

Bottom Ash Data

2025 Week 27

The following analytical report represents bottom ash composite results for week 27 of 2025 (June 29, 2025 to July 5, 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	: VA25B6528		
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	: ----	Date Samples Received	: 08-Jul-2025 14:15
C-O-C number	: ----	Date Analysis Commenced	: 09-Jul-2025
Sampler	: ----	Issue Date	: 14-Jul-2025 10:00
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
Janice Leung		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 2527-A-1 ----	BA 2527-A-2 ----	BA 2527-A-3 ----	BA 2527-A-4 ----	BA 2527-A-5 ----
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-001	VA25B6528-002	VA25B6528-003	VA25B6528-004	VA25B6528-005	
					Result	Result	Result	Result	Result	
Physical Tests										
Moisture	----	E144/VA	0.25	%	22.8	22.4	22.1	23.0	23.6	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.87	10.78	10.86	10.90	10.91	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	43100	46000	36200	37600	44500	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	95.8	91.7	79.9	98.2	106	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	18.2	18.2	19.3	20.3	21.4	
Barium	7440-39-3	E440/VA	0.50	mg/kg	577	649	660	564	588	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.37	0.43	0.44	0.42	0.89	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	8.50	8.36	10.1	7.92	9.93	
Boron	7440-42-8	E440/VA	5.0	mg/kg	192	162	176	200	174	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.09	11.5	8.26	7.33	12.8	
Calcium	7440-70-2	E440/VA	50	mg/kg	122000	131000	140000	142000	152000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	121	138	200	317	141	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	80.9	217	139	122	154	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2280	1740	4220	1790	1780	
Iron	7439-89-6	E440/VA	50	mg/kg	70800	58200	63500	51200	49100	
Lead	7439-92-1	E440/VA	0.50	mg/kg	264	688	278	868	521	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	29.5	41.4	32.2	29.2	32.2	
Magnesium	7439-95-4	E440/VA	20	mg/kg	10200	12400	12300	12800	11800	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	1380	815	979	827	783	
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 2527-A-1	BA 2527-A-2	BA 2527-A-3	BA 2527-A-4	BA 2527-A-5
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-001	VA25B6528-002	VA25B6528-003	VA25B6528-004	VA25B6528-005	
					Result	Result	Result	Result	Result	
Metals										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	15.8	14.7	19.4	14.8	14.9	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	216	471	326	142	217	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	12300	10300	10800	11600	12500	
Potassium	7440-09-7	E440/VA	100	mg/kg	5200	5870	6030	6450	6360	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.55	0.36	0.50	0.51	0.41	
Silver	7440-22-4	E440/VA	0.10	mg/kg	3.03	5.42	3.99	5.24	3.80	
Sodium	7440-23-5	E440/VA	50	mg/kg	13600	16300	16000	16400	17100	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	261	289	396	289	326	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	8800	10500	10000	10300	11300	
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	100	151	140	252	122	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	281	284	262	218	243	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.95	5.81	5.48	6.90	7.19	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.70	1.84	1.88	2.14	2.08	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	34.9	34.9	36.9	35.4	36.4	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3530	3400	2720	2970	3810	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.0	3.3	3.3	2.1	2.8	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.52	11.49	11.57	11.58	11.52	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	2.49	2.53	3.01	3.30	3.53	
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)

					Client sample ID	BA 2527-A-1	BA 2527-A-2	BA 2527-A-3	BA 2527-A-4	BA 2527-A-5
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-001	VA25B6528-002	VA25B6528-003	VA25B6528-004	VA25B6528-005	
					Result	Result	Result	Result	Result	
TCLP Metals										
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.40	10.38	10.45	10.44	10.67	
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	0.67	0.70	0.71	0.70	0.62	
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	802	798	809	821	730	
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	0.838	0.915	0.806	0.856	0.883	
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	<2.5	<2.5	<2.5	<2.5	<2.5	
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	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA 2527-A-1 ----	BA 2527-A-2 ----	BA 2527-A-3 ----	BA 2527-A-4 ----	BA 2527-A-5 ----
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-001	VA25B6528-002	VA25B6528-003	VA25B6528-004	VA25B6528-005	
					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	<0.50
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L	<10	<10	<10	<10	<10	<10

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

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA 2527-A-6 ----	BA 2527-A-7 ----	BA 2527-A-8 ----	BA 2527-A-9 ----	BA 2527-A-10 ----
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-006	VA25B6528-007	VA25B6528-008	VA25B6528-009	VA25B6528-010	
					Result	Result	Result	Result	Result	
Physical Tests										
Moisture	----	E144/VA	0.25	%	22.0	23.0	23.3	22.1	21.7	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.81	10.79	10.75	10.82	10.81	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	45000	37300	40500	36600	39800	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	117	104	104	94.8	83.9	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	23.6	20.1	23.2	22.3	17.5	
Barium	7440-39-3	E440/VA	0.50	mg/kg	610	519	597	571	587	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.42	0.40	0.39	0.41	0.36	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	10.3	11.4	7.41	13.2	9.29	
Boron	7440-42-8	E440/VA	5.0	mg/kg	200	206	229	198	169	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.32	21.3	7.10	8.30	8.16	
Calcium	7440-70-2	E440/VA	50	mg/kg	145000	137000	146000	143000	135000	



Analytical Results

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

					Client sample ID	BA 2527-A-6	BA 2527-A-7	BA 2527-A-8	BA 2527-A-9	BA 2527-A-10
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-006	VA25B6528-007	VA25B6528-008	VA25B6528-009	VA25B6528-010	
					Result	Result	Result	Result	Result	
Metals										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	282	198	135	134	308	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	514	41.4	149	137	107	
Copper	7440-50-8	E440/VA	0.50	mg/kg	4640	2290	1190	1460	5740	
Iron	7439-89-6	E440/VA	50	mg/kg	61400	63300	46300	50100	76800	
Lead	7439-92-1	E440/VA	0.50	mg/kg	691	245	264	300	300	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	179	37.8	38.6	45.0	27.3	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12100	11700	12300	12100	10600	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	975	1110	960	1080	858	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	23.9	13.2	16.1	14.0	21.0	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	276	173	136	250	505	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11700	11800	11900	12800	9490	
Potassium	7440-09-7	E440/VA	100	mg/kg	6080	6430	6590	6130	5440	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.49	0.39	0.40	0.35	0.33	
Silver	7440-22-4	E440/VA	0.10	mg/kg	5.10	7.08	4.30	3.75	4.16	
Sodium	7440-23-5	E440/VA	50	mg/kg	16900	15900	19400	17600	15100	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	366	424	309	324	273	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11300	10400	10500	10300	9400	
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	816	111	108	146	117	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	341	263	242	203	280	



Analytical Results

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

					Client sample ID	BA 2527-A-6	BA 2527-A-7	BA 2527-A-8	BA 2527-A-9	BA 2527-A-10
					Client sampling date / time	02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-006	VA25B6528-007	VA25B6528-008	VA25B6528-009	VA25B6528-010	
					Result	Result	Result	Result	Result	
Metals										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	10.2	7.01	5.88	7.97	5.62	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.93	1.85	1.99	1.86	1.63	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	65.5	33.8	35.0	31.2	35.1	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3320	3400	4170	3770	2900	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.1	2.2	2.7	2.7	3.9	
TCLP Metals										
pH, TCLP 1st preliminary	---	EPP444/VA	0.010	pH units	11.54	11.57	11.55	11.52	11.49	
pH, TCLP 2nd preliminary	---	EPP444/VA	0.010	pH units	3.33	2.94	2.69	2.79	2.40	
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	10.46	10.19	10.50	10.58	10.35	
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	0.71	0.75	0.62	0.66	0.71	
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	776	794	742	732	796	
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	0.826	0.714	0.864	0.848	0.812	
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 2527-A-6 ----	BA 2527-A-7 ----	BA 2527-A-8 ----	BA 2527-A-9 ----	BA 2527-A-10 ----
Client sampling date / time					02-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-006	VA25B6528-007	VA25B6528-008	VA25B6528-009	VA25B6528-010
					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	<2.5	<2.5	<2.5	<2.5
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)					Client sample ID				
					BA 2527-A-11 ----	BA 2527-A-12 ----	----	----	----
Client sampling date / time					02-Jul-2025 09:00	02-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-011	VA25B6528-012	----	----	----
					Result	Result	----	----	----
Physical Tests									
Moisture	----	E144/VA	0.25	%	21.2	22.1	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.73	10.87	----	----	----



Analytical Results

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

					Client sample ID	BA 2527-A-11	BA 2527-A-12	----	----	----
					Client sampling date / time	02-Jul-2025 09:00	02-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-011	VA25B6528-012	----	----	----	
					Result	Result	----	----	----	
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg	39400	42900	----	----	----	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	95.4	103	----	----	----	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	19.9	20.0	----	----	----	
Barium	7440-39-3	E440/VA	0.50	mg/kg	559	639	----	----	----	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.39	0.42	----	----	----	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	6.75	7.37	----	----	----	
Boron	7440-42-8	E440/VA	5.0	mg/kg	175	194	----	----	----	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	10.0	7.16	----	----	----	
Calcium	7440-70-2	E440/VA	50	mg/kg	128000	143000	----	----	----	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	160	129	----	----	----	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	71.8	27.1	----	----	----	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2320	1330	----	----	----	
Iron	7439-89-6	E440/VA	50	mg/kg	67000	54100	----	----	----	
Lead	7439-92-1	E440/VA	0.50	mg/kg	303	688	----	----	----	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	30.4	103	----	----	----	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12200	12300	----	----	----	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	948	845	----	----	----	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	18.9	14.0	----	----	----	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	303	137	----	----	----	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10800	11400	----	----	----	



Analytical Results

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

					Client sample ID	BA 2527-A-11	BA 2527-A-12	----	----	----
					Client sampling date / time	02-Jul-2025 09:00	02-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-011	VA25B6528-012	----	----	----	
					Result	Result	----	----	----	
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg	5820	6040	----	----	----	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.38	0.35	----	----	----	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.19	5.59	----	----	----	
Sodium	7440-23-5	E440/VA	50	mg/kg	15500	18000	----	----	----	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	286	308	----	----	----	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	10100	10600	----	----	----	
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	115	----	----	----	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	260	275	----	----	----	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.66	6.14	----	----	----	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.83	1.81	----	----	----	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	37.5	38.3	----	----	----	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3760	4400	----	----	----	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.0	3.6	----	----	----	
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.58	11.59	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	2.83	3.67	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.95	4.95	----	----	----	
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.57	10.47	----	----	----	
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 2527-A-11	BA 2527-A-12	----	----	----
					Client sampling date / time	02-Jul-2025 09:00	02-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B6528-011	VA25B6528-012	----	----	----	
					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	0.61	0.61	----	----	----	
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	746	725	----	----	----	
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	0.834	0.819	----	----	----	
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	<2.5	<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 : VA25B6528</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 : ----</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 15</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 : 08-Jul-2025 14:15</p> <p>Issue Date : 14-Jul-2025 09:59</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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : 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 2527-A-1	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-10	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-11	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-12	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-2	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-3	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2527-A-4	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-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 2527-A-5	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA 2527-A-6	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA 2527-A-7	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA 2527-A-8	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔	
Metals : Mercury in Soil/Solid by CVAAS											
LDPE bag BA 2527-A-9	E510	02-Jul-2025	10-Jul-2025	28 days	8 days	✔	11-Jul-2025	28 days	1 days	✔	
Metals : Metals in Soil/Solid by CRC ICMS											
LDPE bag BA 2527-A-1	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICMS											
LDPE bag BA 2527-A-10	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICMS											
LDPE bag BA 2527-A-11	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICMS											
LDPE bag BA 2527-A-12	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 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		
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-2	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-3	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-4	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-5	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-6	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-7	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-8	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Metals : Metals in Soil/Solid by CRC ICPMS											
LDPE bag BA 2527-A-9	E440	02-Jul-2025	10-Jul-2025	180 days	8 days	✔	11-Jul-2025	180 days	8 days	✔	
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-1	E144	02-Jul-2025	----	----	----		09-Jul-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 2527-A-10	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-11	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-12	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-2	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-3	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-4	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-5	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-6	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-7	E144	02-Jul-2025	----	----	----		09-Jul-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 2527-A-8	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : Moisture Content by Gravimetry											
LDPE bag BA 2527-A-9	E144	02-Jul-2025	----	----	----		09-Jul-2025	----	----		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-1	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-10	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-11	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-12	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-2	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-3	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-4	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 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		
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-5	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-6	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-7	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-8	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)											
LDPE bag BA 2527-A-9	E108	02-Jul-2025	10-Jul-2025	30 days	8 days	✔	11-Jul-2025	30 days	8 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA 2527-A-1	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✔	12-Jul-2025	35 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA 2527-A-10	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✔	12-Jul-2025	35 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA 2527-A-11	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✔	12-Jul-2025	35 days	10 days	✔	
TCLP Metals : Mercury by CVAAS (TCLP)											
Glass vial - total (lab preserved) BA 2527-A-12	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✔	12-Jul-2025	35 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 2527-A-2	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-3	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-4	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-5	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-6	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-7	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-8	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2527-A-9	E512	09-Jul-2025	12-Jul-2025	35 days	10 days	✓	12-Jul-2025	35 days	10 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2527-A-1	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✓	14-Jul-2025	187 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 2527-A-10	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-11	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-12	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-2	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-3	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-4	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-5	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-6	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-7	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 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 2527-A-8	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 days	10 days	✔	
TCLP Metals : Metals by CRC ICPMS (TCLP)											
HDPE - total (lab preserved) BA 2527-A-9	E444	09-Jul-2025	12-Jul-2025	187 days	10 days	✔	14-Jul-2025	187 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 2527-A-1	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-10	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-11	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-12	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-2	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-3	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-4	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 days	7 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 2527-A-5	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-6	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-7	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-8	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 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 2527-A-9	EPP444	02-Jul-2025	09-Jul-2025	----	----		----	28 days	7 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	2098260	1	18	5.5	5.0	✔
Moisture Content by Gravimetry	E144	2098261	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2098259	1	18	5.5	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2103681	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2098258	1	17	5.8	5.0	✔
Mercury by CVAAS (TCLP)	E512	2103664	1	12	8.3	5.0	✔
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2098260	1	18	5.5	5.0	✔
Moisture Content by Gravimetry	E144	2098261	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2098259	2	18	11.1	10.0	✔
Mercury in Soil/Solid by CVAAS	E510	2098258	2	17	11.7	10.0	✔
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	2098261	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2098259	1	18	5.5	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2103681	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2098258	1	17	5.8	5.0	✔
Mercury by CVAAS (TCLP)	E512	2103664	1	12	8.3	5.0	✔
Matrix Spikes (MS)							
Metals by CRC ICPMS (TCLP)	E444	2103681	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2103664	1	12	8.3	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$), 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	: VA25B6528	Page	: 1 of 11
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	: 08-Jul-2025 14:15
PO	: ----	Date Analysis Commenced	: 09-Jul-2025
C-O-C number	: ----	Issue Date	: 14-Jul-2025 09:59
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
Janice Leung	Supervisor - Organics Instrumentation	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: 2098260)											
KS2502589-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	8.92	8.87	0.6%	5%	----
Physical Tests (QC Lot: 2098261)											
VA25B6528-001	BA 2527-A-1	Moisture	----	E144	0.25	%	22.8	22.6	0.880%	20%	----
Metals (QC Lot: 2098258)											
KS2502589-001	Anonymous	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0280	0.0276	1.69%	40%	----
Metals (QC Lot: 2098259)											
KS2502589-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	15600	15300	1.90%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.59	0.59	0.006	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	6.14	5.76	6.44%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	134	132	1.20%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.40	0.39	0.009	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.106	0.109	0.003	Diff <2x LOR	----
		Calcium	7440-70-2	E440	50	mg/kg	14800	13000	13.2%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	35.1	34.3	2.31%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	11.7	12.1	3.22%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	59.5	57.1	4.09%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	29200	28300	2.88%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	3.48	3.55	1.80%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	7.5	7.8	0.4	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	6560	6960	5.89%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	455	442	2.84%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.64	0.63	1.89%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	25.5	26.9	5.39%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	974	971	0.295%	30%	----
Potassium	7440-09-7	E440	100	mg/kg	1370	1420	4.01%	40%	----		
Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----		
Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----		
Sodium	7440-23-5	E440	50	mg/kg	798	816	2.22%	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: 2098259) - continued											
KS2502589-001	Anonymous	Strontium	7440-24-6	E440	0.50	mg/kg	75.4	72.6	3.84%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.077	0.079	0.002	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	1510	1570	3.96%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.739	0.674	9.19%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	103	97.6	5.20%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	47.4	49.8	4.98%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	8.2	9.0	9.44%	30%	----
TCLP Metals (QC Lot: 2103664)											
VA25B6528-001	BA 2527-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2103681)											
VA25B6528-001	BA 2527-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	0.67	0.68	0.005	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	802	783	2.49%	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	0.838	0.830	0.980%	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	----		



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: 2098261)						
Moisture	---	E144	0.25	%	<0.25	---
Metals (QCLot: 2098258)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
Metals (QCLot: 2098259)						
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	---



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2098259) - continued						
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
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: 2103664)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP Metals (QCLot: 2103681)						
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: 2098260)									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	101	95.0	105	---
Physical Tests (QCLot: 2098261)									
Moisture	---	E144	0.25	%	50 %	102	90.0	110	---
Metals (QCLot: 2098258)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	92.4	80.0	120	---
Metals (QCLot: 2098259)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	94.8	80.0	120	---
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	102	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	99.3	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.1	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	95.0	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	94.4	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	96.3	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	93.5	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	94.7	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	94.8	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	92.3	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	91.5	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	96.8	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	101	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	93.5	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	94.4	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	99.5	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	93.5	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	99.7	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	94.2	80.0	120	---
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	94.6	80.0	120	---
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	92.2	80.0	120	---
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	92.6	80.0	120	---
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	98.9	80.0	120	---
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	90.0	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: 2098259) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	93.5	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	96.8	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	95.9	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	98.3	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	103	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	96.3	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	91.6	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	97.9	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: 2103664)										
VA25B6528-001	BA 2527-A-1	Mercury, TCLP	7439-97-6	E512	0.0032 mg/L	0.003 mg/L	105	50.0	140	----
TCLP Metals (QCLot: 2103681)										
VA25B6528-001	BA 2527-A-1	Antimony, TCLP	7440-36-0	E444	5.30 mg/L	5 mg/L	106	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.6 mg/L	5 mg/L	112	50.0	140	----
		Barium, TCLP	7440-39-3	E444	14.1 mg/L	12.5 mg/L	113	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.264 mg/L	0.25 mg/L	106	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.95 mg/L	10 mg/L	99.5	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.256 mg/L	0.25 mg/L	102	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	0.264 mg/L	0.25 mg/L	106	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.55 mg/L	2.5 mg/L	102	50.0	140	----
		Iron, TCLP	7439-89-6	E444	256 mg/L	250 mg/L	102	50.0	140	----
		Lead, TCLP	7439-92-1	E444	10.0 mg/L	10 mg/L	100	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	278 mg/L	250 mg/L	111	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.57 mg/L	2.5 mg/L	103	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.46 mg/L	5 mg/L	109	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.092 mg/L	0.1 mg/L	91.6	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	5.0 mg/L	5 mg/L	99.3	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	5.02 mg/L	5 mg/L	100	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.82 mg/L	0.75 mg/L	109	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	10.8 mg/L	10 mg/L	108	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	84.0	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: 2098258)									
QC-2098258-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	98.4	70.0	130	----
Metals (QCLot: 2098259)									
QC-2098259-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	107	70.0	130	----
QC-2098259-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	99.8	70.0	130	----
QC-2098259-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	98.9	70.0	130	----
QC-2098259-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	99.6	70.0	130	----
QC-2098259-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	116	70.0	130	----
QC-2098259-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	102	70.0	130	----
QC-2098259-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	100	70.0	130	----
QC-2098259-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	106	70.0	130	----
QC-2098259-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	99.6	70.0	130	----
QC-2098259-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	98.7	70.0	130	----
QC-2098259-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	95.5	70.0	130	----
QC-2098259-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	97.8	70.0	130	----
QC-2098259-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	97.0	70.0	130	----
QC-2098259-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	113	70.0	130	----
QC-2098259-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	102	70.0	130	----
QC-2098259-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	95.4	70.0	130	----
QC-2098259-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	98.1	70.0	130	----
QC-2098259-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	97.9	70.0	130	----
QC-2098259-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	102	70.0	130	----
QC-2098259-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	100	70.0	130	----
QC-2098259-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	99.6	60.0	140	----
QC-2098259-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	98.3	70.0	130	----
QC-2098259-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	110	70.0	130	----
QC-2098259-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	100	70.0	130	----
QC-2098259-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	87.9	50.0	150	----
QC-2098259-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	101	70.0	130	----
QC-2098259-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	99.0	40.0	160	----
QC-2098259-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	103	70.0	130	----
QC-2098259-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	109	70.0	130	----
QC-2098259-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	115	70.0	130	----
QC-2098259-003	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: 2098259) - continued									
QC-2098259-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	95.5	70.0	130	----
QC-2098259-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	103	70.0	130	----

