metrovancouver

Bottom Ash Data

2023 Week 26

The following analytical report represents bottom ash composite results for week 26 of 2023 (June 25, 2023 to July 1, 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	: **VA23B5274**	Page	: 1 of 8
Amendment	: **1**		
Client	: **Covanta Burnaby Renewable Energy, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 05-Jul-2023 13:00
PO	: VANCO0000051998	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: ----	Issue Date	: 17-Jul-2023 15:33
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - 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).

Unit	*Description*
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (17/07/2023): This report has been amended and re-released to allow the reporting of additional analytical data.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: BA2326-A-01-Unprocessed	BA2326-A-02-Unprocessed	BA2326-A-03-Unprocessed	BA2326-A-04-Unprocessed	BA2326-A-05-Unprocessed
Client sampling date / time					28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00
					VA23B5274-001	VA23B5274-002	VA23B5274-003	VA23B5274-004	VA23B5274-005
					Result	Result	Result	Result	Result
Physical Tests									
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.0	11.0	10.6	11.2	11.0
TCLP Metals									
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.6	11.6	11.5	11.5	11.6
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	6.55	6.13	6.15	6.43	6.24
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444/VA	0.010	pH units	5.56	5.54	5.67	5.67	5.83
Antimony, TCLP	7440-36-0	E444/VA	0.10	mg/L	0.15	0.15	0.21	0.23	0.18
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L	1.65	1.79	1.94	1.84	2.02
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L	0.150	0.173	0.152	0.167	0.156
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L	1960	1990	2060	2100	2180
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	0.881	1.02	1.03	3.58	1.52
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.673	0.990	1.96	1.91	0.798
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L	6.2	5.5	7.5	<5.0	<5.0
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L	<0.25	1.38	0.32	0.48	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L	113	116	122	124	135
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	0.68	0.78	0.64	0.61	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
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	45.1	54.4	46.0	69.6	33.8
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L	<10	<10	<10	<10	<10

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2326-A-06-U nprocessed	BA2326-A-07-U nprocessed	BA2326-A-08-U nprocessed	BA2326-A-09-U nprocessed	BA2326-A-10-U nprocessed
					Client sampling date / time	28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00	28-Jun-2023 09:00
						VA23B5274-006	VA23B5274-007	VA23B5274-008	VA23B5274-009	VA23B5274-010
						Result	Result	Result	Result	Result
Physical Tests										
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		10.9	10.8	10.9	11.0	11.1
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.5	11.6	11.5	11.6	11.6
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		5.47	6.35	6.72	7.00	5.85
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444/VA	0.010	pH units		5.37	5.92	6.05	5.93	5.80
Antimony, TCLP	7440-36-0	E444/VA	0.10	mg/L		0.14	0.26	0.18	0.18	0.17
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		1.87	2.00	2.26	1.92	2.02
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.153	0.171	0.200	0.152	0.485
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1890	2150	2240	2120	2170
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		1.22	1.44	1.35	1.84	1.28
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.27	1.03	1.04	0.812	1.76
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	0.92	0.39	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		116	127	136	128	128
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		0.78	0.61	0.54	0.64	0.56
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		55.0	60.0	36.5	37.8	57.2
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/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2326-A-11-Unprocessed	BA2326-A-12-Unprocessed	----	----	----
					Client sampling date / time	28-Jun-2023 09:00	28-Jun-2023 09:00	----	----	----
						VA23B5274-011	VA23B5274-012	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.0	11.2	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.6	11.7	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.48	6.67	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.90	2.90	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.19	6.23	----	----	----
Antimony, TCLP	7440-36-0	E444/VA	0.10	mg/L		0.22	0.20	----	----	----
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		2.05	2.01	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.209	0.158	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		2270	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		1.24	1.21	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.00	0.779	----	----	----
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		130	131	----	----	----
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		0.61	0.59	----	----	----
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	----	----	----
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	----	----	----
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	----	----	----
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		39.9	27.9	----	----	----
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.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B5274**	Page	: 1 of 10
Amendment	: **1**		
Client	: **Covanta Burnaby Renewable Energy, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 05-Jul-2023 13:00
PO	: VANCO0000051998	Issue Date	: 17-Jul-2023 15:25
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- 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.

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-01-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-02-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-03-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-04-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-05-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-06-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2326-A-07-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag										
BA2326-A-08-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag										
BA2326-A-09-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag										
BA2326-A-10-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag										
BA2326-A-11-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag										
BA2326-A-12-Unprocessed	E108	28-Jun-2023	12-Jul-2023	30 days	14 days	✓	12-Jul-2023	16 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-01-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-02-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-03-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-04-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-05-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-06-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-07-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-08-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-09-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-10-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-11-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-12-Unprocessed	E512	12-Jul-2023	17-Jul-2023	42 days	19 days	✓	17-Jul-2023	23 days	0 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-01-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 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	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-02-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-03-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-04-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-05-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-06-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-07-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-08-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-09-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2326-A-10-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 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	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2326-A-11-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2326-A-12-Unprocessed	E444	12-Jul-2023	14-Jul-2023	194 days	16 days	✓	14-Jul-2023	179 days	1 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-01-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-02-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-03-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-04-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-05-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-06-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-07-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-08-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-09-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-10-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-11-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 180 Day HT (e.g. metals ex. Hg) BA2326-A-12-Unprocessed	EPP444	28-Jun-2023	12-Jul-2023	----	----		----	180 days	14 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter (1:2 Soil:Water Extraction)	E108	1032209	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	1032209	1	17	5.8	5.0	✓
Method Blanks (MB)							
Mercury by CVAAS (TCLP)	E512	1042038	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1038037	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	1042038	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1038037	1	12	8.3	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
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 by CVAAS (TCLP)	E512 ALS Environmental - Vancouver	Soil/Solid	SW 846 -1311/245.1 CVAA ON TCLP LEACHATE	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 ALS Environmental - Vancouver	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.

QUALITY CONTROL REPORT

Work Order	: **VA23B5274**	Page	: 1 of 5
Amendment	: **1**		
Client	: Covanta Burnaby Renewable Energy, ULC	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Ian Chen
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 05-Jul-2023 13:00
PO	: VANCO0000051998	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: ----	Issue Date	: 17-Jul-2023 15:25
Sampler	: ---- ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1032209)											
VA23B4691-021	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.95	7.78	2.2%	5%	----

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
TCLP Metals (QCLot: 1038037)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----
TCLP Metals (QCLot: 1042038)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1032209)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	99.8	95.0	105	----

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: 1038037)										
VA23B5274-001	BA2326-A-01-Unprocessed	Antimony, TCLP	7440-36-0	E444	4.42 mg/L	5 mg/L	88.3	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.5 mg/L	5 mg/L	90.6	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.4 mg/L	12.5 mg/L	99.1	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.227 mg/L	0.25 mg/L	90.8	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.15 mg/L	10 mg/L	91.5	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.225 mg/L	0.25 mg/L	90.1	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	1.13 mg/L	1.25 mg/L	90.3	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	2.13 mg/L	2.5 mg/L	85.2	50.0	140	----
		Iron, TCLP	7439-89-6	E444	229 mg/L	250 mg/L	91.5	50.0	140	----
		Lead, TCLP	7439-92-1	E444	8.63 mg/L	10 mg/L	86.3	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	260 mg/L	250 mg/L	104	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.21 mg/L	2.5 mg/L	88.3	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.79 mg/L	5 mg/L	95.7	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.097 mg/L	0.1 mg/L	96.9	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.2 mg/L	5 mg/L	85.0	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.35 mg/L	5 mg/L	87.0	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.69 mg/L	0.75 mg/L	91.9	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	8 mg/L	10 mg/L	80.0	50.0	150	----
TCLP Metals (QCLot: 1042038)										
VA23B5274-001	BA2326-A-01-Unprocessed	Mercury, TCLP	7439-97-6	E512	0.0010 mg/L	0.001 mg/L	101	50.0	140	----

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			☐ Standard ☐ Other				◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Nicole Victor / Dan Skrypnyk			☑ PDF	☐ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5150 Riverbend Drive			Email 1:				○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Burnaby BC			Email 2:	dskrypnyk@covanta.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-521-1025	Fax:		Email 3:	sarah.wellman@metrovancouver.org			Analysis Request
		☐ Yes	☐ No		brent.kirkpatrick@metrovancouver.org			
					nvictor@covanta.com			
Invoice To	Same as Report ?			**Client / Project Information**				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☐ Yes	☐ No	Job #:				
Company:				PO / AFE:	Weekly Bottom Ash - Suite			
Contact:				LSD:	(includes 2:1 pH)			
Address:								
Phone:		Fax:		Quote #:				
Lab Work Order # (lab use only)				ALS Contact:		Sampler:		

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CD-TCLP-VA(Cd and pH steps)	Number of Containers
	BA2326-A-01-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-02-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-03-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-04-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-05-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-06-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-07-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-08-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-09-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-10-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-11-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-12-Unprocessed	28-Jun-23	9:00	Soil	X	1

Environmental Division
Vancouver
Work Order Reference
VA23B5274

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~~

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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
	5-Jul-23	08a		5 July	1pm	21 °C				

GENF 20.00 Front

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			☐ Standard ☐ Other				◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Nicole Victor / Dan Skrypnyk			☑ PDF	☐ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5150 Riverbend Drive			Email 1:				○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Burnaby BC			Email 2:	dskrypnyk@covanta.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-521-1025	Fax:		Email 3:	sarah.wellman@metrovancouver.org			Analysis Request
		☐ Yes	☐ No		brent.kirkpatrick@metrovancouver.org			
					nvictor@covanta.com			
Invoice To	Same as Report ?			Client / Project Information				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☐ Yes	☐ No	Job #:				
Company:				PO / AFE:	Weekly Bottom Ash - Suite			
Contact:				LSD:	(includes 2:1 pH)			
Address:								
Phone:		Fax:		Quote #:				
Lab Work Order # (lab use only)				ALS Contact:		Sampler:		

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CD-TCLP-VA(Cd and pH steps)	Number of Containers
	BA2326-A-01-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-02-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-03-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-04-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-05-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-06-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-07-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-08-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-09-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-10-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-11-Unprocessed	28-Jun-23	9:00	Soil	X	1
	BA2326-A-12-Unprocessed	28-Jun-23	9:00	Soil	X	1

Environmental Division
Vancouver
Work Order Reference
VA23B5274

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