mg/kg	<0.10	---
TCLP Metals (QCLot: 154374)						
mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	---
TCLP Metals (QCLot: 154398)						
antimony, TCLP	7440-36-0	E444	1	mg/L	<1.0	---
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	---
vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	---
zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	---
TCLP Metals (QCLot: 155938)						
antimony, TCLP	7440-36-0	E444	1	mg/L	<1.0	---
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	---



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Metals (QCLot: 155938) - continued						
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	----
vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----



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				
Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Physical Tests (QCLot: 153992)									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	100	95.0	105	---
Physical Tests (QCLot: 153993)									
moisture	---	E144	0.25	%	50 %	99.6	90.0	110	---
Metals (QCLot: 153990)									
aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	110	80.0	120	---
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	105	80.0	120	---
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	110	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	98.8	80.0	120	---
bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	107	80.0	120	---
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	87.1	80.0	120	---
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	---
calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	102	80.0	120	---
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	110	80.0	120	---
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	109	80.0	120	---
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	---
iron	7439-89-6	E440	50	mg/kg	100 mg/kg	107	80.0	120	---
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	108	80.0	120	---
lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	97.6	80.0	120	---
magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	# 123	80.0	120	MES
manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	112	80.0	120	---
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	105	80.0	120	---
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	108	80.0	120	---
phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	119	80.0	120	---
potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	114	80.0	120	---
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	104	80.0	120	---
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	106	80.0	120	---
sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	110	80.0	120	---
strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	115	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	108	80.0	120	---
tin	7440-31-5	E440	2	mg/kg	50 mg/kg	100	80.0	120	---
titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	108	80.0	120	---



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Metals (QCLot: 153990) - continued									
tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	104	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	113	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	112	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	104	80.0	120	----
zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	108	80.0	120	----
Metals (QCLot: 153991)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	91.6	80.0	120	----
Metals (QCLot: 154599)									
silver	7440-22-4	E440.Ag	0.1	mg/kg	10 mg/kg	108	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
TCLP Metals (QCLot: 154374)										
VA21A2728-001	BA2107-A-1	mercury, TCLP	7439-97-6	E512	0.0011 mg/L	0.001 mg/L	106	50.0	140	----
TCLP Metals (QCLot: 154398)										
VA21A2728-001	BA2107-A-1	antimony, TCLP	7440-36-0	E444	4.9 mg/L	5 mg/L	98.0	50.0	140	----
		arsenic, TCLP	7440-38-2	E444	4.9 mg/L	5 mg/L	98.8	50.0	140	----
		barium, TCLP	7440-39-3	E444	11.9 mg/L	12.5 mg/L	95.5	50.0	140	----
		beryllium, TCLP	7440-41-7	E444	0.237 mg/L	0.25 mg/L	94.7	50.0	140	----
		boron, TCLP	7440-42-8	E444	8.41 mg/L	10 mg/L	84.1	50.0	140	----
		cadmium, TCLP	7440-43-9	E444	0.233 mg/L	0.25 mg/L	93.3	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	1.22 mg/L	1.25 mg/L	97.3	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	2.09 mg/L	2.5 mg/L	83.6	50.0	140	----
		iron, TCLP	7439-89-6	E444	234 mg/L	250 mg/L	93.8	50.0	140	----
		lead, TCLP	7439-92-1	E444	9.80 mg/L	10 mg/L	98.0	50.0	140	----
		magnesium, TCLP	7439-95-4	E444	253 mg/L	250 mg/L	101	50.0	140	----
		nickel, TCLP	7440-02-0	E444	2.38 mg/L	2.5 mg/L	95.2	50.0	140	----
		selenium, TCLP	7782-49-2	E444	4.85 mg/L	5 mg/L	97.1	50.0	140	----
		silver, TCLP	7440-22-4	E444	0.114 mg/L	0.1 mg/L	114	50.0	140	----
		thallium, TCLP	7440-28-0	E444	4.8 mg/L	5 mg/L	96.2	50.0	140	----
		vanadium, TCLP	7440-62-2	E444	0.74 mg/L	0.75 mg/L	98.1	50.0	140	----
		zinc, TCLP	7440-66-6	E444	ND mg/L	10 mg/L	ND	50.0	140	----
TCLP Metals (QCLot: 155938)										
VA21A2728-013	BA2107-A-2 Rep1	antimony, TCLP	7440-36-0	E444	5.0 mg/L	5 mg/L	99.6	50.0	140	----
		arsenic, TCLP	7440-38-2	E444	4.8 mg/L	5 mg/L	96.1	50.0	140	----
		barium, TCLP	7440-39-3	E444	12.2 mg/L	12.5 mg/L	97.6	50.0	140	----
		beryllium, TCLP	7440-41-7	E444	0.230 mg/L	0.25 mg/L	91.8	50.0	140	----
		boron, TCLP	7440-42-8	E444	8.94 mg/L	10 mg/L	89.4	50.0	140	----
		cadmium, TCLP	7440-43-9	E444	0.243 mg/L	0.25 mg/L	97.3	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	1.20 mg/L	1.25 mg/L	96.0	50.0	140	----
		cobalt, TCLP	7440-48-4	E444	ND mg/L	0.25 mg/L	ND	50.0	140	----

Page : 11 of 13
 Work Order : VA21A2728
 Client : Covanta Burnaby Renewable Energy, ULC
 Project : Weekly Bottom Ash-Suite



Sub-Matrix: **Soil/Solid**

					<i>Matrix Spike (MS) Report</i>					
					<i>Spike</i>		<i>Recovery (%)</i>	<i>Recovery Limits (%)</i>		
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>Concentration</i>	<i>Target</i>	<i>MS</i>	<i>Low</i>	<i>High</i>	<i>Qualifier</i>
TCLP Metals (QCLot: 155938) - continued										
VA21A2728-013	BA2107-A-2 Rep1	copper, TCLP	7440-50-8	E444	2.24 mg/L	2.5 mg/L	89.7	50.0	140	----
		iron, TCLP	7439-89-6	E444	236 mg/L	250 mg/L	94.2	50.0	140	----
		lead, TCLP	7439-92-1	E444	9.62 mg/L	10 mg/L	96.2	50.0	140	----
		magnesium, TCLP	7439-95-4	E444	238 mg/L	250 mg/L	95.2	50.0	140	----
		nickel, TCLP	7440-02-0	E444	2.33 mg/L	2.5 mg/L	93.1	50.0	140	----
		selenium, TCLP	7782-49-2	E444	4.82 mg/L	5 mg/L	96.5	50.0	140	----
		silver, TCLP	7440-22-4	E444	0.116 mg/L	0.1 mg/L	116	50.0	140	----
		thallium, TCLP	7440-28-0	E444	4.6 mg/L	5 mg/L	92.3	50.0	140	----
		vanadium, TCLP	7440-62-2	E444	0.72 mg/L	0.75 mg/L	96.6	50.0	140	----
		zinc, TCLP	7440-66-6	E444	8.64 mg/L	10 mg/L	86.4	50.0	140	----



Reference Material (RM) Report

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

Sub-Matrix: **Soil/Solid**

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Metals (QCLot: 153990)									
QC-153990-003	SCP SS-2	aluminum	7429-90-5	E440	9817 mg/kg	106	70.0	130	----
QC-153990-003	SCP SS-2	antimony	7440-36-0	E440	3.99 mg/kg	99.2	70.0	130	----
QC-153990-003	SCP SS-2	arsenic	7440-38-2	E440	3.73 mg/kg	105	70.0	130	----
QC-153990-003	SCP SS-2	barium	7440-39-3	E440	105 mg/kg	94.3	70.0	130	----
QC-153990-003	SCP SS-2	beryllium	7440-41-7	E440	0.349 mg/kg	97.3	70.0	130	----
QC-153990-003	SCP SS-2	boron	7440-42-8	E440	8.5 mg/kg	104	40.0	160	----
QC-153990-003	SCP SS-2	cadmium	7440-43-9	E440	0.91 mg/kg	92.7	70.0	130	----
QC-153990-003	SCP SS-2	calcium	7440-70-2	E440	31082 mg/kg	108	70.0	130	----
QC-153990-003	SCP SS-2	chromium	7440-47-3	E440	101 mg/kg	106	70.0	130	----
QC-153990-003	SCP SS-2	cobalt	7440-48-4	E440	6.9 mg/kg	99.2	70.0	130	----
QC-153990-003	SCP SS-2	copper	7440-50-8	E440	123 mg/kg	94.3	70.0	130	----
QC-153990-003	SCP SS-2	iron	7439-89-6	E440	23558 mg/kg	100	70.0	130	----
QC-153990-003	SCP SS-2	lead	7439-92-1	E440	267 mg/kg	106	70.0	130	----
QC-153990-003	SCP SS-2	lithium	7439-93-2	E440	9.5 mg/kg	103	70.0	130	----
QC-153990-003	SCP SS-2	magnesium	7439-95-4	E440	5509 mg/kg	107	70.0	130	----
QC-153990-003	SCP SS-2	manganese	7439-96-5	E440	269 mg/kg	107	70.0	130	----
QC-153990-003	SCP SS-2	molybdenum	7439-98-7	E440	1.03 mg/kg	100	70.0	130	----
QC-153990-003	SCP SS-2	nickel	7440-02-0	E440	26.7 mg/kg	99.3	70.0	130	----
QC-153990-003	SCP SS-2	phosphorus	7723-14-0	E440	752 mg/kg	101	70.0	130	----
QC-153990-003	SCP SS-2	potassium	7440-09-7	E440	1587 mg/kg	109	70.0	130	----
QC-153990-003	SCP SS-2	sodium	7440-23-5	E440	797 mg/kg	103	70.0	130	----
QC-153990-003	SCP SS-2	strontium	7440-24-6	E440	86.1 mg/kg	106	70.0	130	----
QC-153990-003	SCP SS-2	thallium	7440-28-0	E440	0.0786 mg/kg	92.0	40.0	160	----
QC-153990-003	SCP SS-2	tin	7440-31-5	E440	10.6 mg/kg	92.2	70.0	130	----
QC-153990-003	SCP SS-2	titanium	7440-32-6	E440	839 mg/kg	112	70.0	130	----
QC-153990-003	SCP SS-2	uranium	7440-61-1	E440	0.52 mg/kg	108	70.0	130	----
QC-153990-003	SCP SS-2	vanadium	7440-62-2	E440	32.7 mg/kg	105	70.0	130	----
QC-153990-003	SCP SS-2	zinc	7440-66-6	E440	297 mg/kg	97.9	70.0	130	----
QC-153990-003	SCP SS-2	zirconium	7440-67-7	E440	5.73 mg/kg	95.7	70.0	130	----

Page : 13 of 13
 Work Order : VA21A2728
 Client : Covanta Burnaby Renewable Energy, ULC
 Project : Weekly Bottom Ash-Suite



Sub-Matrix: **Soil/Solid**

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Metals (QCLot: 153991)									
QC-153991-003	SCP SS-2	mercury	7439-97-6	E510	0.059 mg/kg	94.7	70.0	130	----



ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC #

Page of

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)		
Company:	Covanta Energy	<input type="checkbox"/> Standard	<input type="checkbox"/> Other	<input checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days)		
Contact:	Steve Mckinney / 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:	smckinney@covanta.com		<input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	
	Burnaby BC	Email 2:	rjohnson4@covanta.com		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
Phone:	604-521-1025	Email 3:	dskrypnik@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		Analysis Request	
			Sarah.Weilman@metrovancover.org			

Invoice To Same as Report ?		Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)	
Hardcopy of Invoice with Report?	<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:					

Lab Work Order # (lab use only)	ALS Contact:	Sampler:	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
BA2107-A-1			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-2			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-3			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-4			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-5			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-6			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-7			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-8			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-9			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-10			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-11			10-Feb-21	9:00	Soil	X	X		X	1
BA2107-A-12			10-Feb-21	9:00	Soil	X	X		X	1

Environmental Division
Vancouver
Work Order Reference
VA21A2728



Telephone : +1 604 253 4188

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

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

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

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

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			SHIPMENT VERIFICATION (lab use only)				
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
<i>[Signature]</i>	16-Feb-21	0900				21 °C	<i>[Signature]</i>	Feb. 16/21	9:56am	

240

note

GENF 20.00 Front