metrovancouver

Bottom Ash Data

2025 Week 28

The following analytical report represents bottom ash composite results for week 28 of 2025 (July 6, 2025 to July 12, 2025).

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

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25B7435**			
Client	:	**Veolia Environmental Services Canada**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Brian Graham	Account Manager	:	Gulraj Dhanaua
Address	:	5150 Riverbend Dr. Burnaby British Columbia Canada V3N 4V3	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Gulraj.Dhanaua@alsglobal.com
Project	:	Veolia Weekly Bottom Ash-Suite	Telephone	:	+1 604 253 4188
PO	:	----	Date Samples Received	:	16-Jul-2025 22:50
C-O-C number	:	----	Date Analysis Commenced	:	21-Jul-2025
Sampler	:	----	Issue Date	:	24-Jul-2025 22:05
Site	:	Metro Van Ash Sampling Program			
Quote number	:	VA25-VISI100-001			
No. of samples received	:	12			
No. of samples analysed	:	12			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

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

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi		Metals, Burnaby, British Columbia
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).

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

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-1 ----	BA 2528-A-2 ----	BA 2528-A-3 ----	BA 2528-A-4 ----	BA 2528-A-5 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-001	VA25B7435-002	VA25B7435-003	VA25B7435-004	VA25B7435-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		21.9	21.4	21.9	23.0	22.3
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.45	11.42	11.73	11.49	11.44
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		43100	44400	36500	34700	36400
Antimony	7440-36-0	E440/VA	0.10	mg/kg		212	140	175	173	154
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		25.2	19.1	20.3	25.3	19.2
Barium	7440-39-3	E440/VA	0.50	mg/kg		496	540	483	452	516
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.38	0.36	0.35	0.35	0.34
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		14.1	9.91	10.1	11.1	13.3
Boron	7440-42-8	E440/VA	5.0	mg/kg		158	133	154	367	204
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		13.6	11.8	9.14	10.9	8.68
Calcium	7440-70-2	E440/VA	50	mg/kg		156000	134000	136000	146000	147000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		215	152	144	186	232
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		117	208	33.6	36.2	32.4
Copper	7440-50-8	E440/VA	0.50	mg/kg		2220	1790	1240	4290	1880
Iron	7439-89-6	E440/VA	50	mg/kg		42800	60700	55800	47400	51900
Lead	7439-92-1	E440/VA	0.50	mg/kg		419	305	292	515	355
Lithium	7439-93-2	E440/VA	2.0	mg/kg		28.6	43.8	23.9	23.5	40.8
Magnesium	7439-95-4	E440/VA	20	mg/kg		14100	12200	12100	13600	12300
Manganese	7439-96-5	E440/VA	1.0	mg/kg		805	815	658	798	670
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)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-1 ----	BA 2528-A-2 ----	BA 2528-A-3 ----	BA 2528-A-4 ----	BA 2528-A-5 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-001	VA25B7435-002	VA25B7435-003	VA25B7435-004	VA25B7435-005
						Result	Result	Result	Result	Result
Metals										
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		17.8	17.5	18.8	24.1	17.5
Nickel	7440-02-0	E440/VA	0.50	mg/kg		140	96.9	110	143	776
Phosphorus	7723-14-0	E440/VA	50	mg/kg		14300	10400	9840	12200	13300
Potassium	7440-09-7	E440/VA	100	mg/kg		7350	6640	6290	6910	6520
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.66	0.43	0.46	0.48	0.50
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.64	6.18	4.95	7.44	4.84
Sodium	7440-23-5	E440/VA	50	mg/kg		18700	17500	15800	17900	16800
Strontium	7440-24-6	E440/VA	0.50	mg/kg		368	317	312	343	317
Sulfur	7704-34-9	E440/VA	1000	mg/kg		15400	11300	12800	11900	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		511	113	105	123	110
Titanium	7440-32-6	E440/VA	1.0	mg/kg		299	284	272	190	184
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		8.25	6.15	6.38	6.77	7.15
Uranium	7440-61-1	E440/VA	0.050	mg/kg		2.13	1.84	1.83	1.99	1.82
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		50.6	45.9	50.1	53.2	46.7
Zinc	7440-66-6	E440/VA	2.0	mg/kg		5760	5850	3550	3790	3450
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		1.6	2.0	1.8	3.0	2.6
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.76	11.79	11.88	11.79	11.71
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.26	6.11	5.70	6.14	5.90
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.89	2.89	2.89	2.89	2.89

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-1 ----	BA 2528-A-2 ----	BA 2528-A-3 ----	BA 2528-A-4 ----	BA 2528-A-5 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-001	VA25B7435-002	VA25B7435-003	VA25B7435-004	VA25B7435-005
						Result	Result	Result	Result	Result
TCLP Metals										
pH, TCLP final	----	EPP444/VA	0.010	pH units		7.09	6.76	6.77	7.18	6.82
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		1.96	1.95	1.98	2.06	2.05
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.089	0.090	0.100	0.060	0.084
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1990	2140	2080	2230	2140
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		0.769	0.992	0.728	0.688	0.385
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.735	0.844	0.911	0.861	0.734
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		143	150	152	147	146
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		0.26	0.33	0.52	<0.25	0.32
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-1 ----	BA 2528-A-2 ----	BA 2528-A-3 ----	BA 2528-A-4 ----	BA 2528-A-5 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-001	VA25B7435-002	VA25B7435-003	VA25B7435-004	VA25B7435-005
						Result	Result	Result	Result	Result
TCLP Metals										
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		7.05	14.3	14.3	2.88	10.6
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-6 ----	BA 2528-A-7 ----	BA 2528-A-8 ----	BA 2528-A-9 ----	BA 2528-A-10 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-006	VA25B7435-007	VA25B7435-008	VA25B7435-009	VA25B7435-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		22.3	22.5	22.9	22.2	20.9
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.45	11.33	11.26	11.40	11.31
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		43600	42400	33600	32500	32700
Antimony	7440-36-0	E440/VA	0.10	mg/kg		157	179	166	163	170
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		22.7	21.6	22.8	26.0	23.9
Barium	7440-39-3	E440/VA	0.50	mg/kg		557	434	512	501	504
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.39	0.39	0.32	0.32	0.34
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		11.9	13.0	15.0	11.5	12.4
Boron	7440-42-8	E440/VA	5.0	mg/kg		207	151	144	152	204
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		10.3	12.3	19.0	13.2	15.9
Calcium	7440-70-2	E440/VA	50	mg/kg		140000	150000	152000	152000	153000

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-6 ----	BA 2528-A-7 ----	BA 2528-A-8 ----	BA 2528-A-9 ----	BA 2528-A-10 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-006	VA25B7435-007	VA25B7435-008	VA25B7435-009	VA25B7435-010
						Result	Result	Result	Result	Result
Metals										
Chromium	7440-47-3	E440/VA	0.50	mg/kg		117	148	519	188	159
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		39.8	62.3	64.9	38.7	98.8
Copper	7440-50-8	E440/VA	0.50	mg/kg		1300	2050	3250	1320	1350
Iron	7439-89-6	E440/VA	50	mg/kg		42500	48200	46200	34800	64200
Lead	7439-92-1	E440/VA	0.50	mg/kg		295	496	782	517	343
Lithium	7439-93-2	E440/VA	2.0	mg/kg		23.2	28.9	26.3	26.9	45.5
Magnesium	7439-95-4	E440/VA	20	mg/kg		12000	13600	14600	12000	13000
Manganese	7439-96-5	E440/VA	1.0	mg/kg		665	867	748	772	1080
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		13.6	21.0	39.7	18.7	17.9
Nickel	7440-02-0	E440/VA	0.50	mg/kg		120	132	295	134	262
Phosphorus	7723-14-0	E440/VA	50	mg/kg		10200	10700	11100	12800	11900
Potassium	7440-09-7	E440/VA	100	mg/kg		6600	6720	6690	6960	6960
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.44	0.55	0.56	0.54	0.60
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.92	7.32	8.69	7.73	5.42
Sodium	7440-23-5	E440/VA	50	mg/kg		16200	16400	16900	17600	16700
Strontium	7440-24-6	E440/VA	0.50	mg/kg		312	388	322	313	321
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10300	14000	12100	13400	15500
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		145	131	490	170	165
Titanium	7440-32-6	E440/VA	1.0	mg/kg		251	323	212	202	221

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-6 ----	BA 2528-A-7 ----	BA 2528-A-8 ----	BA 2528-A-9 ----	BA 2528-A-10 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-006	VA25B7435-007	VA25B7435-008	VA25B7435-009	VA25B7435-010
						Result	Result	Result	Result	Result
Metals										
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		7.60	8.14	6.51	9.20	6.55
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.82	2.02	1.78	2.03	1.94
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		52.2	46.4	45.9	43.5	53.5
Zinc	7440-66-6	E440/VA	2.0	mg/kg		5000	3680	3830	4020	4130
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		3.1	3.2	1.2	1.9	1.7
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.78	11.78	11.79	11.76	11.80
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		5.65	6.09	6.18	5.52	5.96
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.89	2.89	2.89	2.89	2.89
pH, TCLP final	----	EPP444/VA	0.010	pH units		7.07	7.23	7.22	6.95	6.99
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		1.93	1.89	1.86	2.06	1.96
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.115	0.087	0.054	0.078	0.064
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		2070	2000	2010	2170	2150
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		0.419	0.428	0.397	0.683	0.421
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.828	0.879	0.598	0.811	0.708
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-6 ----	BA 2528-A-7 ----	BA 2528-A-8 ----	BA 2528-A-9 ----	BA 2528-A-10 ----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00	09-Jul-2025 09:00
						VA25B7435-006	VA25B7435-007	VA25B7435-008	VA25B7435-009	VA25B7435-010
						Result	Result	Result	Result	Result
TCLP Metals										
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		148	143	146	150	154
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	0.33	0.30
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		0.17	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		4.40	2.38	1.70	7.42	3.89
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	<10	<10	<10

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-11 ----	BA 2528-A-12 ----	----	----	----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	----	----	----
						VA25B7435-011	VA25B7435-012	----	----	----
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		22.6	22.7	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.78	11.21	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-11 ----	BA 2528-A-12 ----	----	----	----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	----	----	----
						VA25B7435-011	VA25B7435-012	----	----	----
						Result	Result	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		37500	57700	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		156	144	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		19.0	15.2	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		467	780	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.34	0.32	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		9.61	7.28	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		139	200	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		10.6	14.4	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		139000	111000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		155	325	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		105	156	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		6550	19500	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		73600	46900	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		3980	299	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		27.4	24.9	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		13400	10600	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		836	670	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	<0.0500	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		26.2	12.6	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		180	107	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		10800	8680	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-11 ----	BA 2528-A-12 ----	----	----	----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	----	----	----
						VA25B7435-011	VA25B7435-012	----	----	----
						Result	Result	----	----	----
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg		6150	5440	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.52	0.46	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.87	3.89	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		17000	14500	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		308	282	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		12000	9500	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	0.555	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		225	200	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		188	683	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		11.1	4.03	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.70	1.48	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		55.8	39.5	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		5020	32600	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		1.7	2.0	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		11.79	11.82	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		5.59	5.60	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.89	2.89	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.98	7.05	----	----	----
Antimony, TCLP	7440-36-0	E444/VA	1.00	mg/L		<1.00	<1.00	----	----	----
Arsenic, TCLP	7440-38-2	E444/VA	1.0	mg/L		<1.0	<1.0	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA 2528-A-11 ----	BA 2528-A-12 ----	----	----	----
					Client sampling date / time	09-Jul-2025 09:00	09-Jul-2025 09:00	----	----	----
						VA25B7435-011	VA25B7435-012	----	----	----
						Result	Result	----	----	----
TCLP Metals										
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	----	----	----
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	----	----	----
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		2.07	2.01	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.095	0.117	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		2220	2170	----	----	----
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		0.356	0.728	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.945	0.983	----	----	----
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		156	150	----	----	----
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		0.26	0.30	----	----	----
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		7.37	8.58	----	----	----
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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25B7435**	Page	: 1 of 17
Client	: **Veolia Environmental Services Canada**	Laboratory	: ALS Environmental - Vancouver
Contact	: Brian Graham	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Veolia Weekly Bottom Ash-Suite	Date Samples Received	: 16-Jul-2025 22:50
PO	: ----	Issue Date	: 24-Jul-2025 22:04
C-O-C number	: ----		
Sampler	: ----		
Site	: Metro Van Ash Sampling Program		
Quote number	: VA25-VISI100-001		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	VA25B7435-012	BA 2528-A-12	Arsenic	7440-38-2	E440	59.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Arsenic	7440-38-2	E440	87.5 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Bismuth	7440-69-9	E440	60.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Bismuth	7440-69-9	E440	83.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Calcium	7440-70-2	E440	38.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-001	BA 2528-A-1	Chromium	7440-47-3	E440	49.5 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Chromium	7440-47-3	E440	64.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Chromium	7440-47-3	E440	45.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-001	BA 2528-A-1	Cobalt	7440-48-4	E440	30.5 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Cobalt	7440-48-4	E440	132 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Cobalt	7440-48-4	E440	52.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-001	BA 2528-A-1	Copper	7440-50-8	E440	39.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Copper	7440-50-8	E440	172 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Copper	7440-50-8	E440	138 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Lead	7439-92-1	E440	128 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Lead	7439-92-1	E440	128 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Magnesium	7439-95-4	E440	37.5 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Molybdenum	7439-98-7	E440	49.0 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs - Continued								
Metals	VA25B7435-001	BA 2528-A-1	Nickel	7440-02-0	E440	48.1 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Phosphorus	7723-14-0	E440	51.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Silver	7440-22-4	E440	81.8 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Sulfur	7704-34-9	E440	50.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Thallium	7440-28-0	E440	0.505 % DUP-H, J	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Metals	VA25B7435-001	BA 2528-A-1	Tin	7440-31-5	E440	96.9 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Tin	7440-31-5	E440	56.6 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Titanium	7440-32-6	E440	104 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Tungsten	7440-33-7	E440	88.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-011	BA 2528-A-11	Tungsten	7440-33-7	E440	45.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Uranium	7440-61-1	E440	42.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-001	BA 2528-A-1	Zinc	7440-66-6	E440	33.5 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	VA25B7435-012	BA 2528-A-12	Zinc	7440-66-6	E440	150 % DUP-H	30%	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.*
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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-11	E510	09-Jul-2025	24-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-12	E510	09-Jul-2025	24-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-1	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-10	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-2	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-3	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-4	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-5	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-6	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-7	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-8	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA 2528-A-9	E510	09-Jul-2025	23-Jul-2025	28 days	15 days	✓	24-Jul-2025	28 days	1 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-1	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-10	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-11	E440	09-Jul-2025	24-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-12	E440	09-Jul-2025	24-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-2	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-3	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-4	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-5	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-6	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-7	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-8	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA 2528-A-9	E440	09-Jul-2025	23-Jul-2025	180 days	15 days	✓	24-Jul-2025	180 days	15 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-1	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-10	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-11	E144	09-Jul-2025	----	----	----		23-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-12	E144	09-Jul-2025	----	----	----		23-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-2	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-3	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-4	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-5	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-6	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-7	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-8	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA 2528-A-9	E144	09-Jul-2025	----	----	----		22-Jul-2025	----	----	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-1	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-10	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-11	E108	09-Jul-2025	24-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-12	E108	09-Jul-2025	24-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-2	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-3	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-4	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-5	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-6	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-7	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-8	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA 2528-A-9	E108	09-Jul-2025	23-Jul-2025	30 days	15 days	✓	24-Jul-2025	30 days	15 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-1	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-10	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-11	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-12	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-2	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-3	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-4	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-5	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-6	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-7	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-8	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA 2528-A-9	E512	21-Jul-2025	23-Jul-2025	40 days	14 days	✓	23-Jul-2025	40 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-1	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-10	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-11	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-12	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-2	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-3	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-4	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-5	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-6	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-7	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-8	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA 2528-A-9	E444	21-Jul-2025	23-Jul-2025	192 days	14 days	✓	24-Jul-2025	192 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-1	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-10	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-11	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-12	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-2	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-3	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-4	EPP444	09-Jul-2025	21-Jul-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*	
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-5	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-6	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-7	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-8	EPP444	09-Jul-2025	21-Jul-2025	----	----		----	28 days	12 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA 2528-A-9	EPP444	09-Jul-2025	21-Jul-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			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2123209	3	47	6.3	5.0	✓
Moisture Content by Gravimetry	E144	2123219	3	48	6.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2123207	3	50	6.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	2122479	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2121015	3	43	6.9	5.0	✓
Mercury by CVAAS (TCLP)	E512	2122480	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2123209	3	47	6.3	5.0	✓
Moisture Content by Gravimetry	E144	2123219	3	48	6.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2123207	6	50	12.0	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	2121015	6	43	13.9	10.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	2123219	3	48	6.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2123207	3	50	6.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	2122479	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2121015	3	43	6.9	5.0	✓
Mercury by CVAAS (TCLP)	E512	2122480	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Metals by CRC ICPMS (TCLP)	E444	2122479	1	12	8.3	5.0	✓
Mercury by CVAAS (TCLP)	E512	2122480	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 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
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 HNO3 and HCl, followed by CVAAS analysis.
Mercury by CVAAS (TCLP)	E512 ALS Environmental - Vancouver	Soil/Solid	EPA 1311/245.1 (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 ALS Environmental - Vancouver	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.

QUALITY CONTROL REPORT

Work Order	: **VA25B7435**	Page	: 1 of 21
Client	: Veolia Environmental Services Canada	Laboratory	: ALS Environmental - Vancouver
Contact	: Brian Graham	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Dr. Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Veolia Weekly Bottom Ash-Suite	Date Samples Received	: 16-Jul-2025 22:50
PO	: ----	Date Analysis Commenced	: 21-Jul-2025
C-O-C number	: ----	Issue Date	: 24-Jul-2025 22:04
Sampler	: ----		
Site	: Metro Van Ash Sampling Program		
Quote number	: VA25-VISI100-001		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi	Supervisor - Metals Prep	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
Robert Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2121017)											
VA25B7435-001	BA 2528-A-1	pH (1:2 soil:water)	----	E108	0.10	pH units	11.45	11.46	0.1%	5%	----
Physical Tests (QC Lot: 2121022)											
YL2500605-002	Anonymous	Moisture	----	E144	0.25	%	16.3	15.0	8.27%	20%	----
Physical Tests (QC Lot: 2122350)											
VA25B7435-012	BA 2528-A-12	pH (1:2 soil:water)	----	E108	0.10	pH units	11.21	11.28	0.6%	5%	----
Physical Tests (QC Lot: 2122351)											
VA25B7435-012	BA 2528-A-12	Moisture	----	E144	0.25	%	22.7	22.7	0.244%	20%	----
Physical Tests (QC Lot: 2123209)											
VA25B7435-011	BA 2528-A-11	pH (1:2 soil:water)	----	E108	0.10	pH units	11.78	11.70	0.7%	5%	----
Physical Tests (QC Lot: 2123219)											
VA25B7435-011	BA 2528-A-11	Moisture	----	E144	0.25	%	22.6	23.2	2.51%	20%	----
Metals (QC Lot: 2121015)											
VA25B7435-001	BA 2528-A-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	0.0513	0.0013	Diff <2x LOR	----
Metals (QC Lot: 2121016)											
VA25B7435-001	BA 2528-A-1	Aluminum	7429-90-5	E440	50	mg/kg	43100	38300	11.6%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	212	166	24.5%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	25.2	21.5	15.5%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	496	504	1.67%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.38	0.43	0.05	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	14.1	11.6	19.4%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	158	158	0.186%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	13.6	11.7	14.9%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	156000	155000	0.487%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	215	357	49.5%	30%	DUP-H
		Cobalt	7440-48-4	E440	0.10	mg/kg	117	86.4	30.5%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	2220	1490	39.7%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	42800	49200	13.9%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	419	396	5.82%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	28.6	26.9	6.43%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	14100	13600	3.48%	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*
Metals (QC Lot: 2121016) - continued											
VA25B7435-001	BA 2528-A-1	Manganese	7439-96-5	E440	1.0	mg/kg	805	639	23.0%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	17.8	16.4	8.48%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	140	230	48.1%	30%	DUP-H
		Phosphorus	7723-14-0	E440	50	mg/kg	14300	12600	12.6%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	7350	7080	3.78%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.66	0.54	0.12	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	5.64	6.22	9.76%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	18700	18200	2.96%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	368	335	9.49%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	15400	14300	7.66%	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	511	177	96.9%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	299	249	18.3%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	8.25	9.50	14.0%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	2.13	2.01	5.84%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	50.6	48.4	4.40%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	5760	4110	33.5%	30%	DUP-H
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.6	1.5	0.02	Diff <2x LOR	----
Metals (QC Lot: 2122343)											
VA25B7435-012	BA 2528-A-12	Aluminum	7429-90-5	E440	50	mg/kg	57700	39000	38.7%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	144	189	26.7%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	15.2	28.1	59.8%	30%	DUP-H
		Barium	7440-39-3	E440	0.50	mg/kg	780	532	37.8%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.32	0.38	0.05	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	7.28	13.6	60.7%	30%	DUP-H
		Boron	7440-42-8	E440	5.0	mg/kg	200	182	9.62%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	14.4	16.5	13.4%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	111000	163000	38.1%	30%	DUP-H
		Chromium	7440-47-3	E440	0.50	mg/kg	325	167	64.4%	30%	DUP-H
		Cobalt	7440-48-4	E440	0.10	mg/kg	156	32.1	132%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	19500	1480	172%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	46900	39200	17.9%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	299	1360	128%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	24.9	27.6	10.3%	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*
Metals (QC Lot: 2122343) - continued											
VA25B7435-012	BA 2528-A-12	Magnesium	7439-95-4	E440	20	mg/kg	10600	15500	37.5%	30%	DUP-H
		Manganese	7439-96-5	E440	1.0	mg/kg	670	737	9.58%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	12.6	18.6	38.3%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	107	142	28.0%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	8680	14600	51.2%	30%	DUP-H
		Potassium	7440-09-7	E440	100	mg/kg	5440	8150	39.9%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.46	0.62	0.16	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	3.89	9.29	81.8%	40%	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	14500	20000	31.9%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	282	357	23.2%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	9500	16000	50.8%	30%	DUP-H
		Thallium	7440-28-0	E440	0.050	mg/kg	0.555	# <0.050	0.505	Diff <2x LOR	DUP-H,J
		Tin	7440-31-5	E440	2.0	mg/kg	200	149	29.3%	40%	----
		Titanium	7440-32-6	E440	1.0	mg/kg	683	216	104%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	4.03	10.5	88.8%	30%	DUP-H
		Uranium	7440-61-1	E440	0.050	mg/kg	1.48	2.27	42.2%	30%	DUP-H
		Vanadium	7440-62-2	E440	0.20	mg/kg	39.5	50.6	24.7%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	32600	4710	150%	30%	DUP-H
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.0	3.2	1.2	Diff <2x LOR	----
Metals (QC Lot: 2122344)											
VA25B7435-012	BA 2528-A-12	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
Metals (QC Lot: 2123207)											
VA25B7435-011	BA 2528-A-11	Aluminum	7429-90-5	E440	50	mg/kg	37500	38800	3.46%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	156	165	5.66%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	19.0	48.6	87.5%	30%	DUP-H
		Barium	7440-39-3	E440	0.50	mg/kg	467	335	32.9%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.34	0.38	0.04	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	9.61	23.5	83.8%	30%	DUP-H
		Boron	7440-42-8	E440	5.0	mg/kg	139	178	25.0%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	10.6	11.7	9.76%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	139000	142000	2.20%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	155	245	45.1%	30%	DUP-H
		Cobalt	7440-48-4	E440	0.10	mg/kg	105	61.3	52.8%	30%	DUP-H
		Copper	7440-50-8	E440	0.50	mg/kg	6550	1210	138%	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*
Metals (QC Lot: 2123207) - continued											
VA25B7435-011	BA 2528-A-11	Iron	7439-89-6	E440	50	mg/kg	73600	57200	25.1%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	3980	872	128%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	27.4	26.7	2.62%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	13400	13200	1.09%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	836	789	5.78%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	26.2	15.9	49.0%	40%	DUP-H
		Nickel	7440-02-0	E440	0.50	mg/kg	180	140	24.8%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	10800	10100	6.25%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	6150	6220	1.23%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.52	0.41	0.11	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	5.87	5.04	15.1%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	17000	16300	4.54%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	308	303	1.63%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	12000	11500	3.98%	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	225	126	56.6%	40%	DUP-H
		Titanium	7440-32-6	E440	1.0	mg/kg	188	182	2.99%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	11.1	7.03	45.2%	30%	DUP-H
		Uranium	7440-61-1	E440	0.050	mg/kg	1.70	1.78	4.60%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	55.8	62.3	11.0%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	5020	5370	6.89%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.7	1.7	0.06	Diff <2x LOR	----
Metals (QC Lot: 2123208)											
VA25B7435-011	BA 2528-A-11	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2122479)											
VA25B7435-001	BA 2528-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	1.96	2.07	0.11	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.089	0.094	0.005	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	1990	2180	9.20%	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	0.769	0.793	3.06%	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*
TCLP Metals (QC Lot: 2122479) - continued											
VA25B7435-001	BA 2528-A-1	Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.735	0.764	3.79%	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	143	149	4.44%	30%	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.26	0.27	0.010	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	7.05	7.20	2.18%	30%	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 2122480)											
VA25B7435-001	BA 2528-A-1	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.*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Method Blank (MB) Report

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

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2121022)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 2122351)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 2123219)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 2121015)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 2121016)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2121016) - continued						
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	----
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	----
Metals (QCLot: 2122343)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2122343) - continued						
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	----
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	----
Metals (QCLot: 2122344)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 2123207)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2123207) - continued						
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	----
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	----
Metals (QCLot: 2123208)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
TCLP Metals (QCLot: 2122479)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Metals (QCLot: 2122479) - continued						
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----
TCLP Metals (QCLot: 2122480)						
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
Physical Tests (QCLot: 2121017)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 2121022)									
Moisture	----	E144	0.25	%	50 %	99.2	90.0	110	----
Physical Tests (QCLot: 2122350)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 2122351)									
Moisture	----	E144	0.25	%	50 %	99.4	90.0	110	----
Physical Tests (QCLot: 2123209)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 2123219)									
Moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Metals (QCLot: 2121015)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	101	80.0	120	----
Metals (QCLot: 2121016)									
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	106	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	109	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	97.7	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	96.6	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	88.4	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	104	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	103	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	99.4	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	96.6	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	99.7	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	110	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	107	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 2121016) - continued									
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	109	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	109	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	107	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	95.1	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	99.6	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	111	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	92.9	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	100	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	102	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	101	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	107	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	106	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	99.7	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	108	80.0	120	----
Metals (QCLot: 2122343)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	110	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	106	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	114	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	108	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	97.5	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	98.6	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	105	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	103	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	106	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	109	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	102	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	107	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	107	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	110	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 2122343) - continued									
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	118	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	111	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	107	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	97.0	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	108	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	110	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	99.8	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	108	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	105	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	105	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	106	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	108	80.0	120	----
Metals (QCLot: 2122344)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	102	80.0	120	----
Metals (QCLot: 2123207)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	102	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	97.6	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.2	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	91.0	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	96.2	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	100.0	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	97.5	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	98.0	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	93.9	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	96.8	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	103	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	100	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 2123207) - continued									
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	94.9	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	102	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	98.6	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	93.8	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	98.5	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	98.6	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	95.6	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	101	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	95.2	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	99.2	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	100	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	101	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	95.6	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	105	80.0	120	----
Metals (QCLot: 2123208)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	95.6	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
TCLP Metals (QCLot: 2122479)										
VA25B7435-001	BA 2528-A-1	Antimony, TCLP	7440-36-0	E444	4.64 mg/L	5 mg/L	92.7	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	4.8 mg/L	5 mg/L	96.8	50.0	140	----
		Barium, TCLP	7440-39-3	E444	11.7 mg/L	12.5 mg/L	93.3	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.233 mg/L	0.25 mg/L	93.3	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.54 mg/L	10 mg/L	85.4	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.230 mg/L	0.25 mg/L	92.0	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.19 mg/L	1.25 mg/L	95.0	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	ND mg/L	----	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.15 mg/L	2.5 mg/L	85.9	50.0	140	----
		Iron, TCLP	7439-89-6	E444	230 mg/L	250 mg/L	92.2	50.0	140	----
		Lead, TCLP	7439-92-1	E444	8.87 mg/L	10 mg/L	88.7	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	222 mg/L	250 mg/L	88.6	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.25 mg/L	2.5 mg/L	89.9	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	4.88 mg/L	5 mg/L	97.6	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.080 mg/L	0.1 mg/L	79.5	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.4 mg/L	5 mg/L	88.2	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.55 mg/L	5 mg/L	91.1	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.72 mg/L	0.75 mg/L	95.7	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	9.11 mg/L	10 mg/L	91.1	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.7 mg/L	1 mg/L	73.2	50.0	150	----
TCLP Metals (QCLot: 2122480)										
VA25B7435-001	BA 2528-A-1	Mercury, TCLP	7439-97-6	E512	0.0030 mg/L	0.003 mg/L	98.4	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:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 2121015)									
QC-2121015-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	107	70.0	130	----
Metals (QCLot: 2121016)									
QC-2121016-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	118	70.0	130	----
QC-2121016-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	107	70.0	130	----
QC-2121016-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	107	70.0	130	----
QC-2121016-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	103	70.0	130	----
QC-2121016-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	108	70.0	130	----
QC-2121016-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	99.8	70.0	130	----
QC-2121016-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	108	70.0	130	----
QC-2121016-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	108	70.0	130	----
QC-2121016-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	106	70.0	130	----
QC-2121016-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	108	70.0	130	----
QC-2121016-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	101	70.0	130	----
QC-2121016-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	98.6	70.0	130	----
QC-2121016-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	100	70.0	130	----
QC-2121016-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	113	70.0	130	----
QC-2121016-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	112	70.0	130	----
QC-2121016-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	106	70.0	130	----
QC-2121016-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	106	70.0	130	----
QC-2121016-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	105	70.0	130	----
QC-2121016-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	111	70.0	130	----
QC-2121016-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	110	70.0	130	----
QC-2121016-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	102	60.0	140	----
QC-2121016-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	102	70.0	130	----
QC-2121016-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	117	70.0	130	----
QC-2121016-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	106	70.0	130	----
QC-2121016-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	90.2	50.0	150	----
QC-2121016-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	104	70.0	130	----
QC-2121016-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	103	40.0	160	----
QC-2121016-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	112	70.0	130	----
QC-2121016-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	125	70.0	130	----
QC-2121016-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	112	70.0	130	----
QC-2121016-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	106	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 (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 2121016) - continued									
QC-2121016-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	102	70.0	130	----
QC-2121016-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	112	70.0	130	----
Metals (QCLot: 2122343)									
QC-2122343-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	111	70.0	130	----
QC-2122343-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	103	70.0	130	----
QC-2122343-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	103	70.0	130	----
QC-2122343-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	99.6	70.0	130	----
QC-2122343-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	105	70.0	130	----
QC-2122343-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	86.6	70.0	130	----
QC-2122343-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	104	70.0	130	----
QC-2122343-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	108	70.0	130	----
QC-2122343-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	101	70.0	130	----
QC-2122343-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	102	70.0	130	----
QC-2122343-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	95.9	70.0	130	----
QC-2122343-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	106	70.0	130	----
QC-2122343-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	95.6	70.0	130	----
QC-2122343-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	115	70.0	130	----
QC-2122343-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	102	70.0	130	----
QC-2122343-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	101	70.0	130	----
QC-2122343-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	106	70.0	130	----
QC-2122343-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	98.0	70.0	130	----
QC-2122343-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	109	70.0	130	----
QC-2122343-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	106	70.0	130	----
QC-2122343-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	118	60.0	140	----
QC-2122343-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	101	70.0	130	----
QC-2122343-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	112	70.0	130	----
QC-2122343-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	108	70.0	130	----
QC-2122343-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	109	50.0	150	----
QC-2122343-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	100	70.0	130	----
QC-2122343-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	104	40.0	160	----
QC-2122343-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	106	70.0	130	----
QC-2122343-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	117	70.0	130	----
QC-2122343-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	103	70.0	130	----
QC-2122343-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	102	70.0	130	----
QC-2122343-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	98.2	70.0	130	----
QC-2122343-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	113	70.0	130	----
Metals (QCLot: 2122344)									

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 2122344) - continued									
QC-2122344-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	104	70.0	130	----
Metals (QCLot: 2123207)									
QC-2123207-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	112	70.0	130	----
QC-2123207-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	103	70.0	130	----
QC-2123207-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	102	70.0	130	----
QC-2123207-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	96.9	70.0	130	----
QC-2123207-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	108	70.0	130	----
QC-2123207-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	107	70.0	130	----
QC-2123207-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	108	70.0	130	----
QC-2123207-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	108	70.0	130	----
QC-2123207-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	101	70.0	130	----
QC-2123207-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	101	70.0	130	----
QC-2123207-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	93.4	70.0	130	----
QC-2123207-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	101	70.0	130	----
QC-2123207-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	94.5	70.0	130	----
QC-2123207-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	113	70.0	130	----
QC-2123207-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	104	70.0	130	----
QC-2123207-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	101	70.0	130	----
QC-2123207-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	103	70.0	130	----
QC-2123207-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	99.1	70.0	130	----
QC-2123207-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	100	70.0	130	----
QC-2123207-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	103	70.0	130	----
QC-2123207-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	91.8	60.0	140	----
QC-2123207-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	98.5	70.0	130	----
QC-2123207-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	111	70.0	130	----
QC-2123207-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	106	70.0	130	----
QC-2123207-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	105	50.0	150	----
QC-2123207-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	97.0	70.0	130	----
QC-2123207-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	101	40.0	160	----
QC-2123207-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	104	70.0	130	----
QC-2123207-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	110	70.0	130	----
QC-2123207-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	101	70.0	130	----
QC-2123207-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	102	70.0	130	----
QC-2123207-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	99.0	70.0	130	----
QC-2123207-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	118	70.0	130	----
Metals (QCLot: 2123208)									
QC-2123208-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	96.7	70.0	130	----

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Requested** (Rush for routine analysis subject to availability)
Company:	Veolia Canada / Burnaby Waste To Energy Facility	"Veolia Email Distribution List" please		
Contact:	Brian Graham / Darcie Grace			
Address:	5150 Riverbend Drive	Email 1:	Darcie.grace@veolia.com	
	Burnaby BC	Email 2:	lorenzo.ilao@veolia.com	
Phone:	604-521-1025 Fax:	Email 3:	karen.thornquist@veolia.com	**Analysis Request**
			brent.kirkpatrick@metrovancouver.org	
			Sarah.Wellman@metrovancouver.org	
Invoice To	Same as Report ? Veolia Water Canada	**Client / Project Information**		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		Job #:	Veolia Weekly Bottom Ash - Suite	
Company:	Veolia Water Canada / Burnaby Waste To Energy	PO / AFE:	PO#	
Contact:	Danny George, Purchaser/Darcie Grace, SHE Manager	LSD:	(includes 2:1 pH)	
Address:	5150 Riverbend Drive, Burnaby BC V3N 4V3			
Phone:	604 521 1025 Fax:	Quote #:		
Lab Work Order # (lab use only)		**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 2528-A-1	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-2	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-3	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-4	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-5	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-6	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-7	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-8	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-9	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-10	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-11	9 Jul 2025	9:00	Soil	X	X				X						1
	BA 2528-A-12	9 Jul 2025	9:00	Soil	X	X				X						1

Environmental Division
Vancouver
Work Order Reference
VA25B7435

Telephone : +1 604 253 4188

water Aquatic

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NT RELEASE (c

SHIPMENT RECEPTION (lab use only)						SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	16/07/25	07:40				22 °C		7/16	10:50	

22

GENF 20.00 Front