

Bottom Ash Data

2025 Week 34

The following analytical report represents bottom ash composite results for week 34 of 2025 (August 17, 2025 to August 23, 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	: VA25C1746		
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	: 26-Aug-2025 10:45
C-O-C number	: ----	Date Analysis Commenced	: 27-Aug-2025
Sampler	: ----	Issue Date	: 02-Sep-2025 14:54
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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Dan Gebert		Metals, Burnaby, British Columbia
Ophelia Chiu		Organics, Burnaby, British Columbia



General Comments

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

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

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

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

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

<i>Unit</i>	<i>Description</i>
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

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



Analytical Results

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

					Client sample ID	BA-2534-A-1 ----	BA-2534-A-2 ----	BA-2534-A-3 ----	BA-2534-A-4 ----	BA-2534-A-5 ----
					Client sampling date / time	19-Aug-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-001	VA25C1746-002	VA25C1746-003	VA25C1746-004	VA25C1746-005	
					Result	Result	Result	Result	Result	
Physical Tests										
Moisture	----	E144/VA	0.25	%	22.1	21.7	21.3	22.5	22.8	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.83	10.73	10.78	10.71	10.74	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	43200	38300	39700	50600	36000	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	102	121	96.5	89.9	96.1	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	16.5	20.4	16.0	14.4	16.5	
Barium	7440-39-3	E440/VA	0.50	mg/kg	528	470	446	517	529	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.36	0.36	0.33	0.32	0.38	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	9.36	8.43	7.18	6.37	6.98	
Boron	7440-42-8	E440/VA	5.0	mg/kg	165	187	158	149	177	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	9.10	14.0	5.97	5.47	9.72	
Calcium	7440-70-2	E440/VA	50	mg/kg	129000	149000	132000	119000	126000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	148	154	191	127	119	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	51.1	46.8	97.6	142	89.0	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1920	2950	7550	1940	2690	
Iron	7439-89-6	E440/VA	50	mg/kg	45400	51900	69800	60300	49200	
Lead	7439-92-1	E440/VA	0.50	mg/kg	557	657	465	198	240	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	29.4	27.5	62.1	34.3	28.2	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12300	13500	12200	11300	12300	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	785	908	836	902	699	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	



Analytical Results

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

					Client sample ID	BA-2534-A-1	BA-2534-A-2	BA-2534-A-3	BA-2534-A-4	BA-2534-A-5
					Client sampling date / time	19-Aug-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-001	VA25C1746-002	VA25C1746-003	VA25C1746-004	VA25C1746-005	
					Result	Result	Result	Result	Result	
Metals										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	14.4	16.0	17.6	12.9	14.2	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	109	160	406	396	116	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10700	12500	9990	9760	11900	
Potassium	7440-09-7	E440/VA	100	mg/kg	5390	6150	5560	5240	5440	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.34	0.38	0.35	0.29	0.71	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.38	4.99	5.67	3.34	14.2	
Sodium	7440-23-5	E440/VA	50	mg/kg	15200	15800	14600	14400	14500	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	342	332	285	278	277	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11500	12900	10700	10200	10600	
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	88.7	303	110	78.8	85.4	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	347	313	329	381	193	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	15.8	12.4	8.01	6.51	114	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.50	1.62	1.53	1.42	1.45	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	35.8	34.2	33.4	34.5	32.4	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3160	4750	3090	2790	3250	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.7	1.5	2.0	3.9	2.4	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.68	11.63	11.64	11.66	11.65	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	5.34	3.67	5.19	5.52	5.18	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	2.90	4.94	2.90	2.90	2.90	



Analytical Results

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

					Client sample ID	BA-2534-A-1	BA-2534-A-2	BA-2534-A-3	BA-2534-A-4	BA-2534-A-5
					Client sampling date / time	19-Aug-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-001	VA25C1746-002	VA25C1746-003	VA25C1746-004	VA25C1746-005	
					Result	Result	Result	Result	Result	
TCLP Metals										
pH, TCLP final	----	EPP444/VA	0.010	pH units	7.06	10.50	7.33	7.40	7.33	
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5	
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L	2.12	0.73	2.23	2.13	2.02	
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	2030	813	2160	2080	2020	
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	0.532	<0.050	0.408	0.438	0.452	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.820	0.970	0.901	0.943	0.872	
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	129	<2.5	141	134	131	
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	0.29	
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

					Client sample ID				
					BA-2534-A-1 ----	BA-2534-A-2 ----	BA-2534-A-3 ----	BA-2534-A-4 ----	BA-2534-A-5 ----
					Client sampling date / time				
Analyte	CAS Number	Method/Lab	LOR	Unit	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00
					VA25C1746-001	VA25C1746-002	VA25C1746-003	VA25C1746-004	VA25C1746-005
					Result	Result	Result	Result	Result
TCLP Metals									
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L	2.98	<0.50	0.75	0.86	0.88
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

					Client sample ID				
					BA-2534-A-6 ----	BA-2534-A-7 ----	BA-2534-A-8 ----	BA-2534-A-9 ----	BA-2534-A-10 ----
					Client sampling date / time				
Analyte	CAS Number	Method/Lab	LOR	Unit	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00
					VA25C1746-006	VA25C1746-007	VA25C1746-008	VA25C1746-009	VA25C1746-010
					Result	Result	Result	Result	Result
Physical Tests									
Moisture	----	E144/VA	0.25	%	22.0	20.7	22.0	22.6	22.0
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.86	10.93	10.81	10.83	10.82
Metals									
Aluminum	7429-90-5	E440/VA	50	mg/kg	33900	47000	37400	47400	35400
Antimony	7440-36-0	E440/VA	0.10	mg/kg	109	80.9	105	96.2	96.0
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	16.4	16.0	16.3	13.8	17.8
Barium	7440-39-3	E440/VA	0.50	mg/kg	551	615	573	531	529
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.34	0.33	0.33	0.32	0.33
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	8.14	5.98	71.2	5.87	8.22
Boron	7440-42-8	E440/VA	5.0	mg/kg	158	138	178	162	242
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.07	5.23	6.35	6.52	5.58
Calcium	7440-70-2	E440/VA	50	mg/kg	130000	113000	142000	121000	128000



Analytical Results

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

					Client sample ID	BA-2534-A-6	BA-2534-A-7	BA-2534-A-8	BA-2534-A-9	BA-2534-A-10
					Client sampling date / time	19-Aug-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-006	VA25C1746-007	VA25C1746-008	VA25C1746-009	VA25C1746-010	
					Result	Result	Result	Result	Result	
Metals										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	557	121	163	134	126	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	57.5	45.7	342	60.9	71.0	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1780	1400	4730	18900	8220	
Iron	7439-89-6	E440/VA	50	mg/kg	60400	48400	44700	54800	41000	
Lead	7439-92-1	E440/VA	0.50	mg/kg	773	173	4360	175	256	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	23.9	22.4	28.3	26.6	25.3	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12400	11800	13400	11600	11400	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	1190	605	723	672	840	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	0.0526	<0.0500	<0.0500	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	16.3	12.0	13.7	30.4	13.5	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	186	173	223	168	165	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11200	8780	12100	8780	9480	
Potassium	7440-09-7	E440/VA	100	mg/kg	5610	5090	5620	5620	5550	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.38	0.26	0.35	0.30	0.31	
Silver	7440-22-4	E440/VA	0.10	mg/kg	19.1	5.92	6.18	6.58	3.60	
Sodium	7440-23-5	E440/VA	50	mg/kg	15300	14800	15300	14800	15400	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	294	271	300	254	284	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11500	9000	11400	9700	10500	
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	229	84.8	2100	181	249	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	214	288	198	302	261	



Analytical Results

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

					Client sample ID	BA-2534-A-6	BA-2534-A-7	BA-2534-A-8	BA-2534-A-9	BA-2534-A-10
					Client sampling date / time	19-Aug-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-006	VA25C1746-007	VA25C1746-008	VA25C1746-009	VA25C1746-010	
					Result	Result	Result	Result	Result	
Metals										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	8.07	6.42	10.6	5.95	7.14	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.76	1.48	1.61	1.37	2.22	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	33.1	34.3	31.9	29.5	30.4	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3390	2960	3570	3900	9720	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.0	2.9	2.3	3.6	1.9	
TCLP Metals										
pH, TCLP 1st preliminary	---	EPP444/VA	0.010	pH units	11.67	11.63	11.60	11.65	11.63	
pH, TCLP 2nd preliminary	---	EPP444/VA	0.010	pH units	3.39	4.78	3.58	5.11	4.28	
pH, TCLP extraction fluid initial	---	EPP444/VA	0.010	pH units	4.94	4.94	4.94	2.90	4.94	
pH, TCLP final	---	EPP444/VA	0.010	pH units	10.44	10.14	10.24	6.97	10.34	
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	0.73	0.78	0.74	2.06	0.73	
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	837	820	851	2070	817	
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	0.550	<0.050	
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L	0.993	0.817	0.899	0.994	0.839	
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)					Client sample ID				
					BA-2534-A-6 ----	BA-2534-A-7 ----	BA-2534-A-8 ----	BA-2534-A-9 ----	BA-2534-A-10 ----
					Client sampling date / time				
					19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00	19-Aug-2025 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-006	VA25C1746-007	VA25C1746-008	VA25C1746-009	VA25C1746-010
					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	<2.5	2.7	<2.5	140	2.7
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	0.30	<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	4.13	<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)					Client sample ID				
					BA-2534-A-11 ----	BA-2534-A-12 ----	----	----	----
					Client sampling date / time				
					19-Aug-2025 09:00	19-Aug-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-011	VA25C1746-012	----	----	----
					Result	Result	----	----	----
Physical Tests									
Moisture	----	E144/VA	0.25	%	21.3	22.1	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.81	10.74	----	----	----



Analytical Results

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

					Client sample ID	BA-2534-A-11	BA-2534-A-12	----	----	----
					Client sampling date / time	19-Aug-2025 09:00	19-Aug-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-011	VA25C1746-012	----	----	----	
					Result	Result	----	----	----	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	49500	39200	----	----	----	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	106	102	----	----	----	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	15.9	17.3	----	----	----	
Barium	7440-39-3	E440/VA	0.50	mg/kg	513	503	----	----	----	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.34	0.40	----	----	----	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	7.56	11.3	----	----	----	
Boron	7440-42-8	E440/VA	5.0	mg/kg	130	198	----	----	----	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.48	12.1	----	----	----	
Calcium	7440-70-2	E440/VA	50	mg/kg	127000	142000	----	----	----	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	127	168	----	----	----	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	58.3	138	----	----	----	
Copper	7440-50-8	E440/VA	0.50	mg/kg	940	11000	----	----	----	
Iron	7439-89-6	E440/VA	50	mg/kg	46200	57400	----	----	----	
Lead	7439-92-1	E440/VA	0.50	mg/kg	1140	240	----	----	----	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	27.0	41.7	----	----	----	
Magnesium	7439-95-4	E440/VA	20	mg/kg	11600	13200	----	----	----	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	691	824	----	----	----	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	12.2	13.2	----	----	----	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	103	188	----	----	----	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10900	11000	----	----	----	



Analytical Results

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

					Client sample ID	BA-2534-A-11	BA-2534-A-12	----	----	----
					Client sampling date / time	19-Aug-2025 09:00	19-Aug-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-011	VA25C1746-012	----	----	----	
					Result	Result	----	----	----	
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg	6010	5830	----	----	----	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.35	0.34	----	----	----	
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.72	3.87	----	----	----	
Sodium	7440-23-5	E440/VA	50	mg/kg	16300	15700	----	----	----	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	273	295	----	----	----	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11600	11900	----	----	----	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	----	----	----	
Tin	7440-31-5	E440/VA	2.0	mg/kg	116	216	----	----	----	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	474	238	----	----	----	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.63	13.3	----	----	----	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.47	1.58	----	----	----	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	31.8	34.3	----	----	----	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	2760	2870	----	----	----	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.0	1.8	----	----	----	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.61	11.63	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	3.84	4.86	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.94	4.94	----	----	----	
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.23	10.46	----	----	----	
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)

					Client sample ID	BA-2534-A-11	BA-2534-A-12	----	----	----
					Client sampling date / time	19-Aug-2025 09:00	19-Aug-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25C1746-011	VA25C1746-012	----	----	----	----
					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	0.75	0.72	----	----	----	----
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	827	831	----	----	----	----
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	0.864	0.946	----	----	----	----
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	2.8	<2.5	----	----	----	----
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

<p>Work Order : VA25C1746</p> <p>Client : Veolia Environmental Services Canada</p> <p>Contact : Brian Graham</p> <p>Address : 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3</p> <p>Telephone : ----</p> <p>Project : Veolia Weekly Bottom Ash-Suite</p> <p>PO : 1000497676</p> <p>C-O-C number : ----</p> <p>Sampler : ----</p> <p>Site : Metro Van Ash Sampling Program</p> <p>Quote number : VA25-VIS1100-001</p> <p>No. of samples received : 12</p> <p>No. of samples analysed : 12</p>	<p>Page : 1 of 16</p> <p>Laboratory : ALS Environmental - Vancouver</p> <p>Account Manager : Gulraj Dhanaua</p> <p>Address : 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9</p> <p>Telephone : +1 604 253 4188</p> <p>Date Samples Received : 26-Aug-2025 10:45</p> <p>Issue Date : 02-Sep-2025 14:53</p>
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This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	VA25C1746-001	BA-2534-A-1	Boron	7440-42-8	E440	34.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C1746-001	BA-2534-A-1	Copper	7440-50-8	E440	47.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C1746-001	BA-2534-A-1	Lead	7439-92-1	E440	67.2 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C1746-001	BA-2534-A-1	Lithium	7439-93-2	E440	50.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C1746-001	BA-2534-A-1	Nickel	7440-02-0	E440	62.6 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25C1746-001	BA-2534-A-1	Titanium	7440-32-6	E440	44.4 % 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(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-1	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-10	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-11	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-12	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-2	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-3	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-4	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-5	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-6	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-7	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-8	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA-2534-A-9	E510	19-Aug-2025	31-Aug-2025	28 days	12 days	✔	01-Sep-2025	28 days	1 days	✔
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA-2534-A-1	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✔	02-Sep-2025	180 days	12 days	✔
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA-2534-A-10	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✔	02-Sep-2025	180 days	12 days	✔
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA-2534-A-11	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✔	02-Sep-2025	180 days	12 days	✔
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA-2534-A-12	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✔	02-Sep-2025	180 days	12 days	✔



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-2	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-3	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-4	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-5	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-6	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-7	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-8	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA-2534-A-9	E440	19-Aug-2025	31-Aug-2025	180 days	12 days	✓	02-Sep-2025	180 days	12 days	✓	
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-1	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-10	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-11	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-12	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-2	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-3	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-4	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-5	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-6	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-7	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-8	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA-2534-A-9	E144	19-Aug-2025	----	----	----		30-Aug-2025	----	----		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-1	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-10	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-11	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-12	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-2	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-3	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-4	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-5	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-6	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-7	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-8	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA-2534-A-9	E108	19-Aug-2025	31-Aug-2025	30 days	12 days	✔	31-Aug-2025	30 days	12 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA-2534-A-1	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✔	29-Aug-2025	36 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA-2534-A-10	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✔	29-Aug-2025	36 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA-2534-A-11	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✔	29-Aug-2025	36 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA-2534-A-12	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✔	29-Aug-2025	36 days	10 days	✔	



Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-2	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-3	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-4	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-5	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-6	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-7	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-8	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA-2534-A-9	E512	27-Aug-2025	29-Aug-2025	36 days	10 days	✓	29-Aug-2025	36 days	10 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA-2534-A-1	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✓	30-Aug-2025	188 days	10 days	✓



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-10	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-11	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-12	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-2	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-3	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-4	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-5	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-6	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-7	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✔	30-Aug-2025	188 days	10 days	✔	



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-8	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✓	30-Aug-2025	188 days	10 days	✓	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA-2534-A-9	E444	27-Aug-2025	29-Aug-2025	188 days	10 days	✓	30-Aug-2025	188 days	10 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-1	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-10	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-11	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-12	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-2	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-3	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-4	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✓	



Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-5	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✔
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-6	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✔
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-7	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✔
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-8	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✔
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2534-A-9	EPP444	19-Aug-2025	27-Aug-2025	----	----		----	28 days	8 days	✔

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2192077	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	2192078	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2192076	1	19	5.2	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2189077	2	12	16.6	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2192075	1	19	5.2	5.0	✔
Mercury by CVAAS (TCLP)	E512	2189076	2	12	16.6	5.0	✔
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2192077	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	2192078	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2192076	2	19	10.5	10.0	✔
Mercury in Soil/Solid by CVAAS	E510	2192075	2	19	10.5	10.0	✔
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	2192078	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2192076	1	19	5.2	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2189077	2	12	16.6	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2192075	1	19	5.2	5.0	✔
Mercury by CVAAS (TCLP)	E512	2189065	2	12	16.6	5.0	✔
Matrix Spikes (MS)							
Metals by CRC ICPMS (TCLP)	E444	2189077	2	12	16.6	5.0	✔
Mercury by CVAAS (TCLP)	E512	2189065	2	12	16.6	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at $<60^{\circ}\text{C}$) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C . Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 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.
Metals by CRC ICPMS (TCLP)	E444 ALS Environmental - Vancouver	Soil/Solid	EPA 1311/6020B (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl , followed by CVAAS analysis.
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.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at $<60^{\circ}\text{C}$) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.



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

QUALITY CONTROL REPORT

Work Order	: VA25C1746	Page	: 1 of 14
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	: 26-Aug-2025 10:45
PO	: 1000497676	Date Analysis Commenced	: 27-Aug-2025
C-O-C number	: ----	Issue Date	: 02-Sep-2025 14:53
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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, 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: 2192077)											
VA25C1746-001	BA-2534-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	10.83	10.73	0.9%	5%	----
Physical Tests (QC Lot: 2192078)											
VA25C1746-001	BA-2534-A-1	Moisture	----	E144	0.25	%	22.1	21.5	2.48%	20%	----
Metals (QC Lot: 2192075)											
VA25C1746-001	BA-2534-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
Metals (QC Lot: 2192076)											
VA25C1746-001	BA-2534-A-1	Aluminum	7429-90-5	E440	50	mg/kg	43200	32800	27.6%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	102	107	5.44%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	16.5	21.1	24.4%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	528	462	13.3%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.36	0.45	0.09	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	9.36	8.92	4.81%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	165	233	34.1%	30%	DUP-H
		Cadmium	7440-43-9	E440	0.020	mg/kg	9.10	9.23	1.46%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	129000	139000	7.89%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	148	167	12.4%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	51.1	60.6	17.1%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	1920	3140	47.9%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	45400	44200	2.85%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	557	277	67.2%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	29.4	49.4	50.9%	30%	DUP-H
		Magnesium	7439-95-4	E440	20	mg/kg	12300	12300	0.194%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	785	933	17.2%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	14.4	14.8	2.33%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	109	208	62.6%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	10700	11800	9.38%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5390	5800	7.49%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.34	0.38	0.04	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	4.38	5.97	30.8%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	15200	15500	1.35%	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: 2192076) - continued											
VA25C1746-001	BA-2534-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	342	306	11.0%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	11500	13100	13.0%	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	88.7	108	19.8%	40%	----
		Titanium	7440-32-6	E440	1.0	mg/kg	347	221	44.4%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	15.8	11.9	28.0%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	1.50	1.55	3.62%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	35.8	33.3	7.27%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	3160	3390	6.77%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.7	1.8	0.06	Diff <2x LOR	----
TCLP Metals (QC Lot: 2189065)											
VA25C1746-002	BA-2534-A-2	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2189066)											
VA25C1746-002	BA-2534-A-2	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	0.73	0.73	0.0002	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	813	815	0.169%	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	0.970	0.954	1.60%	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	<2.5	<2.5	0	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	----		



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
TCLP Metals (QC Lot: 2189076)											
VA25C1746-001	BA-2534-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2189077)											
VA25C1746-001	BA-2534-A-1	Antimony, TCLP	7440-36-0	E444	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
		Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	0	Diff <2x LOR	----
		Boron, TCLP	7440-42-8	E444	0.50	mg/L	2.12	2.04	0.08	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	2030	2030	0.235%	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	0.532	0.537	0.842%	30%	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.820	0.818	0.308%	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	129	130	1.13%	30%	----
		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	2.98	2.97	0.006	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: 2192078)						
Moisture	---	E144	0.25	%	<0.25	---
Metals (QCLot: 2192075)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
Metals (QCLot: 2192076)						
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: 2192076) - 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: 2189065)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP Metals (QCLot: 2189066)						
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: 2189076)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP Metals (QCLot: 2189077)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Metals (QCLot: 2189077) - continued						
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: 2192077)									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	101	95.0	105	---
Physical Tests (QCLot: 2192078)									
Moisture	---	E144	0.25	%	50 %	101	90.0	110	---
Metals (QCLot: 2192075)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	99.6	80.0	120	---
Metals (QCLot: 2192076)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	101	80.0	120	---
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	101	80.0	120	---
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	107	80.0	120	---
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	100	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	97.6	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	95.5	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	97.7	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	104	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	100	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	102	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	99.3	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	105	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	105	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	101	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	99.4	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	100	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	108	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	100	80.0	120	---
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	102	80.0	120	---
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	89.8	80.0	120	---
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	97.7	80.0	120	---
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	---
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	96.4	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: 2192076) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	98.3	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	101	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	98.6	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	98.6	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	102	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	103	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	97.6	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: 2189065)										
VA25C1746-002	BA-2534-A-2	Mercury, TCLP	7439-97-6	E512	0.0028 mg/L	0.003 mg/L	93.1	50.0	140	----
TCLP Metals (QCLot: 2189066)										
VA25C1746-002	BA-2534-A-2	Antimony, TCLP	7440-36-0	E444	4.98 mg/L	5 mg/L	99.6	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.5 mg/L	5 mg/L	110	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.8 mg/L	12.5 mg/L	102	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.255 mg/L	0.25 mg/L	102	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.83 mg/L	10 mg/L	98.3	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.247 mg/L	0.25 mg/L	98.8	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.26 mg/L	1.25 mg/L	101	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.258 mg/L	0.25 mg/L	103	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.49 mg/L	2.5 mg/L	99.4	50.0	140	----
		Iron, TCLP	7439-89-6	E444	252 mg/L	250 mg/L	101	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.43 mg/L	10 mg/L	94.3	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	272 mg/L	250 mg/L	109	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.54 mg/L	2.5 mg/L	102	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.21 mg/L	5 mg/L	104	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.084 mg/L	0.1 mg/L	84.5	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.8 mg/L	5 mg/L	95.7	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.94 mg/L	5 mg/L	98.7	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.78 mg/L	0.75 mg/L	104	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	9.99 mg/L	10 mg/L	99.9	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	77.4	50.0	150	----
TCLP Metals (QCLot: 2189076)										
VA25C1746-001	BA-2534-A-1	Mercury, TCLP	7439-97-6	E512	0.0028 mg/L	0.003 mg/L	94.9	50.0	140	----
TCLP Metals (QCLot: 2189077)										
VA25C1746-001	BA-2534-A-1	Antimony, TCLP	7440-36-0	E444	5.00 mg/L	5 mg/L	100	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.6 mg/L	5 mg/L	113	50.0	140	----
		Barium, TCLP	7440-39-3	E444	13.4 mg/L	12.5 mg/L	107	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.257 mg/L	0.25 mg/L	103	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.60 mg/L	10 mg/L	96.0	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.243 mg/L	0.25 mg/L	97.3	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.31 mg/L	1.25 mg/L	105	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	ND mg/L	----	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.57 mg/L	2.5 mg/L	103	50.0	140	----
		Iron, TCLP	7439-89-6	E444	256 mg/L	250 mg/L	103	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.45 mg/L	10 mg/L	94.5	50.0	140	----



Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
TCLP Metals (QCLot: 2189077) - continued										
VA25C1746-001	BA-2534-A-1	Magnesium, TCLP	7439-95-4	E444	291 mg/L	250 mg/L	116	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.61 mg/L	2.5 mg/L	104	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.55 mg/L	5 mg/L	111	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.085 mg/L	0.1 mg/L	84.9	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.8 mg/L	5 mg/L	97.0	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.97 mg/L	5 mg/L	99.4	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.81 mg/L	0.75 mg/L	108	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	10.5 mg/L	10 mg/L	105	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	75.9	50.0	150	----



Reference Material (RM) Report

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

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Metals (QCLot: 2192075)									
QC-2192075-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	103	70.0	130	----
Metals (QCLot: 2192076)									
QC-2192076-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	109	70.0	130	----
QC-2192076-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	94.5	70.0	130	----
QC-2192076-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	104	70.0	130	----
QC-2192076-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	96.7	70.0	130	----
QC-2192076-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	106	70.0	130	----
QC-2192076-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	90.2	70.0	130	----
QC-2192076-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	102	70.0	130	----
QC-2192076-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	103	70.0	130	----
QC-2192076-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	99.9	70.0	130	----
QC-2192076-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	101	70.0	130	----
QC-2192076-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	98.1	70.0	130	----
QC-2192076-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	102	70.0	130	----
QC-2192076-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	92.7	70.0	130	----
QC-2192076-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	110	70.0	130	----
QC-2192076-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	106	70.0	130	----
QC-2192076-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	99.5	70.0	130	----
QC-2192076-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	97.6	70.0	130	----
QC-2192076-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	99.1	70.0	130	----
QC-2192076-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	110	70.0	130	----
QC-2192076-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	104	70.0	130	----
QC-2192076-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	101	60.0	140	----
QC-2192076-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	92.5	70.0	130	----
QC-2192076-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	109	70.0	130	----
QC-2192076-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	99.8	70.0	130	----
QC-2192076-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	95.7	50.0	150	----
QC-2192076-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	98.8	70.0	130	----
QC-2192076-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	98.4	40.0	160	----
QC-2192076-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	105	70.0	130	----
QC-2192076-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	112	70.0	130	----
QC-2192076-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	103	70.0	130	----
QC-2192076-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	101	70.0	130	----



Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Metals (QCLot: 2192076) - continued									
QC-2192076-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	102	70.0	130	----
QC-2192076-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	101	70.0	130	----

