

## Bottom Ash Data

2025 Week 31

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The following analytical report represents bottom ash composite results for week 31 of 2025 (July 27, 2025 to August 2, 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>VA25B9235</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>	: 1000497676	<b>Date Samples Received</b>	: 05-Aug-2025 10:10
<b>C-O-C number</b>	: ----	<b>Date Analysis Commenced</b>	: 10-Aug-2025
<b>Sampler</b>	: ----	<b>Issue Date</b>	: 13-Aug-2025 09:11
<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>
Janice Leung		Organics, Burnaby, British Columbia
Kim Jensen		Metals, 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-2531-A-1 ----	BA-2531-A-2 ----	BA-2531-A-3 ----	BA-2531-A-4 ----	BA-2531-A-5 ----
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-001	VA25B9235-002	VA25B9235-003	VA25B9235-004	VA25B9235-005	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	22.3	21.6	22.3	20.6	21.3	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.13	11.30	11.34	11.24	11.26	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	34500	35200	37400	39800	36200	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	91.3	98.9	97.5	87.7	107	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	24.2	22.1	21.6	23.6	27.8	
Barium	7440-39-3	E440/VA	0.50	mg/kg	606	610	604	547	502	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.35	0.35	0.39	0.38	0.35	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	7.20	8.20	9.54	7.28	14.6	
Boron	7440-42-8	E440/VA	5.0	mg/kg	215	203	181	192	224	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	30.2	6.80	7.04	23.0	8.88	
Calcium	7440-70-2	E440/VA	50	mg/kg	122000	128000	132000	125000	136000	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	911	187	150	154	174	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	1530	37.7	46.6	90.7	154	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2180	1550	1600	2360	1640	
Iron	7439-89-6	E440/VA	50	mg/kg	48000	41100	38900	41900	67600	
Lead	7439-92-1	E440/VA	0.50	mg/kg	251	438	379	372	498	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	94.2	26.7	27.0	28.2	31.0	
Magnesium	7439-95-4	E440/VA	20	mg/kg	10900	10900	11500	11800	11800	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	730	747	644	716	825	
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-2531-A-1	BA-2531-A-2	BA-2531-A-3	BA-2531-A-4	BA-2531-A-5
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-001	VA25B9235-002	VA25B9235-003	VA25B9235-004	VA25B9235-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	35.1	16.1	14.9	16.4	25.2	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	928	179	361	189	229	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10500	11100	10100	9300	9970	
Potassium	7440-09-7	E440/VA	100	mg/kg	4830	5190	5160	5260	5700	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.28	0.30	0.33	0.27	0.37	
Silver	7440-22-4	E440/VA	0.10	mg/kg	7.85	3.95	4.25	4.14	6.84	
Sodium	7440-23-5	E440/VA	50	mg/kg	15200	15500	15200	15300	17000	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	318	310	322	299	330	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	9500	9800	11100	11100	11900	
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	161	93.0	130	95.6	105	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	313	323	352	266	258	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	7.67	6.15	10.7	9.61	8.86	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.48	1.57	1.68	1.66	1.72	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	53.0	37.3	39.6	40.0	40.8	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	9980	6680	3280	4200	4380	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.2	2.1	2.1	3.3	3.2	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.63	11.68	11.71	11.64	11.65	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	3.24	2.47	3.73	2.97	3.46	
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-2531-A-1	BA-2531-A-2	BA-2531-A-3	BA-2531-A-4	BA-2531-A-5
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-001	VA25B9235-002	VA25B9235-003	VA25B9235-004	VA25B9235-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.08	10.51	10.51	10.44	10.41	
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	0.63	0.69	0.68	0.79	
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	690	680	706	679	771	
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	1.18	1.07	1.04	1.06	1.07	
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5	
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L	<0.15	<0.15	<0.15	<0.15	<0.15	



### Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA-2531-A-1 ----	BA-2531-A-2 ----	BA-2531-A-3 ----	BA-2531-A-4 ----	BA-2531-A-5 ----
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-001	VA25B9235-002	VA25B9235-003	VA25B9235-004	VA25B9235-005	
					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-2531-A-6 ----	BA-2531-A-7 ----	BA-2531-A-8 ----	BA-2531-A-9 ----	BA-2531-A-10 ----
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-006	VA25B9235-007	VA25B9235-008	VA25B9235-009	VA25B9235-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Moisture	----	E144/VA	0.25	%	21.4	21.8	21.5	21.7	22.2	
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.18	11.18	11.27	11.27	11.20	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	31600	36400	45100	37900	35500	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	113	132	97.4	94.2	138	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	23.6	33.6	21.7	23.6	23.1	
Barium	7440-39-3	E440/VA	0.50	mg/kg	588	566	505	570	568	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.39	0.37	0.30	0.35	0.35	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	13.6	10.7	8.16	7.03	7.81	
Boron	7440-42-8	E440/VA	5.0	mg/kg	178	231	199	251	206	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.01	7.74	8.67	7.32	7.66	
Calcium	7440-70-2	E440/VA	50	mg/kg	131000	137000	123000	134000	138000	



## Analytical Results

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

					Client sample ID	BA-2531-A-6	BA-2531-A-7	BA-2531-A-8	BA-2531-A-9	BA-2531-A-10
					Client sampling date / time	----	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	30-Jul-2025 09:00	30-Jul-2025 09:00	30-Jul-2025 09:00	30-Jul-2025 09:00	30-Jul-2025 09:00	30-Jul-2025 09:00
					VA25B9235-006	VA25B9235-007	VA25B9235-008	VA25B9235-009	VA25B9235-010	VA25B9235-010
					Result	Result	Result	Result	Result	Result
<b>Metals</b>										
Chromium	7440-47-3	E440/VA	0.50	mg/kg	209	172	164	190	201	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	83.9	274	44.3	144	76.6	
Copper	7440-50-8	E440/VA	0.50	mg/kg	16900	4550	3910	1790	7800	
Iron	7439-89-6	E440/VA	50	mg/kg	40200	54300	68400	36100	40600	
Lead	7439-92-1	E440/VA	0.50	mg/kg	1310	10400	301	320	403	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	28.2	143	30.5	59.2	29.1	
Magnesium	7439-95-4	E440/VA	20	mg/kg	12800	11700	10800	11200	11900	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	1420	895	1070	936	724	
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	16.3	18.8	17.8	16.8	17.6	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	271	261	116	130	471	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10200	10600	9990	11600	10500	
Potassium	7440-09-7	E440/VA	100	mg/kg	5230	5210	5030	5600	5340	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.39	0.35	0.26	0.36	0.33	
Silver	7440-22-4	E440/VA	0.10	mg/kg	11.2	4.94	12.5	5.43	>54.6	
Sodium	7440-23-5	E440/VA	50	mg/kg	14900	15500	15800	16500	15700	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	351	323	282	332	350	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11800	11000	10600	12000	12600	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	0.065	0.078	<0.050	<0.050	
Tin	7440-31-5	E440/VA	2.0	mg/kg	186	118	156	177	110	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	225	255	395	268	217	



## Analytical Results

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

					Client sample ID	BA-2531-A-6	BA-2531-A-7	BA-2531-A-8	BA-2531-A-9	BA-2531-A-10
					Client sampling date / time	30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-006	VA25B9235-007	VA25B9235-008	VA25B9235-009	VA25B9235-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.39	6.57	7.25	12.0	231	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.70	1.81	1.51	1.62	1.86	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	42.5	39.5	37.6	49.7	39.9	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	4220	3250	4940	2940	3820	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.2	3.1	3.3	3.1	3.0	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	---	EPP444/VA	0.010	pH units	11.63	11.67	11.69	11.74	11.67	
pH, TCLP 2nd preliminary	---	EPP444/VA	0.010	pH units	2.64	3.30	3.08	4.45	2.91	
pH, TCLP extraction fluid initial	---	EPP444/VA	0.010	pH units	4.95	4.95	4.95	4.95	4.95	
pH, TCLP final	---	EPP444/VA	0.010	pH units	10.13	10.33	10.33	10.31	10.38	
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	0.78	0.79	0.67	0.81	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	772	769	673	766	694	
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	1.10	1.08	1.11	1.02	1.12	
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-2531-A-6 ----	BA-2531-A-7 ----	BA-2531-A-8 ----	BA-2531-A-9 ----	BA-2531-A-10 ----
Client sampling date / time					30-Jul-2025 09:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-006	VA25B9235-007	VA25B9235-008	VA25B9235-009	VA25B9235-010
					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	<2.5	<2.5	<2.5	<2.5
Mercury, TCLP	7439-97-6	E512/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel, TCLP	7440-02-0	E444/VA	0.25	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L	<10	<10	<10	<10	<10

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

### Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID				
					BA-2531-A-11 ----	BA-2531-A-12 ----	----	----	----
Client sampling date / time					30-Jul-2025 09:00	30-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-011	VA25B9235-012	----	----	----
					Result	Result	----	----	----
<b>Physical Tests</b>									
Moisture	----	E144/VA	0.25	%	21.7	20.9	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	11.36	11.28	----	----	----



### Analytical Results

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

					Client sample ID	BA-2531-A-11	BA-2531-A-12	----	----	----
					Client sampling date / time	30-Jul-2025 09:00	30-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-011	VA25B9235-012	----	----	----	
					Result	Result	----	----	----	
<b>Metals</b>										
Aluminum	7429-90-5	E440/VA	50	mg/kg	35400	34400	----	----	----	
Antimony	7440-36-0	E440/VA	0.10	mg/kg	88.0	100	----	----	----	
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	24.2	22.2	----	----	----	
Barium	7440-39-3	E440/VA	0.50	mg/kg	585	602	----	----	----	
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.38	0.43	----	----	----	
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	12.9	15.9	----	----	----	
Boron	7440-42-8	E440/VA	5.0	mg/kg	181	183	----	----	----	
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	7.67	21.4	----	----	----	
Calcium	7440-70-2	E440/VA	50	mg/kg	132000	139000	----	----	----	
Chromium	7440-47-3	E440/VA	0.50	mg/kg	198	164	----	----	----	
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	138	86.7	----	----	----	
Copper	7440-50-8	E440/VA	0.50	mg/kg	2000	1550	----	----	----	
Iron	7439-89-6	E440/VA	50	mg/kg	51200	49700	----	----	----	
Lead	7439-92-1	E440/VA	0.50	mg/kg	990	352	----	----	----	
Lithium	7439-93-2	E440/VA	2.0	mg/kg	35.6	41.1	----	----	----	
Magnesium	7439-95-4	E440/VA	20	mg/kg	11600	11800	----	----	----	
Manganese	7439-96-5	E440/VA	1.0	mg/kg	862	893	----	----	----	
Mercury	7439-97-6	E510/VA	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	15.7	17.4	----	----	----	
Nickel	7440-02-0	E440/VA	0.50	mg/kg	170	215	----	----	----	
Phosphorus	7723-14-0	E440/VA	50	mg/kg	10300	11300	----	----	----	



## Analytical Results

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

					Client sample ID	BA-2531-A-11	BA-2531-A-12	----	----	----
					Client sampling date / time	30-Jul-2025 09:00	30-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-011	VA25B9235-012	----	----	----	
					Result	Result	----	----	----	
<b>Metals</b>										
Potassium	7440-09-7	E440/VA	100	mg/kg	5340	5540	----	----	----	
Selenium	7782-49-2	E440/VA	0.20	mg/kg	0.35	0.33	----	----	----	
Silver	7440-22-4	E440/VA	0.10	mg/kg	4.13	3.61	----	----	----	
Sodium	7440-23-5	E440/VA	50	mg/kg	15300	16400	----	----	----	
Strontium	7440-24-6	E440/VA	0.50	mg/kg	303	334	----	----	----	
Sulfur	7704-34-9	E440/VA	1000	mg/kg	11600	11900	----	----	----	
Thallium	7440-28-0	E440/VA	0.050	mg/kg	<0.050	<0.050	----	----	----	
Tin	7440-31-5	E440/VA	2.0	mg/kg	95.2	111	----	----	----	
Titanium	7440-32-6	E440/VA	1.0	mg/kg	228	210	----	----	----	
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	6.16	6.98	----	----	----	
Uranium	7440-61-1	E440/VA	0.050	mg/kg	1.75	1.87	----	----	----	
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	39.6	40.5	----	----	----	
Zinc	7440-66-6	E440/VA	2.0	mg/kg	3060	8090	----	----	----	
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	2.7	1.8	----	----	----	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units	11.72	11.68	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units	4.98	4.44	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units	4.95	4.95	----	----	----	
pH, TCLP final	----	EPP444/VA	0.010	pH units	10.30	10.26	----	----	----	
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-2531-A-11	BA-2531-A-12	----	----	----
					Client sampling date / time	30-Jul-2025 09:00	30-Jul-2025 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25B9235-011	VA25B9235-012	----	----	----	
					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	0.80	----	----	----	
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	682	758	----	----	----	
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	1.08	1.04	----	----	----	
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>VA25B9235</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> : 1000497676</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 17</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> : 05-Aug-2025 10:10</p> <p><b>Issue Date</b> : 13-Aug-2025 09:11</p>
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This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

**Key**

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

### ***Workorder Comments***

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

### ***Summary of Outliers***

#### ***Outliers : Quality Control Samples***

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

#### ***Outliers: Reference Material (RM) Samples***

- No Reference Material (RM) Sample outliers occur.

### ***Outliers : Analysis Holding Time Compliance (Breaches)***

- No Analysis Holding Time Outliers exist.

### ***Outliers : Frequency of Quality Control Samples***

- No Quality Control Sample Frequency Outliers occur.



**Outliers : Quality Control Samples**

*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: Soil/Solid

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
<b>Duplicate (DUP) RPDs</b>								
Metals	VA25B9235-002	BA-2531-A-2	Bismuth	7440-69-9	E440	46.3 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Bismuth	7440-69-9	E440	31.6 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Cadmium	7440-43-9	E440	56.0 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Cobalt	7440-48-4	E440	173 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Cobalt	7440-48-4	E440	92.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Copper	7440-50-8	E440	41.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Lithium	7439-93-2	E440	62.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Manganese	7439-96-5	E440	59.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Nickel	7440-02-0	E440	64.6 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Silver	7440-22-4	E440	119 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Silver	7440-22-4	E440	55.3 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Tin	7440-31-5	E440	55.0 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Titanium	7440-32-6	E440	40.3 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Tungsten	7440-33-7	E440	41.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Tungsten	7440-33-7	E440	60.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-002	BA-2531-A-2	Zinc	7440-66-6	E440	60.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B9235-006	BA-2531-A-6	Zinc	7440-66-6	E440	33.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

**Result Qualifiers**

Qualifier Description



Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
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*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-2531-A-1	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-10	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-11	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-12	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-2	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-3	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-4	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-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-2531-A-5	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-6	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-7	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-8	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Mercury in Soil/Solid by CVAAS</b>											
<b>LDPE bag</b> BA-2531-A-9	E510	30-Jul-2025	12-Aug-2025	28 days	13 days	✔	12-Aug-2025	28 days	0 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICMS</b>											
<b>LDPE bag</b> BA-2531-A-1	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	13-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICMS</b>											
<b>LDPE bag</b> BA-2531-A-10	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICMS</b>											
<b>LDPE bag</b> BA-2531-A-11	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICMS</b>											
<b>LDPE bag</b> BA-2531-A-12	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 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-2531-A-2	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	13-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-3	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	13-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-4	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	13-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-5	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	13-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-6	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-7	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-8	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Metals : Metals in Soil/Solid by CRC ICPMS</b>											
<b>LDPE bag</b> BA-2531-A-9	E440	30-Jul-2025	12-Aug-2025	180 days	13 days	✔	12-Aug-2025	180 days	13 days	✔	
<b>Physical Tests : Moisture Content by Gravimetry</b>											
<b>LDPE bag</b> BA-2531-A-1	E144	30-Jul-2025	----	----	----		10-Aug-2025	----	----		



Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-10	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-11	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-12	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-2	E144	30-Jul-2025	----	----	----		10-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-3	E144	30-Jul-2025	----	----	----		10-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-4	E144	30-Jul-2025	----	----	----		10-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-5	E144	30-Jul-2025	----	----	----		10-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-6	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-7	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		



Matrix: Soil/Solid

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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-8	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : Moisture Content by Gravimetry</b>											
LDPE bag BA-2531-A-9	E144	30-Jul-2025	----	----	----		11-Aug-2025	----	----		
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-1	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-10	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-11	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-12	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-2	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-3	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
LDPE bag BA-2531-A-4	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 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-2531-A-5	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
<b>LDPE bag</b> BA-2531-A-6	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
<b>LDPE bag</b> BA-2531-A-7	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
<b>LDPE bag</b> BA-2531-A-8	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>Physical Tests : pH by Meter (1:2 Soil:Water Extraction)</b>											
<b>LDPE bag</b> BA-2531-A-9	E108	30-Jul-2025	12-Aug-2025	30 days	13 days	✔	12-Aug-2025	30 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
<b>Glass vial - total (lab preserved)</b> BA-2531-A-1	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✔	12-Aug-2025	40 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
<b>Glass vial - total (lab preserved)</b> BA-2531-A-10	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✔	12-Aug-2025	40 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
<b>Glass vial - total (lab preserved)</b> BA-2531-A-11	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✔	12-Aug-2025	40 days	13 days	✔	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
<b>Glass vial - total (lab preserved)</b> BA-2531-A-12	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✔	12-Aug-2025	40 days	13 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-2531-A-2	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-3	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-4	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-5	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-6	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-7	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-8	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Mercury by CVAAS (TCLP)</b>											
Glass vial - total (lab preserved) BA-2531-A-9	E512	11-Aug-2025	12-Aug-2025	40 days	13 days	✓	12-Aug-2025	40 days	13 days	✓	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-1	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✓	12-Aug-2025	192 days	13 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-2531-A-10	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-11	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-12	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-2	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-3	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-4	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-5	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-6	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-7	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 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-2531-A-8	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 days	✔	
<b>TCLP Metals : Metals by CRC ICPMS (TCLP)</b>											
HDPE - total (lab preserved) BA-2531-A-9	E444	11-Aug-2025	12-Aug-2025	192 days	13 days	✔	12-Aug-2025	192 days	13 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-2531-A-1	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-10	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-11	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-12	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-2	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-3	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-4	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 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>TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)</b>										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA-2531-A-5	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-6	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-7	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-8	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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-2531-A-9	EPP444	30-Jul-2025	11-Aug-2025	----	----		----	28 days	12 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	2153273	2	40	5.0	5.0	✔
Moisture Content by Gravimetry	E144	2153281	2	34	5.8	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2153271	2	40	5.0	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2155485	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2152416	2	40	5.0	5.0	✔
Mercury by CVAAS (TCLP)	E512	2155484	1	12	8.3	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
pH by Meter (1:2 Soil:Water Extraction)	E108	2153273	2	40	5.0	5.0	✔
Moisture Content by Gravimetry	E144	2153281	2	34	5.8	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2153271	4	40	10.0	10.0	✔
Mercury in Soil/Solid by CVAAS	E510	2152416	4	40	10.0	10.0	✔
<b>Method Blanks (MB)</b>							
Moisture Content by Gravimetry	E144	2153281	2	34	5.8	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	2153271	2	40	5.0	5.0	✔
Metals by CRC ICPMS (TCLP)	E444	2155485	1	12	8.3	5.0	✔
Mercury in Soil/Solid by CVAAS	E510	2152416	2	40	5.0	5.0	✔
Mercury by CVAAS (TCLP)	E512	2155484	1	12	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
Metals by CRC ICPMS (TCLP)	E444	2155485	1	12	8.3	5.0	✔
Mercury by CVAAS (TCLP)	E512	2155484	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>: VA25B9235</b>	<b>Page</b>	<b>: 1 of 17</b>
<b>Client</b>	: Veolia Environmental Services Canada	<b>Laboratory</b>	: ALS Environmental - Vancouver
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<b>Project</b>	: Veolia Weekly Bottom Ash-Suite	<b>Date Samples Received</b>	: 05-Aug-2025 10:10
<b>PO</b>	: 1000497676	<b>Date Analysis Commenced</b>	: 10-Aug-2025
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 13-Aug-2025 09:11
<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>
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, 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

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

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### 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: 2152418)</b>											
VA25B9235-002	BA-2531-A-2	pH (1:2 soil:water)	----	E108	0.10	pH units	11.30	11.26	0.4%	5%	----
<b>Physical Tests (QC Lot: 2152419)</b>											
VA25B9235-001	BA-2531-A-1	Moisture	----	E144	0.25	%	22.3	21.2	4.83%	20%	----
<b>Physical Tests (QC Lot: 2153273)</b>											
VA25B9235-006	BA-2531-A-6	pH (1:2 soil:water)	----	E108	0.10	pH units	11.18	11.17	0.1%	5%	----
<b>Physical Tests (QC Lot: 2153281)</b>											
VA25B9235-006	BA-2531-A-6	Moisture	----	E144	0.25	%	21.4	21.6	1.04%	20%	----
<b>Metals (QC Lot: 2152416)</b>											
VA25B9235-002	BA-2531-A-2	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
<b>Metals (QC Lot: 2152417)</b>											
VA25B9235-002	BA-2531-A-2	Aluminum	7429-90-5	E440	50	mg/kg	35200	34000	3.75%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	98.9	94.5	4.55%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	22.1	22.7	2.90%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	610	554	9.71%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.35	0.38	0.03	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	8.20	13.1	46.3%	30%	DUP-H
		Boron	7440-42-8	E440	5.0	mg/kg	203	207	1.80%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	6.80	12.1	56.0%	30%	DUP-H
		Calcium	7440-70-2	E440	50	mg/kg	128000	130000	1.49%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	187	166	11.7%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	37.7	531	173%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	1550	1360	13.2%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	41100	55400	29.8%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	438	563	24.9%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	26.7	50.8	62.1%	30%	DUP-H
		Magnesium	7439-95-4	E440	20	mg/kg	10900	12100	10.5%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	747	783	4.63%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	16.1	17.6	8.88%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	179	191	6.45%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	11100	10600	4.41%	30%	----



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: 2152417) - continued</b>											
VA25B9235-002	BA-2531-A-2	Potassium	7440-09-7	E440	100	mg/kg	5190	5460	5.01%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.30	0.38	0.07	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	3.95	15.6	119%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	15500	16200	4.60%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	310	315	1.73%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	9800	12300	22.2%	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	93.0	96.4	3.53%	40%	----
		Titanium	7440-32-6	E440	1.0	mg/kg	323	215	40.3%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	6.15	9.40	41.8%	30%	DUP-H
		Uranium	7440-61-1	E440	0.050	mg/kg	1.57	1.74	10.3%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	37.3	47.4	23.8%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	6680	3570	60.7%	30%	DUP-H
Zirconium	7440-67-7	E440	1.0	mg/kg	2.1	1.7	0.4	Diff <2x LOR	----		
<b>Metals (QC Lot: 2153271)</b>											
VA25B9235-006	BA-2531-A-6	Aluminum	7429-90-5	E440	50	mg/kg	31600	27200	14.9%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	113	134	17.5%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	23.6	25.7	8.32%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	588	527	10.9%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.39	0.35	0.03	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	13.6	18.7	31.6%	30%	DUP-H
		Boron	7440-42-8	E440	5.0	mg/kg	178	171	4.36%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	7.01	7.37	5.02%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	131000	127000	2.88%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	209	168	21.7%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	83.9	228	92.4%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	16900	25700	41.4%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	40200	51300	24.4%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	1310	1570	18.3%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	28.2	26.0	8.14%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	12800	12000	5.92%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	1420	767	59.9%	30%	DUP-H
		Molybdenum	7439-98-7	E440	0.10	mg/kg	16.3	14.7	10.3%	40%	----
Nickel	7440-02-0	E440	0.50	mg/kg	271	139	64.6%	30%	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: 2153271) - continued</b>											
VA25B9235-006	BA-2531-A-6	Phosphorus	7723-14-0	E440	50	mg/kg	10200	10200	0.324%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	5230	5240	0.240%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.39	0.38	0.02	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	11.2	19.8	55.3%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	14900	15100	1.06%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	351	301	15.3%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	11800	11800	0.0117%	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	186	106	55.0%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	225	204	9.69%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	6.39	11.9	60.2%	30%	DUP-H
		Uranium	7440-61-1	E440	0.050	mg/kg	1.70	1.67	2.00%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	42.5	40.9	3.79%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	4220	5920	33.4%	30%	DUP-H
Zirconium	7440-67-7	E440	1.0	mg/kg	2.2	2.5	0.3	Diff <2x LOR	----		
<b>Metals (QC Lot: 2153272)</b>											
VA25B9235-006	BA-2531-A-6	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
<b>TCLP Metals (QC Lot: 2155484)</b>											
VA25B9235-001	BA-2531-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: 2155485)</b>											
VA25B9235-001	BA-2531-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	0.66	0.63	0.03	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	690	652	5.63%	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	1.18	1.11	6.47%	30%	----
		Iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----



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: 2155485) - continued</b>											
VA25B9235-001	BA-2531-A-1	Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	0	Diff <2x LOR	----
		Zinc, TCLP	7440-66-6	E444	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----

**Qualifiers**

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



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 2152419)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Physical Tests (QCLot: 2153281)</b>						
Moisture	---	E144	0.25	%	<0.25	---
<b>Metals (QCLot: 2152416)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	---
<b>Metals (QCLot: 2152417)</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	---



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Metals (QCLot: 2152417) - continued</b>						
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
<b>Metals (QCLot: 2153271)</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	----



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Metals (QCLot: 2153271) - continued</b>						
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
<b>Metals (QCLot: 2153272)</b>						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
<b>TCLP Metals (QCLot: 2155484)</b>						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
<b>TCLP Metals (QCLot: 2155485)</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	----

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Work Order : VA25B9235  
Client : Veolia Environmental Services Canada  
Project : Veolia Weekly Bottom Ash-Suite

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## 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: 2152418)</b>									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	100	95.0	105	---
<b>Physical Tests (QCLot: 2152419)</b>									
Moisture	---	E144	0.25	%	50 %	99.6	90.0	110	---
<b>Physical Tests (QCLot: 2153273)</b>									
pH (1:2 soil:water)	---	E108	---	pH units	6 pH units	99.8	95.0	105	---
<b>Physical Tests (QCLot: 2153281)</b>									
Moisture	---	E144	0.25	%	50 %	99.7	90.0	110	---
<b>Metals (QCLot: 2152416)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	97.4	80.0	120	---
<b>Metals (QCLot: 2152417)</b>									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	98.8	80.0	120	---
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	---
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	105	80.0	120	---
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	99.7	80.0	120	---
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	104	80.0	120	---
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	102	80.0	120	---
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	101	80.0	120	---
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	---
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	100	80.0	120	---
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	98.9	80.0	120	---
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	99.1	80.0	120	---
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	95.6	80.0	120	---
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	99.9	80.0	120	---
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	---
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	100	80.0	120	---
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	105	80.0	120	---
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	98.0	80.0	120	---
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	---
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	98.2	80.0	120	---
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	102	80.0	120	---
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	96.8	80.0	120	---



Sub-Matrix: Soil/Solid

Laboratory Control Sample (LCS) Report

Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
<b>Metals (QCLot: 2152417) - continued</b>									
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	96.9	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	98.6	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	98.8	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	99.6	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	99.4	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	103	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	95.2	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	102	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	100	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	95.0	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	107	80.0	120	----
<b>Metals (QCLot: 2153271)</b>									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	106	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	111	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	104	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	95.0	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	109	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	105	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	100	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	107	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	107	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	102	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	106	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	106	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	114	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	110	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	106	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	106	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: 2153271) - continued</b>									
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	104	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	104	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	112	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	107	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	103	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	109	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	103	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	107	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	111	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	108	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	103	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	112	80.0	120	----
<b>Metals (QCLot: 2153272)</b>									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	102	80.0	120	----



### Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>TCLP Metals (QCLot: 2155484)</b>										
VA25B9235-001	BA-2531-A-1	Mercury, TCLP	7439-97-6	E512	0.0026 mg/L	0.003 mg/L	88.5	50.0	140	----
<b>TCLP Metals (QCLot: 2155485)</b>										
VA25B9235-001	BA-2531-A-1	Antimony, TCLP	7440-36-0	E444	5.01 mg/L	5 mg/L	100	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.3 mg/L	5 mg/L	106	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.3 mg/L	12.5 mg/L	98.7	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.239 mg/L	0.25 mg/L	95.8	50.0	140	----
		Boron, TCLP	7440-42-8	E444	9.14 mg/L	10 mg/L	91.4	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.236 mg/L	0.25 mg/L	94.6	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.21 mg/L	1.25 mg/L	97.2	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	0.248 mg/L	0.25 mg/L	99.2	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.34 mg/L	2.5 mg/L	93.5	50.0	140	----
		Iron, TCLP	7439-89-6	E444	241 mg/L	250 mg/L	96.5	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.45 mg/L	10 mg/L	94.5	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	248 mg/L	250 mg/L	99.2	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.42 mg/L	2.5 mg/L	97.0	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.99 mg/L	5 mg/L	99.9	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.088 mg/L	0.1 mg/L	88.0	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.6 mg/L	5 mg/L	92.7	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.88 mg/L	5 mg/L	97.6	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.75 mg/L	0.75 mg/L	101	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	9.78 mg/L	10 mg/L	97.8	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.7 mg/L	1 mg/L	68.2	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: 2152416)</b>									
QC-2152416-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	96.1	70.0	130	----
<b>Metals (QCLot: 2152417)</b>									
QC-2152417-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	103	70.0	130	----
QC-2152417-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	106	70.0	130	----
QC-2152417-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	96.1	70.0	130	----
QC-2152417-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	97.2	70.0	130	----
QC-2152417-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	105	70.0	130	----
QC-2152417-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	92.8	70.0	130	----
QC-2152417-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	103	70.0	130	----
QC-2152417-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	101	70.0	130	----
QC-2152417-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	99.2	70.0	130	----
QC-2152417-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	98.7	70.0	130	----
QC-2152417-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	94.6	70.0	130	----
QC-2152417-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	102	70.0	130	----
QC-2152417-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	98.1	70.0	130	----
QC-2152417-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	106	70.0	130	----
QC-2152417-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	103	70.0	130	----
QC-2152417-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	95.1	70.0	130	----
QC-2152417-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	101	70.0	130	----
QC-2152417-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	96.8	70.0	130	----
QC-2152417-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	95.6	70.0	130	----
QC-2152417-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	95.5	70.0	130	----
QC-2152417-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	103	60.0	140	----
QC-2152417-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	99.6	70.0	130	----
QC-2152417-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	106	70.0	130	----
QC-2152417-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	103	70.0	130	----
QC-2152417-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	96.1	50.0	150	----
QC-2152417-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	98.6	70.0	130	----
QC-2152417-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	101	40.0	160	----
QC-2152417-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	100.0	70.0	130	----
QC-2152417-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	116	70.0	130	----
QC-2152417-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	100	70.0	130	----
QC-2152417-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	98.0	70.0	130	----



Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
<b>Metals (QCLot: 2152417) - continued</b>									
QC-2152417-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	96.0	70.0	130	----
QC-2152417-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	102	70.0	130	----
<b>Metals (QCLot: 2153271)</b>									
QC-2153271-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	105	70.0	130	----
QC-2153271-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	104	70.0	130	----
QC-2153271-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	98.5	70.0	130	----
QC-2153271-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	96.6	70.0	130	----
QC-2153271-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	107	70.0	130	----
QC-2153271-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	99.5	70.0	130	----
QC-2153271-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	104	70.0	130	----
QC-2153271-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	103	70.0	130	----
QC-2153271-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	99.7	70.0	130	----
QC-2153271-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	100	70.0	130	----
QC-2153271-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	93.7	70.0	130	----
QC-2153271-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	100.0	70.0	130	----
QC-2153271-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	94.5	70.0	130	----
QC-2153271-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	101	70.0	130	----
QC-2153271-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	102	70.0	130	----
QC-2153271-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	98.5	70.0	130	----
QC-2153271-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	102	70.0	130	----
QC-2153271-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	101	70.0	130	----
QC-2153271-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	102	70.0	130	----
QC-2153271-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	98.4	70.0	130	----
QC-2153271-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	100	60.0	140	----
QC-2153271-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	101	70.0	130	----
QC-2153271-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	116	70.0	130	----
QC-2153271-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	108	70.0	130	----
QC-2153271-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	98.9	50.0	150	----
QC-2153271-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	95.2	70.0	130	----
QC-2153271-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	101	40.0	160	----
QC-2153271-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	101	70.0	130	----
QC-2153271-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	114	70.0	130	----
QC-2153271-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	100	70.0	130	----
QC-2153271-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	101	70.0	130	----
QC-2153271-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	98.9	70.0	130	----
QC-2153271-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	106	70.0	130	----
<b>Metals (QCLot: 2153272)</b>									

Page : 17 of 17  
 Work Order : VA25B9235  
 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: 2153272) - continued</b>									
QC-2153272-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	102	70.0	130	----



<b>Report To</b>		<b>Report Format / Distribution</b>			<b>Service Requested (Rush for routine analysis subject to availability)</b>										
Company: Veolia Canada / Burnaby Waste To Energy Facility		"Veolia Email Distribution List" please													
Contact: Brian Graham / Darcie Grace															
Address: 5150 Riverbend Drive Burnaby BC		Email 1: Darcie.grace@veolia.com													
Phone: 604-521-1025 Fax:		Email 2: lorenzo.ilao@veolia.com													
		Email 3: karen.thomquist@veolia.com brent.kirkpatrick@metrovancover.org Sarah.Wellman@metrovancover.org			<b>Analysis Request</b>										
<b>Invoice To</b> Same as Report? Veolia Water Canada		<b>Client / Project Information</b>			Please indicate below Filtered, Preserved or both (F, P, F/P)										
Hardcopy of Invoice with Report?		Job #: Veolia Weekly Bottom Ash - Suite													
Company: Veolia Water Canada / Burnaby Waste To Energy		PO / AFE: PO#													
Contact: Danny George, Purchaser/Darcie Grace, SHE Manager		LSD: (includes 2:1 pH)													
Address: 5150 Riverbend Drive, Burnaby BC V3N 4V3															
Phone: 604 521 1025 Fax:		Quote #:													
Lab Work Order # (lab use only)		ALS Contact:		Sampler:											
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)							Number of Containers
BA 2531-A-1		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-2		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-3		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-4		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-5		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-6		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-7		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-8		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-9		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-10		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-11		30 Jul 2025	9:00	Soil	X	X		X							1
BA 2531-A-12		30 Jul 2025	9:00	Soil	X	X		X							1

Environmental Division  
 Vancouver  
 Work Order Reference  
**VA25B9235**

Telephone : +1 604 263 4188

m may delay as with the Ter numbers and											
SHIPMENT RECEPTION (lab use only)		SHIPMENT VERIFICATION (lab use only)									
Released by:	Date (dd-mmm-yy): 05/08/25	Time (hh-mm): 07:35	Received by: DC	Date: 8/1/25	Time: 10:10	Temperature: 23 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF	