

## Bottom Ash Data

2025 Week 24

---

The following analytical report represents bottom ash composite results for week 24 of 2025 (June 7, 2025 to June 14, 2025).

The bottom ash meets the conditions of Metro Vancouver's 2020 Bottom Ash Management Plan and is suitable for disposal .

**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>VA25B4449</b>		
<b>Client</b>	: <b>Veolia Environmental Services Canada</b>	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Brian Graham	<b>Account Manager</b>	: Gulraj Dhanaua
<b>Address</b>	: 5150 Riverbend Dr. Burnaby British Columbia Canada V3N 4V3	<b>Address</b>	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
<b>Telephone</b>	: ----	<b>E-mail</b>	: Gulraj.Dhanaua@alsglobal.com
<b>Project</b>	: Veolia Weekly Bottom Ash-Suite	<b>Telephone</b>	: +1 604 253 4188
<b>PO</b>	: ----	<b>Date Samples Received</b>	: 17-Jun-2025 10:15
<b>C-O-C number</b>	: ----	<b>Date Analysis Commenced</b>	: 18-Jun-2025
<b>Sampler</b>	: ----	<b>Issue Date</b>	: 25-Jun-2025 15:50
<b>Site</b>	: Metro Van Ash Sampling Program		
<b>Quote number</b>	: VA25-VISI100-001		
<b>No. of samples received</b>	: 12		
<b>No. of samples analysed</b>	: 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>
Angela Ren		Metals, Burnaby, British Columbia
Janice Leung		Organics, Burnaby, British Columbia
Kim Jensen		Metals, Burnaby, British Columbia
Ophelia Chiu		Metals, Burnaby, British Columbia



## General Comments

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

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

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

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

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

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

<: less than.

>: greater than.

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

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

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



## Analytical Results

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

					Client sample ID	BA 2524-A-1	BA 2524-A-2	BA 2524-A-3	BA 2524-A-4	BA 2524-A-5
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-001	VA25B4449-002	VA25B4449-003	VA25B4449-004	VA25B4449-005	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	22.2	22.4	22.6	22.8	21.0	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.27	10.26	10.29	10.25	10.23	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	46400	37700	32600	34200	35100	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	115	138	111	105	703	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	15.8	16.8	19.5	16.3	14.8	
Barium	7440-39-3	E440/VA	0.50	mg/kg	500	454	388	486	502	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.35	0.38	0.66	0.62	0.33	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	19.1	10.6	11.4	8.82	22.2	
Boron	7440-42-8	E440/VA	5.0	mg/kg	197	210	180	237	203	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.74	7.28	7.59	6.98	6.65	
Calcium	7440-70-2	E440/VA	50	mg/kg	125000	122000	128000	120000	125000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	169	203	165	333	199	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	37.8	348	435	37.4	54.1	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1470	26000	2300	3340	2160	
Iron	7439-89-6	E440/VA	50	mg/kg	57200	51300	59900	55600	58800	
Lead	7439-92-1	E440/VA	0.50	mg/kg	377	5980	383	311	9950	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	28.5	39.4	31.0	27.1	31.0	
Magnesium	7439-95-4	E440/VA	20	mg/kg	11800	12400	12000	11300	11300	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	762	1150	972	868	730	
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 2524-A-1	BA 2524-A-2	BA 2524-A-3	BA 2524-A-4	BA 2524-A-5
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-001	VA25B4449-002	VA25B4449-003	VA25B4449-004	VA25B4449-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	19.8	23.0	28.5	23.0	17.8	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	308	505	278	385	221	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11900	10700	11600	11300	10500	
Potassium	7440-09-7	E440/VA	100	mg/kg	6630	5710	6280	5560	5500	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.34	0.41	0.35	0.35	0.34	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.46	5.62	4.48	4.87	8.32	
Sodium	7440-23-5	E440/VA	50	mg/kg	17800	16100	17200	15800	15300	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	272	255	257	248	246	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	12200	11400	12600	10900	10800	
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	107	202	166	169	456	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	258	270	204	204	236	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	8.14	7.29	7.91	9.11	11.6	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	2.01	1.88	2.06	2.00	1.73	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	34.5	32.5	33.0	40.1	31.8	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	5190	5550	3810	4360	6160	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	4.2	3.0	2.7	2.4	3.2	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.05	11.06	11.05	11.08	11.06	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	2.57	2.77	2.56	2.54	2.84	
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 2524-A-1	BA 2524-A-2	BA 2524-A-3	BA 2524-A-4	BA 2524-A-5
					Client sampling date / time				
					12-Jun-2025 09:00	12-Jun-2025 09:00	12-Jun-2025 09:00	12-Jun-2025 09:00	12-Jun-2025 09:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-001	VA25B4449-002	VA25B4449-003	VA25B4449-004	VA25B4449-005
					Result	Result	Result	Result	Result
<b>TCLP Metals</b>									
pH, TCLP final	----	EPP444/VA	0.010	pH units	8.94	9.10	9.16	9.03	9.12
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	0.90	0.96	0.96	1.02	1.00
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	754	797	778	787	808
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	0.600	0.542	0.575	0.580	0.577
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	9.3	9.3	10.9	9.8	11.0
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 2524-A-1	BA 2524-A-2	BA 2524-A-3	BA 2524-A-4	BA 2524-A-5
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-001	VA25B4449-002	VA25B4449-003	VA25B4449-004	VA25B4449-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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 2524-A-6	BA 2524-A-7	BA 2524-A-8	BA 2524-A-9	BA 2524-A-10
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-006	VA25B4449-007	VA25B4449-008	VA25B4449-009	VA25B4449-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	22.9	22.2	22.7	23.0	21.4	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.26	10.20	10.25	10.23	10.22	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	35200	46000	36200	36700	34600	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	133	116	127	120	118	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	16.2	17.9	23.4	17.1	18.2	
Barium	7440-39-3	E440/VA	0.50	mg/kg	508	536	507	479	449	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.37	0.36	0.36	0.77	0.34	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	11.5	10.5	10.8	10.2	12.5	
Boron	7440-42-8	E440/VA	5.0	mg/kg	182	182	199	206	184	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.99	18.1	26.4	7.86	8.87	
Calcium	7440-70-2	E440/VA	50	mg/kg	126000	123000	124000	128000	129000	



## Analytical Results

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

					Client sample ID	BA 2524-A-6	BA 2524-A-7	BA 2524-A-8	BA 2524-A-9	BA 2524-A-10
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-006	VA25B4449-007	VA25B4449-008	VA25B4449-009	VA25B4449-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	162	163	159	354	188	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	104	212	89.2	236	131	
Copper	7440-50-8	E440/VA	0.50	mg/kg	25700	3490	1470	3210	2120	
Iron	7439-89-6	E440/VA	50	mg/kg	57500	52300	58000	51700	52700	
Lead	7439-92-1	E440/VA	0.50	mg/kg	3880	492	701	2090	484	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	30.8	33.1	26.8	38.8	49.9	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12100	11800	12700	12700	12600	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	809	897	750	1360	893	
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	19.2	18.1	19.0	21.2	28.6	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	148	325	144	500	339	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10800	11400	10600	11300	11300	
Potassium	7440-09-7	E440/VA	100	mg/kg	6080	6230	5720	6160	5830	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.56	0.31	0.33	0.33	0.35	
Silver	7440-22-4	E440/VA	0.10	mg/kg	5.95	>30.7	4.73	5.10	6.52	
Sodium	7440-23-5	E440/VA	50	mg/kg	17200	17900	15800	16700	16100	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	279	269	272	279	286	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11700	11000	11000	12100	12400	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	0.139	<0.050	<0.050	<0.050	<0.050	
Tin	7440-31-5	E440/VA	2.0	mg/kg	165	130	108	356	161	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	217	226	229	198	182	



## Analytical Results

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

					Client sample ID	BA 2524-A-6	BA 2524-A-7	BA 2524-A-8	BA 2524-A-9	BA 2524-A-10
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-006	VA25B4449-007	VA25B4449-008	VA25B4449-009	VA25B4449-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.01	6.51	8.79	8.32	8.50	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	2.07	2.18	1.86	2.10	2.00	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	34.5	35.3	33.2	36.8	33.4	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	4200	3520	3410	3730	3940	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.4	3.5	1.9	2.8	2.9	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	---	EPP444/VA	0.010	pH units	11.09	11.10	11.08	11.09	11.09	
pH, TCLP 2nd preliminary	---	EPP444/VA	0.010	pH units	2.61	2.53	2.56	2.74	2.78	
pH, TCLP extraction fluid initial	---	EPP444/VA	0.010	pH units	4.95	4.95	4.95	4.95	4.95	
pH, TCLP final	---	EPP444/VA	0.010	pH units	9.18	9.17	9.13	9.02	9.13	
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	0.97	0.93	0.97	1.00	0.96	
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	793	806	799	836	788	
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	0.598	0.512	0.556	0.568	0.613	
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 2524-A-6	BA 2524-A-7	BA 2524-A-8	BA 2524-A-9	BA 2524-A-10
					Client sampling date / time	12-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-006	VA25B4449-007	VA25B4449-008	VA25B4449-009	VA25B4449-010	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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	9.4	11.2	10.6	10.7	10.3	
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 2524-A-11	BA 2524-A-12	----	----	----
					Client sampling date / time	12-Jun-2025 09:00	12-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-011	VA25B4449-012	----	----	----	
					Result	Result	----	----	----	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	22.2	21.7	----	----	----	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	10.25	10.22	----	----	----	



### Analytical Results

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

					Client sample ID	BA 2524-A-11	BA 2524-A-12	----	----	----
					Client sampling date / time	12-Jun-2025 09:00	12-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-011	VA25B4449-012	----	----	----	
					Result	Result	----	----	----	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	33400	34800	----	----	----	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	128	117	----	----	----	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	17.5	16.4	----	----	----	
Barium	7440-39-3	E440/VA	0.50	mg/kg	441	460	----	----	----	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.39	0.38	----	----	----	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	11.6	11.2	----	----	----	
Boron	7440-42-8	E440/VA	5.0	mg/kg	180	190	----	----	----	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	8.66	6.78	----	----	----	
Calcium	7440-70-2	E440/VA	50	mg/kg	130000	122000	----	----	----	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	171	170	----	----	----	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	112	71.2	----	----	----	
Copper	7440-50-8	E440/VA	0.50	mg/kg	3740	2240	----	----	----	
Iron	7439-89-6	E440/VA	50	mg/kg	58000	61300	----	----	----	
Lead	7439-92-1	E440/VA	0.50	mg/kg	306	2560	----	----	----	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	34.7	27.2	----	----	----	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12900	12000	----	----	----	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	773	736	----	----	----	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	17.6	29.7	----	----	----	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	176	194	----	----	----	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11300	11300	----	----	----	



## Analytical Results

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

					Client sample ID		BA 2524-A-11	BA 2524-A-12	----	----	----
					Client sampling date / time		12-Jun-2025 09:00	12-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-011	VA25B4449-012	----	----	----	----	----
					Result	Result	----	----	----	----	----
<b>Metals</b>											
Potassium	7440-09-7	E440/VA	100	mg/kg	6280	5940	----	----	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.35	0.37	----	----	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.59	3.77	----	----	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg	17000	16300	----	----	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg	306	270	----	----	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11900	11800	----	----	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	----	----	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg	158	187	----	----	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg	243	214	----	----	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.77	8.98	----	----	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg	2.02	1.92	----	----	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	47.1	32.0	----	----	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3420	4090	----	----	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.2	2.9	----	----	----	----	----
<b>TCLP Metals</b>											
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.08	11.05	----	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	2.97	2.90	----	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.95	4.95	----	----	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units	9.06	9.15	----	----	----	----	----
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 2524-A-11	BA 2524-A-12	----	----	----
					Client sampling date / time		12-Jun-2025 09:00	12-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4449-011	VA25B4449-012	----	----	----	----	----
					Result	Result	----	----	----	----	----
<b>TCLP Metals</b>											
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	1.00	1.00	----	----	----	----	----
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	792	803	----	----	----	----	----
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	0.456	0.587	----	----	----	----	----
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	12.1	11.5	----	----	----	----	----
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><b>Work Order</b> : <b>VA25B4449</b></p> <p><b>Client</b> : <b>Veolia Environmental Services Canada</b></p> <p><b>Contact</b> : Brian Graham</p> <p><b>Address</b> : 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : Veolia Weekly Bottom Ash-Suite</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Metro Van Ash Sampling Program</p> <p><b>Quote number</b> : VA25-VIS1100-001</p> <p><b>No. of samples received</b> : 12</p> <p><b>No. of samples analysed</b> : 12</p>	<p><b>Page</b> : 1 of 16</p> <p><b>Laboratory</b> : ALS Environmental - Vancouver</p> <p><b>Account Manager</b> : Gulraj Dhanaua</p> <p><b>Address</b> : 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9</p> <p><b>Telephone</b> : +1 604 253 4188</p> <p><b>Date Samples Received</b> : 17-Jun-2025 10:15</p> <p><b>Issue Date</b> : 25-Jun-2025 15:53</p>
---	--

---

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
<b>Duplicate (DUP) RPDs</b>								
Metals	VA25B4449-001	BA 2524-A-1	Antimony	7440-36-0	E440	78.6 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Cobalt	7440-48-4	E440	99.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Lead	7439-92-1	E440	191 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Nickel	7440-02-0	E440	39.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Silver	7440-22-4	E440	101 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Tin	7440-31-5	E440	98.4 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4449-001	BA 2524-A-1	Mercury	7439-97-6	E510	0.283 % DUP-H, J	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

**Result Qualifiers**

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
J	Duplicate results and limits are expressed in terms of absolute difference.



## 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	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-1	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-10	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-11	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-12	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-2	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-3	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-4	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 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		
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-5	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-6	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-7	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-8	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-9	E510	12-Jun-2025	24-Jun-2025	28 days	12 days	✔	24-Jun-2025	28 days	0 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-1	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✔	25-Jun-2025	180 days	12 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-10	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✔	25-Jun-2025	180 days	12 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-11	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✔	25-Jun-2025	180 days	12 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-12	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✔	25-Jun-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		
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-2	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-3	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-4	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-5	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-6	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-7	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-8	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-9	E440	12-Jun-2025	24-Jun-2025	180 days	12 days	✓	25-Jun-2025	180 days	12 days	✓	
<b>Physical Tests : Moisture Content by Gravimetry</b>											
<b>LDPE bag</b> BA 2524-A-1	E144	12-Jun-2025	----	----	----		21-Jun-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	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-10	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-11	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-12	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-2	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-3	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-4	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-5	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-6	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-7	E144	12-Jun-2025	----	----	----		21-Jun-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		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA 2524-A-8	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA 2524-A-9	E144	12-Jun-2025	----	----	----		21-Jun-2025	----	----		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-1	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-10	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-11	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-12	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-2	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-3	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-4	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-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	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-5	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-6	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-7	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-8	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-9	E108	12-Jun-2025	24-Jun-2025	30 days	12 days	✔	24-Jun-2025	30 days	12 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-1	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-10	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-11	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-12	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 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	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-2	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-3	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-4	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-5	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-6	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-7	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-8	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-9	E512	18-Jun-2025	20-Jun-2025	34 days	8 days	✔	20-Jun-2025	34 days	8 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-1	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✔	20-Jun-2025	186 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		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-10	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-11	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-12	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-2	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-3	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-4	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-5	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-6	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 days	7 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-7	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✓	20-Jun-2025	186 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		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-8	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✔	20-Jun-2025	186 days	7 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-9	E444	18-Jun-2025	19-Jun-2025	186 days	7 days	✔	20-Jun-2025	186 days	7 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-1	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-10	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-11	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-12	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-2	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-3	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-4	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 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	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-5	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-6	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-7	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-8	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-9	EPP444	12-Jun-2025	18-Jun-2025	----	----		----	28 days	6 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
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
pH by Meter (1:2 Soil:Water Extraction)	E108	2066719	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	2066720	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2066718	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2061840	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2066717	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2061839	1	12	8.3	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
pH by Meter (1:2 Soil:Water Extraction)	E108	2066719	1	12	8.3	5.0	✔
Moisture Content by Gravimetry	E144	2066720	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2066718	2	12	16.6	10.0	✔
Mercury in Soil/Solid by CVAAS	E510	2066717	2	12	16.6	10.0	✔
<b>Method Blanks (MB)</b>							
Moisture Content by Gravimetry	E144	2066720	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2066718	1	12	8.3	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2061840	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2066717	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2061839	1	12	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
Metals by CRC ICPMS (TCLP)	E444	2061840	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2061839	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 $105^{\circ}\text{C}$ . 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 $\text{HNO}_3$ and $\text{HCl}$ .  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 $\text{HNO}_3$ and $\text{HCl}$ , 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 <sub>3</sub> 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

<b>Work Order</b>	<b>: VA25B4449</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	: Veolia Environmental Services Canada	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Brian Graham	<b>Account Manager</b>	: Gulraj Dhanaua
<b>Address</b>	: 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	<b>Address</b>	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 604 253 4188
<b>Project</b>	: Veolia Weekly Bottom Ash-Suite	<b>Date Samples Received</b>	: 17-Jun-2025 10:15
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 18-Jun-2025
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 25-Jun-2025 15:48
<b>Sampler</b>	: ----		
<b>Site</b>	: Metro Van Ash Sampling Program		
<b>Quote number</b>	: VA25-VISI100-001		
<b>No. of samples received</b>	: 12		
<b>No. of samples analysed</b>	: 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>
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Metals, Burnaby, British Columbia



## General Comments

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

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

---

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

---



### Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 2066719)</b>											
VA25B4449-001	BA 2524-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	10.27	10.25	0.2%	5%	----
<b>Physical Tests (QC Lot: 2066720)</b>											
VA25B4449-001	BA 2524-A-1	Moisture	----	E144	0.25	%	22.2	22.4	0.796%	20%	----
<b>Metals (QC Lot: 2066717)</b>											
VA25B4449-001	BA 2524-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	# 0.333	0.283	Diff <2x LOR	DUP-H,J
<b>Metals (QC Lot: 2066718)</b>											
VA25B4449-001	BA 2524-A-1	Aluminum	7429-90-5	E440	50	mg/kg	46400	41700	10.7%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	115	264	78.6%	30%	DUP-H
		Arsenic	7440-38-2	E440	0.10	mg/kg	15.8	16.7	5.92%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	500	501	0.242%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.35	0.38	0.02	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	19.1	16.1	17.0%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	197	180	9.29%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	8.74	7.24	18.8%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	125000	123000	1.14%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	169	155	8.50%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	37.8	112	99.1%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	1470	1970	29.0%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	57200	61200	6.78%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	377	16000	191%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	28.5	28.6	0.146%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	11800	12500	5.78%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	762	812	6.38%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	19.8	19.2	3.44%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	308	207	39.2%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	11900	10600	11.4%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	6630	5980	10.3%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.34	0.48	0.14	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	4.46	13.6	101%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	17800	17400	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
<b>Metals (QC Lot: 2066718) - continued</b>											
VA25B4449-001	BA 2524-A-1	Strontium	7440-24-6	E440	0.50	mg/kg	272	278	2.07%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	12200	11800	4.16%	30%	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	0.101	0.051	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	107	314	98.4%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	258	280	8.18%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	8.14	7.07	14.1%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	2.01	2.01	0.349%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	34.5	43.1	22.1%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	5190	3980	26.3%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	4.2	2.6	1.6	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 2061839)</b>											
VA25B4449-001	BA 2524-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 2061840)</b>											
VA25B4449-001	BA 2524-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	0.90	0.92	0.02	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	754	787	4.27%	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	0.600	0.598	0.314%	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	9.3	9.6	0.3	Diff <2x LOR	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	0	Diff <2x LOR	----
		Zinc, TCLP	7440-66-6	E444	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----		



---

## Qualifiers

<i>Qualifier</i>	<i>Description</i>
<i>DUP-H</i>	<i>Duplicate results outside ALS DQO, due to sample heterogeneity.</i>
<i>J</i>	<i>Duplicate results and limits are expressed in terms of absolute difference.</i>

---



## 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
<b>Physical Tests (QCLot: 2066720)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Metals (QCLot: 2066717)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
<b>Metals (QCLot: 2066718)</b>						
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
<b>Metals (QCLot: 2066718) - continued</b>						
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	----
<b>TCLP Metals (QCLot: 2061839)</b>						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
<b>TCLP Metals (QCLot: 2061840)</b>						
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
<b>Physical Tests (QCLot: 2066719)</b>									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	100	95.0	105	---
<b>Physical Tests (QCLot: 2066720)</b>									
Moisture	---	E144	0.25	%	50 %	101	90.0	110	---
<b>Metals (QCLot: 2066717)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	88.2	80.0	120	---
<b>Metals (QCLot: 2066718)</b>									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	95.9	80.0	120	---
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	97.2	80.0	120	---
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	93.1	80.0	120	---
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	97.0	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	100	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	97.6	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	90.6	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	102	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	97.5	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	96.8	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	96.4	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	95.5	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	101	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	99.1	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	98.5	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	99.2	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	98.3	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	95.6	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	96.9	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	99.4	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	97.0	80.0	120	---
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	88.6	80.0	120	---
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	97.7	80.0	120	---
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	97.8	80.0	120	---
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	107	80.0	120	---
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	88.2	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
<b>Metals (QCLot: 2066718) - continued</b>									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	97.8	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	93.7	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	88.0	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	90.7	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	101	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	97.7	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	96.4	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	94.5	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
<b>TCLP Metals (QCLot: 2061839)</b>										
VA25B4449-001	BA 2524-A-1	Mercury, TCLP	7439-97-6	E512	0.0020 mg/L	0.003 mg/L	67.7	50.0	140	----
<b>TCLP Metals (QCLot: 2061840)</b>										
VA25B4449-001	BA 2524-A-1	Antimony, TCLP	7440-36-0	E444	5.84 mg/L	5 mg/L	117	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.8 mg/L	5 mg/L	115	50.0	140	----
		Barium, TCLP	7440-39-3	E444	11.4 mg/L	12.5 mg/L	91.5	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.266 mg/L	0.25 mg/L	106	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.25 mg/L	10 mg/L	92.5	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.272 mg/L	0.25 mg/L	109	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.39 mg/L	1.25 mg/L	111	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.267 mg/L	0.25 mg/L	107	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.60 mg/L	2.5 mg/L	104	50.0	140	----
		Iron, TCLP	7439-89-6	E444	259 mg/L	250 mg/L	103	50.0	140	----
		Lead, TCLP	7439-92-1	E444	10.9 mg/L	10 mg/L	109	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	224 mg/L	250 mg/L	89.5	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.63 mg/L	2.5 mg/L	105	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.44 mg/L	5 mg/L	109	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.080 mg/L	0.1 mg/L	80.2	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	5.5 mg/L	5 mg/L	110	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	5.79 mg/L	5 mg/L	116	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.83 mg/L	0.75 mg/L	110	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	10.7 mg/L	10 mg/L	107	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	1 mg/L	1 mg/L	100	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	
<b>Metals (QCLot: 2066717)</b>									
QC-2066717-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	101	70.0	130	----
<b>Metals (QCLot: 2066718)</b>									
QC-2066718-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	105	70.0	130	----
QC-2066718-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	107	70.0	130	----
QC-2066718-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	102	70.0	130	----
QC-2066718-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	97.7	70.0	130	----
QC-2066718-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	106	70.0	130	----
QC-2066718-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	102	70.0	130	----
QC-2066718-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	105	70.0	130	----
QC-2066718-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	103	70.0	130	----
QC-2066718-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	100	70.0	130	----
QC-2066718-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	101	70.0	130	----
QC-2066718-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	99.4	70.0	130	----
QC-2066718-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	103	70.0	130	----
QC-2066718-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	96.6	70.0	130	----
QC-2066718-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	110	70.0	130	----
QC-2066718-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	105	70.0	130	----
QC-2066718-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	101	70.0	130	----
QC-2066718-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	102	70.0	130	----
QC-2066718-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	104	70.0	130	----
QC-2066718-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	104	70.0	130	----
QC-2066718-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	101	70.0	130	----
QC-2066718-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	111	60.0	140	----
QC-2066718-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	102	70.0	130	----
QC-2066718-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	111	70.0	130	----
QC-2066718-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	103	70.0	130	----
QC-2066718-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	92.4	50.0	150	----
QC-2066718-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	100	70.0	130	----
QC-2066718-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	104	40.0	160	----
QC-2066718-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	101	70.0	130	----
QC-2066718-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	111	70.0	130	----
QC-2066718-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	100	70.0	130	----
QC-2066718-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	99.9	70.0	130	----

Page : 12 of 12  
 Work Order : VA25B4449  
 Client : Veolia Environmental Services Canada  
 Project : Veolia Weekly Bottom Ash-Suite



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	
<b>Metals (QCLot: 2066718) - continued</b>									
QC-2066718-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	98.2	70.0	130	----
QC-2066718-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	104	70.0	130	----



**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>VA25B4452</b>		
<b>Client</b>	: <b>Veolia Environmental Services Canada</b>	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Brian Graham	<b>Account Manager</b>	: Gulraj Dhanaua
<b>Address</b>	: 5150 Riverbend Dr. Burnaby British Columbia Canada V3N 4V3	<b>Address</b>	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
<b>Telephone</b>	: ----	<b>E-mail</b>	: Gulraj.Dhanaua@alsglobal.com
<b>Project</b>	: Veolia Weekly Bottom Ash-Suite	<b>Telephone</b>	: +1 604 253 4188
<b>PO</b>	: ----	<b>Date Samples Received</b>	: 17-Jun-2025 10:15
<b>C-O-C number</b>	: ----	<b>Date Analysis Commenced</b>	: 22-Jun-2025
<b>Sampler</b>	: ----	<b>Issue Date</b>	: 25-Jun-2025 15:49
<b>Site</b>	: Metro Van Ash Sampling Program		
<b>Quote number</b>	: VA25-VISI100-001		
<b>No. of samples received</b>	: 12		
<b>No. of samples analysed</b>	: 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>
Angela Ren		Metals, Burnaby, British Columbia
Kevin Duarte		Metals, Burnaby, British Columbia
Kim Jensen		Metals, Burnaby, British Columbia
Ophelia Chiu		Organics, Burnaby, British Columbia
Robert Nguyen		Metals, Burnaby, British Columbia



## General Comments

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

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

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

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

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

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

<: less than.

>: greater than.

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

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

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



**Analytical Results**

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

					Client sample ID	BA 2524-A-1 UNPROCESSED	BA 2524-A-2 UNPROCESSED	BA 2524-A-3 UNPROCESSED	BA 2524-A-4 UNPROCESSED	BA 2524-A-5 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-001	VA25B4452-002	VA25B4452-003	VA25B4452-004	VA25B4452-005	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	22.0	26.5	26.4	24.6	23.4	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.08	11.29	11.34	11.18	11.09	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	37500	34800	35400	42400	36100	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	128	136	120	122	110	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	18.4	19.1	21.5	19.0	16.4	
Barium	7440-39-3	E440/VA	0.50	mg/kg	615	569	512	545	511	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.42	0.39	0.34	0.33	0.38	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	11.7	10.8	10.6	10.4	10.7	
Boron	7440-42-8	E440/VA	5.0	mg/kg	182	199	185	274	214	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	6.50	15.7	9.04	5.58	9.06	
Calcium	7440-70-2	E440/VA	50	mg/kg	139000	138000	140000	137000	132000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	142	134	145	197	128	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	38.6	28.8	32.8	496	53.8	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2010	4870	6380	2510	2080	
Iron	7439-89-6	E440/VA	50	mg/kg	47600	45800	40500	49000	41500	
Lead	7439-92-1	E440/VA	0.50	mg/kg	222	395	220	204	358	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	22.2	29.2	24.2	94.4	26.1	
Magnesium	7439-95-4	E440/VA	20	mg/kg	20800	19700	22200	19500	19800	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	739	623	774	3400	722	
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 2524-A-1 UNPROCESSED	BA 2524-A-2 UNPROCESSED	BA 2524-A-3 UNPROCESSED	BA 2524-A-4 UNPROCESSED	BA 2524-A-5 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-001	VA25B4452-002	VA25B4452-003	VA25B4452-004	VA25B4452-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	16.6	16.0	21.4	27.6	17.9	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	119	122	1250	348	177	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	14000	14400	13900	13200	13100	
Potassium	7440-09-7	E440/VA	100	mg/kg	5520	5230	5300	4990	5300	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.42	0.36	0.41	0.34	0.36	
Silver	7440-22-4	E440/VA	0.10	mg/kg	5.20	6.18	7.43	3.78	4.55	
Sodium	7440-23-5	E440/VA	50	mg/kg	17400	15500	15400	16000	15900	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	282	320	281	300	277	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11600	12000	11600	10900	10900	
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	120	176	121	105	212	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	257	219	188	338	194	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.97	7.15	6.98	8.85	6.31	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	3.06	2.24	2.24	2.02	2.07	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	47.8	47.5	39.5	41.8	38.0	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	4150	5160	3490	4280	3700	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.2	1.4	1.6	3.6	2.5	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.65	11.75	11.69	11.73	11.70	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	4.23	2.79	2.34	3.00	2.40	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.97	4.97	4.97	4.97	4.97	



### Analytical Results

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

					Client sample ID	BA 2524-A-1 UNPROCESSED	BA 2524-A-2 UNPROCESSED	BA 2524-A-3 UNPROCESSED	BA 2524-A-4 UNPROCESSED	BA 2524-A-5 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-001	VA25B4452-002	VA25B4452-003	VA25B4452-004	VA25B4452-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
pH, TCLP final	----	EPP444/VA	0.010	pH units	9.30	9.82	10.25	9.87	9.65	
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	0.66	0.74	0.54	0.68	0.75	
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	784	877	663	784	845	
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	0.651	0.690	0.693	0.640	0.629	
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	7.8	6.2	<2.5	3.8	7.0	
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 2524-A-1 UNPROCESSED	BA 2524-A-2 UNPROCESSED	BA 2524-A-3 UNPROCESSED	BA 2524-A-4 UNPROCESSED	BA 2524-A-5 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-001	VA25B4452-002	VA25B4452-003	VA25B4452-004	VA25B4452-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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 2524-A-6 UNPROCESSED	BA 2524-A-7 UNPROCESSED	BA 2524-A-8 UNPROCESSED	BA 2524-A-9 UNPROCESSED	BA 2524-A-10 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-006	VA25B4452-007	VA25B4452-008	VA25B4452-009	VA25B4452-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	27.4	22.2	26.4	23.3	26.7	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.27	11.24	11.35	11.40	11.35	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	39900	31800	36200	32600	38400	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	143	109	105	102	107	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	15.6	22.4	16.2	18.4	17.6	
Barium	7440-39-3	E440/VA	0.50	mg/kg	528	538	498	554	633	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.32	0.34	0.35	0.34	0.34	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	10.2	9.72	12.6	11.4	12.8	
Boron	7440-42-8	E440/VA	5.0	mg/kg	214	182	243	215	176	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	19.2	53.4	6.28	5.99	5.87	
Calcium	7440-70-2	E440/VA	50	mg/kg	126000	127000	133000	125000	135000	



## Analytical Results

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

					Client sample ID	BA 2524-A-6 UNPROCESSED	BA 2524-A-7 UNPROCESSED	BA 2524-A-8 UNPROCESSED	BA 2524-A-9 UNPROCESSED	BA 2524-A-10 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-006	VA25B4452-007	VA25B4452-008	VA25B4452-009	VA25B4452-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	189	140	260	139	127	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	63.9	564	47.1	56.3	27.2	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2840	1930	1500	1570	1720	
Iron	7439-89-6	E440/VA	50	mg/kg	39900	43600	46700	54800	49800	
Lead	7439-92-1	E440/VA	0.50	mg/kg	244	204	411	335	183	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	22.9	41.1	22.7	25.4	22.5	
Magnesium	7439-95-4	E440/VA	20	mg/kg	19000	20900	19200	20300	20000	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	648	689	637	781	710	
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	22.8	14.8	62.5	22.4	19.8	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	284	150	373	166	247	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	11100	13200	11800	11400	14800	
Potassium	7440-09-7	E440/VA	100	mg/kg	4880	5290	4900	5110	5250	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.39	0.40	0.44	0.32	0.41	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.55	10.3	3.64	3.68	5.71	
Sodium	7440-23-5	E440/VA	50	mg/kg	16200	15700	15300	15000	15300	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	312	293	258	282	284	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	10500	11200	10500	10100	10400	
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	188	193	107	113	111	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	238	201	192	185	227	



## Analytical Results

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

					Client sample ID	BA 2524-A-6 UNPROCESSED	BA 2524-A-7 UNPROCESSED	BA 2524-A-8 UNPROCESSED	BA 2524-A-9 UNPROCESSED	BA 2524-A-10 UNPROCESSED
					Client sampling date / time	14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-006	VA25B4452-007	VA25B4452-008	VA25B4452-009	VA25B4452-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.86	8.06	6.83	6.52	6.66	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	2.12	2.20	2.04	1.98	2.05	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	54.6	49.5	33.3	44.4	39.8	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3880	7130	3380	3010	2880	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.3	1.2	1.4	1.6	1.9	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	---	EPP444/VA	0.010	pH units	11.81	11.78	11.79	11.77	11.74	
pH, TCLP 2nd preliminary	---	EPP444/VA	0.010	pH units	3.01	2.82	2.52	2.89	3.33	
pH, TCLP extraction fluid initial	---	EPP444/VA	0.010	pH units	4.97	4.97	4.97	4.97	4.97	
pH, TCLP final	---	EPP444/VA	0.010	pH units	10.38	9.81	10.29	9.94	9.83	
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	0.61	0.66	0.59	0.66	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	796	774	760	768	834	
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	0.793	0.718	0.765	0.688	0.723	
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 2524-A-6 UNPROCESSED	BA 2524-A-7 UNPROCESSED	BA 2524-A-8 UNPROCESSED	BA 2524-A-9 UNPROCESSED	BA 2524-A-10 UNPROCESSED
Client sampling date / time					14-Jun-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-006	VA25B4452-007	VA25B4452-008	VA25B4452-009	VA25B4452-010
					Result	Result	Result	Result	Result
<b>TCLP Metals</b>									
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	5.9	<2.5	3.0	7.3
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 2524-A-11 UNPROCESSED	BA 2524-A-12 UNPROCESSED	----	----	----
Client sampling date / time					14-Jun-2025 09:00	14-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-011	VA25B4452-012	----	----	----
					Result	Result	----	----	----
<b>Physical Tests</b>									
Moisture	----	E144/VA	0.25	%	27.2	24.9	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.46	11.27	----	----	----



### Analytical Results

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

					Client sample ID	BA 2524-A-11 UNPROCESSED	BA 2524-A-12 UNPROCESSED	----	----	----
					Client sampling date / time	14-Jun-2025 09:00	14-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-011	VA25B4452-012	----	----	----	
					Result	Result	----	----	----	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	34000	30200	----	----	----	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	142	117	----	----	----	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	21.0	17.9	----	----	----	
Barium	7440-39-3	E440/VA	0.50	mg/kg	548	524	----	----	----	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.35	0.35	----	----	----	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	10.4	10.3	----	----	----	
Boron	7440-42-8	E440/VA	5.0	mg/kg	202	182	----	----	----	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	12.3	5.49	----	----	----	
Calcium	7440-70-2	E440/VA	50	mg/kg	131000	128000	----	----	----	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	139	251	----	----	----	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	30.0	61.6	----	----	----	
Copper	7440-50-8	E440/VA	0.50	mg/kg	1970	1600	----	----	----	
Iron	7439-89-6	E440/VA	50	mg/kg	50800	59000	----	----	----	
Lead	7439-92-1	E440/VA	0.50	mg/kg	183	189	----	----	----	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	22.0	21.6	----	----	----	
Magnesium	7439-95-4	E440/VA	20	mg/kg	17700	20400	----	----	----	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	715	739	----	----	----	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	19.2	51.1	----	----	----	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	186	398	----	----	----	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	14300	13100	----	----	----	



### Analytical Results

Sub-Matrix: Soil

(Matrix: Soil/Solid)

					Client sample ID	BA 2524-A-11 UNPROCESSED	BA 2524-A-12 UNPROCESSED	----	----	----
					Client sampling date / time	14-Jun-2025 09:00	14-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-011	VA25B4452-012	----	----	----	
					Result	Result	----	----	----	
<b>Metals</b>										
Potassium	7440-09-7	E440/VA	100	mg/kg	4660	5250	----	----	----	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.44	0.40	----	----	----	
Silver	7440-22-4	E440/VA	0.10	mg/kg	12.8	12.5	----	----	----	
Sodium	7440-23-5	E440/VA	50	mg/kg	14800	15900	----	----	----	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	279	263	----	----	----	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	10300	10400	----	----	----	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	----	----	----	
Tin	7440-31-5	E440/VA	2.0	mg/kg	135	359	----	----	----	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	228	216	----	----	----	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.41	8.73	----	----	----	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.96	2.22	----	----	----	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	43.2	39.1	----	----	----	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	9320	3040	----	----	----	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.1	3.5	----	----	----	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.73	11.75	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	2.98	3.24	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.97	4.97	----	----	----	
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.13	10.23	----	----	----	
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 2524-A-11 UNPROCESSED	BA 2524-A-12 UNPROCESSED	----	----	----
					Client sampling date / time	14-Jun-2025 09:00	14-Jun-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B4452-011	VA25B4452-012	----	----	----	
					Result	Result	----	----	----	
<b>TCLP Metals</b>										
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	0.67	0.54	----	----	----	
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	777	646	----	----	----	
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	0.707	0.737	----	----	----	
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><b>Work Order</b> : <b>VA25B4452</b></p> <p><b>Client</b> : <b>Veolia Environmental Services Canada</b></p> <p><b>Contact</b> : Brian Graham</p> <p><b>Address</b> : 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : Veolia Weekly Bottom Ash-Suite</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Metro Van Ash Sampling Program</p> <p><b>Quote number</b> : VA25-VIS1100-001</p> <p><b>No. of samples received</b> : 12</p> <p><b>No. of samples analysed</b> : 12</p>	<p><b>Page</b> : 1 of 16</p> <p><b>Laboratory</b> : ALS Environmental - Vancouver</p> <p><b>Account Manager</b> : Gulraj Dhanaua</p> <p><b>Address</b> : 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9</p> <p><b>Telephone</b> : +1 604 253 4188</p> <p><b>Date Samples Received</b> : 17-Jun-2025 10:15</p> <p><b>Issue Date</b> : 25-Jun-2025 15:51</p>
---	--

---

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
<b>Duplicate (DUP) RPDs</b>								
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Boron	7440-42-8	E440	41.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Cadmium	7440-43-9	E440	42.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Copper	7440-50-8	E440	35.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Molybdenum	7439-98-7	E440	58.1 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Nickel	7440-02-0	E440	52.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Silver	7440-22-4	E440	70.4 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B4452-001	BA 2524-A-1 UNPROCESSED	Tin	7440-31-5	E440	91.6 % 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		
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-1 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-10 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-11 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-12 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-2 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-3 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA 2524-A-4 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✔	24-Jun-2025	28 days	2 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	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-5 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✓	24-Jun-2025	28 days	2 days	✓
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-6 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✓	24-Jun-2025	28 days	2 days	✓
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-7 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✓	24-Jun-2025	28 days	2 days	✓
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-8 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✓	24-Jun-2025	28 days	2 days	✓
<b>Metals : Mercury in Soil/Solid by CVAAS</b>										
<b>LDPE bag</b> BA 2524-A-9 UNPROCESSED	E510	14-Jun-2025	22-Jun-2025	28 days	8 days	✓	24-Jun-2025	28 days	2 days	✓
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>										
<b>LDPE bag</b> BA 2524-A-1 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>										
<b>LDPE bag</b> BA 2524-A-10 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>										
<b>LDPE bag</b> BA 2524-A-11 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>										
<b>LDPE bag</b> BA 2524-A-12 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-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		
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-2 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-3 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-4 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-5 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-6 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-7 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-8 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA 2524-A-9 UNPROCESSED	E440	14-Jun-2025	22-Jun-2025	180 days	8 days	✓	25-Jun-2025	180 days	8 days	✓	
<b>Physical Tests : Moisture Content by Gravimetry</b>											
<b>LDPE bag</b> BA 2524-A-1 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-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	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-10 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-11 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-12 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-2 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-3 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-4 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-5 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-6 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----	
<b>Physical Tests : Moisture Content by Gravimetry</b>										
LDPE bag BA 2524-A-7 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-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		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA 2524-A-8 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA 2524-A-9 UNPROCESSED	E144	14-Jun-2025	----	----	----		22-Jun-2025	----	----		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-1 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-10 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-11 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-12 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-2 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-3 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-2025	30 days	8 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA 2524-A-4 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✔	24-Jun-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	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-5 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✓	24-Jun-2025	30 days	8 days	✓
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-6 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✓	24-Jun-2025	30 days	8 days	✓
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-7 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✓	24-Jun-2025	30 days	8 days	✓
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-8 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✓	24-Jun-2025	30 days	8 days	✓
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>										
<b>LDPE bag</b> BA 2524-A-9 UNPROCESSED	E108	14-Jun-2025	22-Jun-2025	30 days	8 days	✓	24-Jun-2025	30 days	8 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-1 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-10 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-11 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
<b>Glass vial - total (lab preserved)</b> BA 2524-A-12 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-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	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-2 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-3 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-4 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-5 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-6 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-7 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-8 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>										
Glass vial - total (lab preserved) BA 2524-A-9 UNPROCESSED	E512	22-Jun-2025	24-Jun-2025	36 days	10 days	✓	24-Jun-2025	36 days	10 days	✓
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-1 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✓	25-Jun-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	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-10 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-11 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-12 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-2 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-3 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-4 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-5 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-6 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>										
HDPE - total (lab preserved) BA 2524-A-7 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-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		
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-8 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA 2524-A-9 UNPROCESSED	E444	22-Jun-2025	24-Jun-2025	188 days	10 days	✔	25-Jun-2025	188 days	10 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-1 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-10 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-11 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-12 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-2 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-3 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>											
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-4 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-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	
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-5 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-6 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-7 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-8 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-2025	----	----		----	28 days	8 days	✔
<b>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2524-A-9 UNPROCESSED	EPP444	14-Jun-2025	22-Jun-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
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
pH by Meter (1:2 Soil:Water Extraction)	E108	2068223	1	20	5.0	5.0	✔
Moisture Content by Gravimetry	E144	2068224	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2068222	1	20	5.0	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2071267	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2068221	1	19	5.2	5.0	✔
Mercury by CVAAS (TCLP)	E512	2071268	1	12	8.3	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
pH by Meter (1:2 Soil:Water Extraction)	E108	2068223	1	20	5.0	5.0	✔
Moisture Content by Gravimetry	E144	2068224	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2068222	2	20	10.0	10.0	✔
Mercury in Soil/Solid by CVAAS	E510	2068221	2	19	10.5	10.0	✔
<b>Method Blanks (MB)</b>							
Moisture Content by Gravimetry	E144	2068224	1	12	8.3	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2068222	1	20	5.0	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2071267	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2068221	1	19	5.2	5.0	✔
Mercury by CVAAS (TCLP)	E512	2071268	1	12	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
Metals by CRC ICPMS (TCLP)	E444	2071267	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2071268	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 $105^{\circ}\text{C}$ . 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 $\text{HNO}_3$ and $\text{HCl}$ .  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 $\text{HNO}_3$ and $\text{HCl}$ , 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 <sub>3</sub> 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

<b>Work Order</b>	: <b>VA25B4452</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	: Veolia Environmental Services Canada	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Brian Graham	<b>Account Manager</b>	: Gulraj Dhanaua
<b>Address</b>	: 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	<b>Address</b>	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 604 253 4188
<b>Project</b>	: Veolia Weekly Bottom Ash-Suite	<b>Date Samples Received</b>	: 17-Jun-2025 10:15
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 22-Jun-2025
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 25-Jun-2025 15:54
<b>Sampler</b>	: ----		
<b>Site</b>	: Metro Van Ash Sampling Program		
<b>Quote number</b>	: VA25-VISI100-001		
<b>No. of samples received</b>	: 12		
<b>No. of samples analysed</b>	: 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>
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Robert Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia



## General Comments

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

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

---

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

---



### Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 2068223)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	pH (1:2 soil:water)	----	E108	0.10	pH units	11.08	11.27	1.7%	5%	----
<b>Physical Tests (QC Lot: 2068224)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Moisture	----	E144	0.25	%	22.0	21.9	0.229%	20%	----
<b>Metals (QC Lot: 2068221)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
<b>Metals (QC Lot: 2068222)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Aluminum	7429-90-5	E440	50	mg/kg	37500	43500	14.8%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	128	117	9.19%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	18.4	17.6	4.18%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	615	630	2.38%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.42	0.37	0.05	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	11.7	10.3	12.8%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	182	278	41.4%	30%	DUP-H
		Cadmium	7440-43-9	E440	0.020	mg/kg	6.50	9.99	42.4%	30%	DUP-H
		Calcium	7440-70-2	E440	50	mg/kg	139000	135000	2.86%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	142	156	9.74%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	38.6	43.7	12.3%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	2010	2890	35.9%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	47600	52700	10.3%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	222	211	5.32%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	22.2	27.7	21.8%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	20800	19900	4.54%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	739	706	4.64%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	16.6	30.3	58.1%	40%	DUP-H
		Nickel	7440-02-0	E440	0.50	mg/kg	119	202	52.2%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	14000	13600	3.22%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5520	5020	9.29%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.42	0.38	0.04	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	5.20	10.8	70.4%	40%	DUP-H



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
<b>Metals (QC Lot: 2068222) - continued</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Sodium	7440-23-5	E440	50	mg/kg	17400	15800	9.89%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	282	300	6.47%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	11600	11300	3.15%	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	120	322	91.6%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	257	244	5.04%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	7.97	7.35	8.07%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	3.06	2.41	23.5%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	47.8	41.6	14.0%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	4150	3180	26.6%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.2	1.7	0.5	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 2071267)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	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	0.66	0.64	0.02	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	784	758	3.40%	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	0.651	0.629	3.42%	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	7.8	7.7	0.07	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
<b>TCLP Metals (QC Lot: 2071268)</b>											
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	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
<b>Physical Tests (QCLot: 2068224)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Metals (QCLot: 2068221)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
<b>Metals (QCLot: 2068222)</b>						
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
<b>Metals (QCLot: 2068222) - continued</b>						
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	----
<b>TCLP Metals (QCLot: 2071267)</b>						
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	----
<b>TCLP Metals (QCLot: 2071268)</b>						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----



## Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 2068223)</b>									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	99.3	95.0	105	---
<b>Physical Tests (QCLot: 2068224)</b>									
Moisture	---	E144	0.25	%	50 %	100	90.0	110	---
<b>Metals (QCLot: 2068221)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	94.8	80.0	120	---
<b>Metals (QCLot: 2068222)</b>									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	93.1	80.0	120	---
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	---
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	98.2	80.0	120	---
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	97.9	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	99.2	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	92.5	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	98.0	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	97.1	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	97.9	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	94.4	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	92.8	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	93.0	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	95.8	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.2	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	98.2	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	95.3	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	94.6	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	96.5	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	91.9	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	101	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	92.7	80.0	120	---
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	92.0	80.0	120	---
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	92.1	80.0	120	---
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	94.7	80.0	120	---
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	98.1	80.0	120	---
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	91.6	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
<b>Metals (QCLot: 2068222) - continued</b>									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	94.7	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	97.3	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	90.4	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	94.1	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	99.6	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	95.1	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	94.7	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	96.2	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
<b>TCLP Metals (QCLot: 2071267)</b>										
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Antimony, TCLP	7440-36-0	E444	5.68 mg/L	5 mg/L	114	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.6 mg/L	5 mg/L	111	50.0	140	----
		Barium, TCLP	7440-39-3	E444	13.3 mg/L	12.5 mg/L	107	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.272 mg/L	0.25 mg/L	109	50.0	140	----
		Boron, TCLP	7440-42-8	E444	10.4 mg/L	10 mg/L	104	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.262 mg/L	0.25 mg/L	105	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.33 mg/L	1.25 mg/L	106	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.266 mg/L	0.25 mg/L	106	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.50 mg/L	2.5 mg/L	99.8	50.0	140	----
		Iron, TCLP	7439-89-6	E444	257 mg/L	250 mg/L	103	50.0	140	----
		Lead, TCLP	7439-92-1	E444	10.2 mg/L	10 mg/L	102	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	271 mg/L	250 mg/L	108	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.62 mg/L	2.5 mg/L	105	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.25 mg/L	5 mg/L	105	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.067 mg/L	0.1 mg/L	66.8	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	5.2 mg/L	5 mg/L	104	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	5.39 mg/L	5 mg/L	108	50.0	150	----
Vanadium, TCLP	7440-62-2	E444	0.80 mg/L	0.75 mg/L	107	50.0	140	----		
Zinc, TCLP	7440-66-6	E444	10.1 mg/L	10 mg/L	101	50.0	140	----		
Zirconium, TCLP	7440-67-7	E444		0.9 mg/L	1 mg/L	94.4	50.0	150	----	
<b>TCLP Metals (QCLot: 2071268)</b>										
VA25B4452-001	BA 2524-A-1 UNPROCESSED	Mercury, TCLP	7439-97-6	E512	0.0029 mg/L	0.003 mg/L	97.2	50.0	140	----



## Reference Material (RM) Report

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

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
<b>Metals (QCLot: 2068221)</b>									
QC-2068221-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	101	70.0	130	----
<b>Metals (QCLot: 2068222)</b>									
QC-2068222-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	107	70.0	130	----
QC-2068222-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	110	70.0	130	----
QC-2068222-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	99.0	70.0	130	----
QC-2068222-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	105	70.0	130	----
QC-2068222-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	113	70.0	130	----
QC-2068222-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	121	70.0	130	----
QC-2068222-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	104	70.0	130	----
QC-2068222-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	110	70.0	130	----
QC-2068222-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	102	70.0	130	----
QC-2068222-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	101	70.0	130	----
QC-2068222-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	100	70.0	130	----
QC-2068222-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	104	70.0	130	----
QC-2068222-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	97.0	70.0	130	----
QC-2068222-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	114	70.0	130	----
QC-2068222-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	104	70.0	130	----
QC-2068222-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	103	70.0	130	----
QC-2068222-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	104	70.0	130	----
QC-2068222-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	102	70.0	130	----
QC-2068222-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	102	70.0	130	----
QC-2068222-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	99.4	70.0	130	----
QC-2068222-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	123	60.0	140	----
QC-2068222-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	105	70.0	130	----
QC-2068222-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	117	70.0	130	----
QC-2068222-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	109	70.0	130	----
QC-2068222-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	92.4	50.0	150	----
QC-2068222-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	103	70.0	130	----
QC-2068222-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	103	40.0	160	----
QC-2068222-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	104	70.0	130	----
QC-2068222-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	116	70.0	130	----
QC-2068222-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	101	70.0	130	----
QC-2068222-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	102	70.0	130	----

Page : 12 of 12  
 Work Order : VA25B4452  
 Client : Veolia Environmental Services Canada  
 Project : Veolia Weekly Bottom Ash-Suite



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	
<b>Metals (QCLot: 2068222) - continued</b>									
QC-2068222-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	103	70.0	130	----
QC-2068222-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	106	70.0	130	----

