metrovancouver

Bottom Ash Data

2025 Week 43

The following analytical report represents bottom ash composite results for week 43 of 2025 (October 19, 2025 to October 25, 2025).

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	:	**VA25C8927**			
Client	:	**Veolia Environmental Services Canada**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Brian Graham	Account Manager	:	Gulraj Dhanaua
Address	:	5150 Riverbend Dr. Burnaby British Columbia Canada V3N 4V3	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Gulraj.Dhanaua@alsglobal.com
Project	:	Veolia Weekly Bottom Ash-Suite	Telephone	:	+1 604 253 4188
PO	:	1000497676	Date Samples Received	:	29-Oct-2025 12:25
C-O-C number	:	----	Date Analysis Commenced	:	31-Oct-2025
Sampler	:	----	Issue Date	:	06-Nov-2025 07:28
Site	:	Metro Van Ash Sampling Program			
Quote number	:	VA25-VISI100-001			
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*
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Robert Nguyen	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units

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

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-1 ----	BA 2543-A-2 ----	BA 2543-A-3 ----	BA 2543-A-4 ----	BA 2543-A-5 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-001	VA25C8927-002	VA25C8927-003	VA25C8927-004	VA25C8927-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		22.3	19.6	20.4	20.5	18.6
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		10.12	10.22	10.13	10.10	10.07
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		51400	36300	46800	42300	44900
Antimony	7440-36-0	E440/VA	0.10	mg/kg		108	114	106	124	252
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		9.48	11.4	10.2	11.0	20.5
Barium	7440-39-3	E440/VA	0.50	mg/kg		639	605	543	507	530
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.36	0.36	0.34	0.35	0.37
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		7.82	9.30	8.79	11.2	10.5
Boron	7440-42-8	E440/VA	5.0	mg/kg		184	237	165	144	161
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		7.80	25.4	7.62	11.8	8.74
Calcium	7440-70-2	E440/VA	50	mg/kg		130000	142000	135000	132000	134000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		282	198	193	239	135
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		102	160	72.6	120	81.2
Copper	7440-50-8	E440/VA	0.50	mg/kg		5160	3610	6740	9970	2320
Iron	7439-89-6	E440/VA	50	mg/kg		62500	56600	68300	64800	53200
Lead	7439-92-1	E440/VA	0.50	mg/kg		342	467	779	2020	5800
Lithium	7439-93-2	E440/VA	2.0	mg/kg		33.6	38.3	33.0	32.2	38.0
Magnesium	7439-95-4	E440/VA	20	mg/kg		12900	13500	11900	12500	12900
Manganese	7439-96-5	E440/VA	1.0	mg/kg		1100	1190	868	886	1280
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	0.0534	0.0533	<0.0500	0.0646

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: BA 2543-A-1 ----	BA 2543-A-2 ----	BA 2543-A-3 ----	BA 2543-A-4 ----	BA 2543-A-5 ----
					Client sampling date / time: 27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
					VA25C8927-001	VA25C8927-002	VA25C8927-003	VA25C8927-004	VA25C8927-005
					Result	Result	Result	Result	Result
Metals									
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	21.0	23.8	24.0	71.4	19.7
Nickel	7440-02-0	E440/VA	0.50	mg/kg	348	480	257	501	204
Phosphorus	7723-14-0	E440/VA	50	mg/kg	13800	13400	12200	12200	13000
Potassium	7440-09-7	E440/VA	100	mg/kg	6660	6600	6320	6300	6900
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.40	0.41	0.56	0.45	0.42
Silver	7440-22-4	E440/VA	0.10	mg/kg	11.3	12.0	4.75	11.1	5.39
Sodium	7440-23-5	E440/VA	50	mg/kg	18000	17200	16600	16200	18100
Strontium	7440-24-6	E440/VA	0.50	mg/kg	343	428	392	322	308
Sulfur	7704-34-9	E440/VA	1000	mg/kg	12200	13000	12200	12000	12700
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg	158	281	170	212	104
Titanium	7440-32-6	E440/VA	1.0	mg/kg	449	326	295	382	389
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	10.3	14.5	10.7	11.1	11.8
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.48	1.53	1.54	1.51	1.55
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	27.2	33.7	29.3	29.6	28.5
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3640	4460	4150	3650	4030
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.8	2.4	4.5	4.1	4.5
TCLP Metals									
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.07	11.08	10.94	11.03	11.04
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	3.78	3.35	3.45	3.86	3.24
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.95	4.95	4.95	4.95	4.95

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-1 ----	BA 2543-A-2 ----	BA 2543-A-3 ----	BA 2543-A-4 ----	BA 2543-A-5 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-001	VA25C8927-002	VA25C8927-003	VA25C8927-004	VA25C8927-005
						Result	Result	Result	Result	Result
TCLP Metals										
pH, TCLP final	----	EPP444/VA	0.010	pH units		9.34	9.72	9.55	9.67	9.49
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		0.85	0.89	0.85	0.89	0.87
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		744	788	748	771	801
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		<0.050	<0.050	<0.050	<0.050	<0.050
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.706	0.835	0.741	0.846	0.743
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		6.2	6.2	7.2	6.0	6.8
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-1 ----	BA 2543-A-2 ----	BA 2543-A-3 ----	BA 2543-A-4 ----	BA 2543-A-5 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-001	VA25C8927-002	VA25C8927-003	VA25C8927-004	VA25C8927-005
						Result	Result	Result	Result	Result
TCLP Metals										
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-6 ----	BA 2543-A-7 ----	BA 2543-A-8 ----	BA 2543-A-9 ----	BA 2543-A-10 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-006	VA25C8927-007	VA25C8927-008	VA25C8927-009	VA25C8927-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		19.3	19.0	20.1	19.8	20.4
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		10.12	10.32	10.10	10.30	10.08
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		42900	35300	38400	41100	39300
Antimony	7440-36-0	E440/VA	0.10	mg/kg		126	121	112	103	208
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		10.8	11.3	11.0	9.44	14.5
Barium	7440-39-3	E440/VA	0.50	mg/kg		499	450	578	611	564
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.32	0.32	0.33	0.37	0.35
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		9.02	10.5	9.47	7.02	11.4
Boron	7440-42-8	E440/VA	5.0	mg/kg		154	155	167	166	144
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		20.0	10.7	10.7	7.77	10.6
Calcium	7440-70-2	E440/VA	50	mg/kg		132000	137000	141000	123000	126000

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-6 ----	BA 2543-A-7 ----	BA 2543-A-8 ----	BA 2543-A-9 ----	BA 2543-A-10 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-006	VA25C8927-007	VA25C8927-008	VA25C8927-009	VA25C8927-010
						Result	Result	Result	Result	Result
Metals										
Chromium	7440-47-3	E440/VA	0.50	mg/kg		245	202	156	221	137
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		84.2	152	117	55.6	38.1
Copper	7440-50-8	E440/VA	0.50	mg/kg		13800	3620	4520	3410	1320
Iron	7439-89-6	E440/VA	50	mg/kg		61600	60400	51300	76600	69800
Lead	7439-92-1	E440/VA	0.50	mg/kg		1410	1240	351	300	3880
Lithium	7439-93-2	E440/VA	2.0	mg/kg		35.9	40.3	32.4	34.1	35.8
Magnesium	7439-95-4	E440/VA	20	mg/kg		12100	12100	12400	11600	12000
Manganese	7439-96-5	E440/VA	1.0	mg/kg		809	847	793	876	808
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.0578	0.0628	0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		20.7	24.1	41.9	30.2	20.5
Nickel	7440-02-0	E440/VA	0.50	mg/kg		298	313	210	563	172
Phosphorus	7723-14-0	E440/VA	50	mg/kg		12300	12200	15600	11000	12000
Potassium	7440-09-7	E440/VA	100	mg/kg		6310	6640	7020	6270	6440
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.38	0.43	0.43	0.39	0.42
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.29	7.02	6.60	6.63	4.65
Sodium	7440-23-5	E440/VA	50	mg/kg		16700	17300	18200	16500	16500
Strontium	7440-24-6	E440/VA	0.50	mg/kg		523	346	348	318	295
Sulfur	7704-34-9	E440/VA	1000	mg/kg		12900	14000	13700	10800	11800
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		126	156	110	131	146
Titanium	7440-32-6	E440/VA	1.0	mg/kg		334	255	262	340	335

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-6 ----	BA 2543-A-7 ----	BA 2543-A-8 ----	BA 2543-A-9 ----	BA 2543-A-10 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-006	VA25C8927-007	VA25C8927-008	VA25C8927-009	VA25C8927-010
						Result	Result	Result	Result	Result
Metals										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		13.0	18.2	13.6	9.18	9.89
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.51	1.65	1.58	1.45	1.48
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		24.9	26.6	24.9	31.3	26.2
Zinc	7440-66-6	E440/VA	2.0	mg/kg		4350	4480	4300	3460	5340
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		4.3	3.9	2.9	3.1	3.1
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.05	11.07	11.12	11.15	11.05
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		3.03	3.32	3.24	3.12	3.44
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		4.95	4.95	4.95	4.95	4.95
pH, TCLP final	----	EPP444/VA	0.010	pH units		9.51	9.52	9.52	9.79	9.71
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		0.86	0.87	0.89	0.84	0.86
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		744	743	788	779	763
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		<0.050	<0.050	<0.050	<0.050	<0.050
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.718	0.696	0.759	0.870	0.818
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-6 ----	BA 2543-A-7 ----	BA 2543-A-8 ----	BA 2543-A-9 ----	BA 2543-A-10 ----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00	27-Oct-2025 12:00
						VA25C8927-006	VA25C8927-007	VA25C8927-008	VA25C8927-009	VA25C8927-010
						Result	Result	Result	Result	Result
TCLP Metals										
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		7.3	6.9	6.7	4.8	5.5
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-11 ----	BA 2543-A-12 ----	----	----	----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	----	----	----
						VA25C8927-011	VA25C8927-012	----	----	----
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		20.7	19.6	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		10.16	10.18	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-11 ----	BA 2543-A-12 ----	----	----	----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	----	----	----
						VA25C8927-011	VA25C8927-012	----	----	----
						Result	Result	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		46600	35300	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		124	107	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		12.1	10.7	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		536	468	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.34	0.32	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		18.7	8.67	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		203	139	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		8.51	88.2	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		141000	131000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		259	172	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		113	70.3	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		2500	1820	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		55400	72400	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		351	350	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		35.5	29.3	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		12800	12300	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		1210	872	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.0575	0.0508	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		20.8	43.3	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		269	185	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		13600	11900	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-11 ----	BA 2543-A-12 ----	----	----	----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	----	----	----
						VA25C8927-011	VA25C8927-012	----	----	----
						Result	Result	----	----	----
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg		6700	6350	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.52	0.39	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		4.96	4.70	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		17800	16300	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		336	394	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		14000	12500	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		148	125	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		390	315	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		12.4	26.3	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.60	1.88	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		27.4	24.6	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		3920	4980	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		3.2	3.8	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.08	11.08	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		3.71	3.47	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		4.95	4.95	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		9.67	9.66	----	----	----
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	----	----	----
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2543-A-11 ----	BA 2543-A-12 ----	----	----	----
					Client sampling date / time	27-Oct-2025 12:00	27-Oct-2025 12:00	----	----	----
						VA25C8927-011	VA25C8927-012	----	----	----
						Result	Result	----	----	----
TCLP Metals										
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	----	----	----
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	----	----	----
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		0.89	0.87	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		783	785	----	----	----
Chromium, TCLP	7440-47-3	E444/VA	0.25	mg/L		<0.25	<0.25	----	----	----
Cobalt, TCLP	7440-48-4	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.818	0.833	----	----	----
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		5.6	5.5	----	----	----
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L		<0.25	<0.25	----	----	----
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	----	----	----
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	----	----	----
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	----	----	----
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		<0.50	<0.50	----	----	----
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	----	----	----

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

Quality Control Interpretive Report

Work Order	:	**VA25C8927**		
Client	:	Veolia Environmental Services Canada	Laboratory	: ALS Environmental - Vancouver
Contact	:	Brian Graham	Account Manager	: Gulraj Dhanaua
Address	:	5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby British Columbia Canada V5A 1W9
Telephone	:	----	Telephone	: +1 604 253 4188
Project	:	Veolia Weekly Bottom Ash-Suite	Date Samples Received	: 29-Oct-2025 12:25
PO	:	1000497676	Issue Date	: 06-Nov-2025 07:28
C-O-C number	:	----		
Sampler	:	----		
Site	:	Metro Van Ash Sampling Program		
Quote number	:	VA25-VISI100-001		
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 Services 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.
- Duplicate outliers occur - please see following pages for full details.
- No Laboratory Control Sample (LCS) outliers occur
- No Laboratory Control Sample Duplicate (LCSD) outliers occur
- No Matrix Spike outliers occur.
- No Matrix Spike Duplicate (MSD) 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.

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	VA25C8927--001	BA 2543-A-1	Chromium	7440-47-3	E440	34.7 %	DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C8927--001	BA 2543-A-1	Cobalt	7440-48-4	E440	34.3 %	DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C8927--001	BA 2543-A-1	Copper	7440-50-8	E440	76.6 %	DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C8927--001	BA 2543-A-1	Nickel	7440-02-0	E440	53.7 %	DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C8927--001	BA 2543-A-1	Silver	7440-22-4	E440	82.7 %	DUP-H	40%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

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

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and/or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	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												
BA 2543-A-1	001	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-2	002	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-3	003	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-4	004	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-5	005	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-6	006	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-7	007	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-8	008	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-9	009	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-10	010	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-11	011	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓
BA 2543-A-12	012	2318467	E510	27-Oct-2025	05-Nov-2025	28 days	9 days	✓	06-Nov-2025	28 days	0 days	✓

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	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												
BA 2543-A-1	001	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-2	002	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-3	003	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-4	004	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-5	005	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-6	006	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-7	007	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-8	008	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-9	009	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-10	010	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-11	011	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
BA 2543-A-12	012	2318468	E440	27-Oct-2025	05-Nov-2025	180 days	9 days	✓	06-Nov-2025	180 days	9 days	✓
Physical Tests : Moisture Content by Gravimetry												
LDPE bag												
BA 2543-A-1	001	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-2	002	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-3	003	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-4	004	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-5	005	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	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												
BA 2543-A-6	006	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-7	007	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-8	008	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-9	009	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-10	010	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-11	011	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
BA 2543-A-12	012	2318473	E144	27-Oct-2025	----	----	----		05-Nov-2025	----	----	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)												
LDPE bag												
BA 2543-A-1	001	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-2	002	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-3	003	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-4	004	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-5	005	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-6	006	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-7	007	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-8	008	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-9	009	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-10	010	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	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												
BA 2543-A-11	011	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
BA 2543-A-12	012	2318472	E108	27-Oct-2025	05-Nov-2025	30 days	9 days	✓	05-Nov-2025	30 days	9 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)												
Glass vial - total (lab preserved)												
BA 2543-A-1	001	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-2	002	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-3	003	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-4	004	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-5	005	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-6	006	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-7	007	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-8	008	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-9	009	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-10	010	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-11	011	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
BA 2543-A-12	012	2313294	E512	27-Oct-2025	02-Nov-2025	28 days	6 days	✓	02-Nov-2025	28 days	6 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)												
HDPE - total (lab preserved)												
BA 2543-A-1	001	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
TCLP Metals : Metals by CRC ICPMS (TCLP)												
HDPE - total (lab preserved)												
BA 2543-A-2	002	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-3	003	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-4	004	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-5	005	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-6	006	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-7	007	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-8	008	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-9	009	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-10	010	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-11	011	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
BA 2543-A-12	012	2313295	E444	27-Oct-2025	02-Nov-2025	180 days	6 days	✓	03-Nov-2025	180 days	7 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)												
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS)												
BA 2543-A-1	001		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-2	002		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-3	003		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-4	004		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-5	005		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓

Matrix: Soil/Solid

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)												
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS)												
BA 2543-A-6	006		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-7	007		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-8	008		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-9	009		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-10	010		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-11	011		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓
BA 2543-A-12	012		EPP444	27-Oct-2025	----	----	----		31-Oct-2025	28 days	4 days	✓

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	2318472	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	2318473	1	19	5.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2318468	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	2313295	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2318467	1	12	8.3	5.0	✓
Mercury by CVAAS (TCLP)	E512	2313294	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2318472	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	2318473	1	19	5.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2318468	2	12	16.7	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	2318467	2	12	16.7	10.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	2318473	1	19	5.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2318468	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	2313295	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2318467	1	12	8.3	5.0	✓
Mercury by CVAAS (TCLP)	E512	2313294	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Metals by CRC ICPMS (TCLP)	E444	2313295	1	12	8.3	5.0	✓
Mercury by CVAAS (TCLP)	E512	2313294	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
Mercury by CVAAS (TCLP)	E512 ALS Environmental - Vancouver	Soil/Solid	EPA 1311/245.1 (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
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.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
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.
Preparation Methods	**Method / Lab**	**Matrix**	**Method Reference**	**Method Descriptions**
BrCl Digestion for Total Mercury (TCLP)	EP512 ALS Environmental - Vancouver	Soil/Solid	EPA 1631E (mod)	An extract from a soil/solid waste leachate is digested with BrCl.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
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.
Metals Digestion (TCLP)	EP444 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	An extract from the TCLP is digested with HNO3 and HCl to liberate "total recoverable" metals.

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	: **VA25C8927**	Page	: 1 of 12
Client	: Veolia Environmental Services Canada	Laboratory	: ALS Environmental - Vancouver
Contact	: Brian Graham	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Veolia Weekly Bottom Ash-Suite	Date Samples Received	: 29-Oct-2025 12:25
PO	: 1000497676	Date Analysis Commenced	: 31-Oct-2025
C-O-C number	: ----	Issue Date	: 06-Nov-2025 07:28
Sampler	: ----		
Site	: Metro Van Ash Sampling Program		
Quote number	: VA25-VISI100-001		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Robert Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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: 2318472)											
VA25C8927-001	BA 2543-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	10.12	10.13	0.1%	5%	----
Physical Tests (QC Lot: 2318473)											
WP2516888-004	Anonymous	Moisture	----	E144	0.25	%	87.8	88.0	0.182%	20%	----
Metals (QC Lot: 2318467)											
VA25C8927-001	BA 2543-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	0.0528	0.0028	Diff <2x LOR	----
Metals (QC Lot: 2318468)											
VA25C8927-001	BA 2543-A-1	Aluminum	7429-90-5	E440	50	mg/kg	51400	42800	18.1%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	108	109	1.14%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	9.48	10.3	8.09%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	639	585	8.83%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.36	0.32	0.04	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	7.82	8.35	6.55%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	184	165	10.7%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	7.80	8.14	4.28%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	130000	129000	0.663%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	282	199	34.7%	30%	DUP-H
		Cobalt	7440-48-4	E440	0.10	mg/kg	102	71.9	34.3%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	5160	11600	76.6%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	62500	75500	18.9%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	342	337	1.50%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	33.6	28.6	16.1%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	12900	12600	1.90%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	1100	984	11.0%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	21.0	18.7	11.9%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	348	201	53.7%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	13800	12200	12.2%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	6660	6560	1.48%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.40	0.53	0.13	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	11.3	4.67	82.7%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	18000	17500	3.19%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 2318468) - continued											
VA25C8927-001	BA 2543-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	343	334	2.78%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	12200	12800	5.06%	30%	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	158	141	11.4%	40%	----
		Titanium	7440-32-6	E440	1.0	mg/kg	449	363	21.4%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	10.3	13.9	29.5%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	1.48	1.50	1.72%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	27.2	27.4	0.880%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	3640	3980	8.94%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	3.8	3.1	0.7	Diff <2x LOR	----
TCLP Metals (QC Lot: 2313294)											
VA25C8927-001	BA 2543-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2313295)											
VA25C8927-001	BA 2543-A-1	Antimony, TCLP	7440-36-0	E444	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
		Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	0	Diff <2x LOR	----
		Boron, TCLP	7440-42-8	E444	0.50	mg/L	0.85	0.83	0.02	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	744	770	3.46%	30%	----
		Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Cobalt, TCLP	7440-48-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.706	0.738	4.38%	30%	----
		Iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	6.2	6.5	0.3	Diff <2x LOR	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	0	Diff <2x LOR	----
		Zinc, TCLP	7440-66-6	E444	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----

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: 2318473)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 2318467)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 2318468)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2318468) - continued						
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
TCLP Metals (QCLot: 2313294)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP Metals (QCLot: 2313295)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2318472)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 2318473)									
Moisture	----	E144	0.25	%	50 %	99.1	90.0	110	----
Metals (QCLot: 2318467)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	92.0	80.0	120	----
Metals (QCLot: 2318468)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	102	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	102	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	99.9	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	98.3	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	95.9	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	101	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	95.7	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	99.2	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	99.5	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	97.3	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	105	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	99.8	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	97.1	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	102	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	102	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	99.2	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	105	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	104	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	103	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	93.0	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	99.2	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	95.1	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 2318468) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	98.2	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	97.8	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	100	80.0	120	----
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	107	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	103	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	102	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
TCLP Metals (QCLot: 2313294)										
VA25C8927-001	BA 2543-A-1	Mercury, TCLP	7439-97-6	E512	0.0029 mg/L	0.003 mg/L	96.3	50.0	140	----
TCLP Metals (QCLot: 2313295)										
VA25C8927-001	BA 2543-A-1	Antimony, TCLP	7440-36-0	E444	4.56 mg/L	5 mg/L	91.3	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.5 mg/L	5 mg/L	91.0	50.0	140	----
		Barium, TCLP	7440-39-3	E444	11.4 mg/L	12.5 mg/L	91.5	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.215 mg/L	0.25 mg/L	86.1	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.56 mg/L	10 mg/L	85.6	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.216 mg/L	0.25 mg/L	86.4	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.10 mg/L	1.25 mg/L	87.7	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.220 mg/L	0.25 mg/L	88.1	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.13 mg/L	2.5 mg/L	85.1	50.0	140	----
		Iron, TCLP	7439-89-6	E444	207 mg/L	250 mg/L	83.0	50.0	140	----
		Lead, TCLP	7439-92-1	E444	8.52 mg/L	10 mg/L	85.2	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	231 mg/L	250 mg/L	92.4	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.17 mg/L	2.5 mg/L	86.8	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.44 mg/L	5 mg/L	88.8	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.081 mg/L	0.1 mg/L	81.1	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.1 mg/L	5 mg/L	82.8	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.41 mg/L	5 mg/L	88.3	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.67 mg/L	0.75 mg/L	89.7	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	8.92 mg/L	10 mg/L	89.2	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	80.6	50.0	150	----

Reference Material (RM) Report

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

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 2318467)									
QC-2318467-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	95.7	70.0	130	----
Metals (QCLot: 2318468)									
QC-2318468-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	107	70.0	130	----
QC-2318468-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	100	70.0	130	----
QC-2318468-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	99.1	70.0	130	----
QC-2318468-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	103	70.0	130	----
QC-2318468-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	106	70.0	130	----
QC-2318468-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	93.0	70.0	130	----
QC-2318468-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	108	70.0	130	----
QC-2318468-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	99.7	70.0	130	----
QC-2318468-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	102	70.0	130	----
QC-2318468-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	102	70.0	130	----
QC-2318468-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	102	70.0	130	----
QC-2318468-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	105	70.0	130	----
QC-2318468-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	94.4	70.0	130	----
QC-2318468-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	109	70.0	130	----
QC-2318468-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	107	70.0	130	----
QC-2318468-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	101	70.0	130	----
QC-2318468-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	103	70.0	130	----
QC-2318468-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	103	70.0	130	----
QC-2318468-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	109	70.0	130	----
QC-2318468-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	107	70.0	130	----
QC-2318468-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	107	60.0	140	----
QC-2318468-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	97.7	70.0	130	----
QC-2318468-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	115	70.0	130	----
QC-2318468-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	101	70.0	130	----
QC-2318468-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	85.3	50.0	150	----
QC-2318468-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	97.7	70.0	130	----
QC-2318468-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	97.1	40.0	160	----
QC-2318468-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	107	70.0	130	----
QC-2318468-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	114	70.0	130	----
QC-2318468-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	113	70.0	130	----
QC-2318468-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	104	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 2318468) - continued									
QC-2318468-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	102	70.0	130	----
QC-2318468-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	106	70.0	130	----

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Requested** (Rush for routine analysis subject to availability)
Company:	Veolia Canada / Burnaby Waste To Energy Facility	"Veolia Email Distribution List" please		
Contact:	Brian Graham / Darcie Grace			
Address:	5150 Riverbend Drive	Email 1:	Darcie.grace@veolia.com	
	Burnaby BC	Email 2:	lorenzo.ilao@veolia.com	
Phone:	604-521-1025 Fax:	Email 3:	karen.thornquist@veolia.com	**Analysis Request**
			brent.kirkpatrick@metrovancouver.org	
			Sarah.Wellman@metrovancouver.org	
Invoice To	Same as Report ? Veolia Water Canada	**Client / Project Information**		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		Job #:	Veolia Weekly Bottom Ash - Suite	
Company:	Veolia Water Canada / Burnaby Waste To Energy	PO / AFE:	PO#	
Contact:	Danny George, Purchaser/Darcie Grace, SHE Manager	LSD:	(includes 2:1 pH)	
Address:	5150 Riverbend Drive, Burnaby BC V3N 4V3			
Phone:	604 521 1025 Fax:	Quote #:		
Lab Work Order # (lab use only)	8927	**ALS Contact:**	**Sampler:**	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE		Chrome 6		MET-CSR+FULL-VA (all metals)							Number of Containers
	BA 2543-A-1	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-2	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-3	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-4	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-5	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-6	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-7	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-8	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-9	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-10	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-11	27 Oct 2025	12:00	Soil	X	X				X							1
	BA 2543-A-12	27 Oct 2025	12:00	Soil	X	X				X							1
water Aquatic																	

Environmental Division
Vancouver
Work Order Reference
VA25C8927

Telephone : +1 604 253 4188

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numbers and

NT RELEASE (c

SHIPMENT RECEPTION (lab use only)						SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by: JC	Date: Rcvd 29Oct2025	Time: 1225 pm	Temperature: 19 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	29/10/25	07:30								

GENF 20.00 Front

Bottom Ash Worksheet

Date sample composited (DD/MM/YYYY)	27/10/2025
Person doing the sampling	Adam J
Total Sample Weight before processing, kg	21.9kg
Weight of Material >3/8", kg	~~2.7kg~~ 1.8kg
Weight of Material that cannot be processed to <3/8" (metal, wood, etc), kg	~~1.8kg~~ 3.7kg
Final Total weight of Processed Bottom Ash, kg	18.2kg

Return this form with the filled Weekly Bottom Ash Composite Sample containers

Fill twelve bags with approximately 2000g of mixed bottom ash and label each with "Bottom Ash" and the week the ash composite is from, i.e. "June 9-15, 2019"