metrovancouver

Bottom Ash Data

2024 Week 36

The following analytical report represents bottom ash composite results for week 36 of 2024 (September 1, 2024 to September 7, 2024).

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	: **VA24C3790**	Page	: 1 of 11
Client	: **Reworld Renewable Burnaby, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 11-Sep-2024 12:50
PO	: VANCO0000052919	Date Analysis Commenced	: 18-Sep-2024
C-O-C number	: ----	Issue Date	: 23-Sep-2024 09:17
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
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*
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Organics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	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	BA2436-A-1	BA2436-A-2	BA2436-A-3	BA2436-A-4	BA2436-A-5
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-001	VA24C3790-002	VA24C3790-003	VA24C3790-004	VA24C3790-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		23.8	24.9	24.6	23.8	24.6
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		10.9	11.0	11.2	11.2	11.1
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		39200	44800	42100	39800	44900
Antimony	7440-36-0	E440/VA	0.10	mg/kg		142	114	129	109	95.4
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		25.0	26.6	24.9	24.6	26.2
Barium	7440-39-3	E440/VA	0.50	mg/kg		672	637	659	579	538
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.37	0.33	0.39	0.33	0.33
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		5.80	6.75	10.6	7.31	29.0
Boron	7440-42-8	E440/VA	5.0	mg/kg		204	198	273	176	152
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		9.43	12.2	10.9	11.7	1000
Calcium	7440-70-2	E440/VA	50	mg/kg		133000	134000	145000	129000	130000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		277	211	272	190	139
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		202	86.0	52.0	64.2	110
Copper	7440-50-8	E440/VA	0.50	mg/kg		2300	3280	3280	1660	7640
Iron	7439-89-6	E440/VA	50	mg/kg		75800	81800	50400	54500	60000
Lead	7439-92-1	E440/VA	0.50	mg/kg		331	464	408	384	342
Lithium	7439-93-2	E440/VA	2.0	mg/kg		38.1	33.9	36.3	34.0	29.5
Magnesium	7439-95-4	E440/VA	20	mg/kg		12600	12700	13200	11800	12200
Manganese	7439-96-5	E440/VA	1.0	mg/kg		1040	1120	972	911	966
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.0538	0.227	0.0698	0.0648	0.0710
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		29.2	26.5	20.3	23.9	21.7
Nickel	7440-02-0	E440/VA	0.50	mg/kg		231	248	193	219	195
Phosphorus	7723-14-0	E440/VA	50	mg/kg		10400	9980	13200	9980	10000
Potassium	7440-09-7	E440/VA	100	mg/kg		6080	6020	6420	5880	5250
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.42	0.55	0.41	0.36	0.32
Silver	7440-22-4	E440/VA	0.10	mg/kg		3.94	4.96	9.44	4.16	7.32
Sodium	7440-23-5	E440/VA	50	mg/kg		17400	18600	18300	17000	15200
Strontium	7440-24-6	E440/VA	0.50	mg/kg		314	326	336	318	313

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-1	BA2436-A-2	BA2436-A-3	BA2436-A-4	BA2436-A-5
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-001	VA24C3790-002	VA24C3790-003	VA24C3790-004	VA24C3790-005
						Result	Result	Result	Result	Result
Metals										
Sulfur	7704-34-9	E440/VA	1000	mg/kg		10300	10700	11300	10400	10800
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		113	138	108	144	252
Titanium	7440-32-6	E440/VA	1.0	mg/kg		290	323	386	306	331
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		22.6	24.6	45.6	24.9	17.9
Uranium	7440-61-1	E440/VA	0.050	mg/kg		2.04	2.09	2.13	1.90	1.77
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		37.5	42.9	36.3	35.4	40.5
Zinc	7440-66-6	E440/VA	2.0	mg/kg		3700	4870	4260	4400	5340
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.1	2.8	2.1	2.8	3.5
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.0	11.9	12.2	12.0	12.0
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		5.64	5.80	7.85	5.81	5.66
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.92	2.92	2.92	2.92	2.92
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.79	6.17	6.40	6.28	6.62
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		1.68	1.74	1.90	1.95	1.78
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.093	0.157	0.262	0.184	0.143
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1720	1820	1840	1920	1780
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		1.62	1.38	0.862	3.49	1.20
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		0.959	1.22	1.53	1.40	1.25
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		111	130	122	132	117
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		0.38	0.76	0.50	0.52	0.35
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-1	BA2436-A-2	BA2436-A-3	BA2436-A-4	BA2436-A-5
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-001	VA24C3790-002	VA24C3790-003	VA24C3790-004	VA24C3790-005
						Result	Result	Result	Result	Result
TCLP Metals										
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		10.2	46.1	24.2	28.8	25.3
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 result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-6	BA2436-A-7	BA2436-A-8	BA2436-A-9	BA2436-A-10
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-006	VA24C3790-007	VA24C3790-008	VA24C3790-009	VA24C3790-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		25.2	25.6	26.4	30.6	25.1
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.1	11.0	10.9	10.9	11.0
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		33700	34800	36300	40600	32500
Antimony	7440-36-0	E440/VA	0.10	mg/kg		94.4	137	104	108	119
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		22.7	25.2	25.8	30.5	28.8
Barium	7440-39-3	E440/VA	0.50	mg/kg		565	569	605	637	558
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.33	0.34	0.35	0.31	0.33
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		6.11	7.46	7.30	7.43	24.8
Boron	7440-42-8	E440/VA	5.0	mg/kg		181	160	186	166	183
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		9.55	8.47	9.15	9.67	11.4
Calcium	7440-70-2	E440/VA	50	mg/kg		120000	124000	126000	129000	131000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		303	501	192	333	168
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		58.5	84.8	86.0	80.0	110
Copper	7440-50-8	E440/VA	0.50	mg/kg		15600	2990	2560	1840	1760
Iron	7439-89-6	E440/VA	50	mg/kg		48700	60300	48000	64600	51600
Lead	7439-92-1	E440/VA	0.50	mg/kg		578	2500	282	991	895
Lithium	7439-93-2	E440/VA	2.0	mg/kg		29.2	32.4	27.8	31.4	27.4
Magnesium	7439-95-4	E440/VA	20	mg/kg		11200	11600	11000	12700	12500
Manganese	7439-96-5	E440/VA	1.0	mg/kg		646	921	6070	1000	814
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	0.0603	<0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		21.6	23.4	16.5	17.3	17.6
Nickel	7440-02-0	E440/VA	0.50	mg/kg		141	419	132	370	151
Phosphorus	7723-14-0	E440/VA	50	mg/kg		8930	9250	9880	9390	9990
Potassium	7440-09-7	E440/VA	100	mg/kg		5260	5530	5940	5330	5790
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.35	0.37	0.37	0.33	0.47
Silver	7440-22-4	E440.Ag/VA	0.10	mg/kg		----	4.62	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		6.19	----	4.40	5.02	5.71
Sodium	7440-23-5	E440/VA	50	mg/kg		15500	15100	17800	15400	16500
Strontium	7440-24-6	E440/VA	0.50	mg/kg		305	284	327	342	303

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-6	BA2436-A-7	BA2436-A-8	BA2436-A-9	BA2436-A-10
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-006	VA24C3790-007	VA24C3790-008	VA24C3790-009	VA24C3790-010
						Result	Result	Result	Result	Result
Metals										
Sulfur	7704-34-9	E440/VA	1000	mg/kg		9600	10300	9800	10100	11000
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		98.3	430	181	116	124
Titanium	7440-32-6	E440/VA	1.0	mg/kg		214	284	335	245	287
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		25.4	27.7	18.5	16.0	21.0
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.77	1.74	1.85	1.78	1.87
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		36.0	38.7	39.3	40.0	35.2
Zinc	7440-66-6	E440/VA	2.0	mg/kg		9110	3750	4010	3200	3450
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.7	2.1	1.9	3.4	2.0
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.0	12.0	12.0	12.0	12.0
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.43	6.50	6.59	6.38	6.88
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.92	2.92	2.92	2.92	2.92
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.28	6.73	6.62	6.64	6.71
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		1.92	1.96	1.83	1.82	1.72
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.380	0.205	0.089	0.128	0.100
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1910	1770	1810	1770	1770
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		1.07	1.15	0.784	2.02	0.966
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.19	1.39	1.36	1.28	1.36
Iron, TCLP	7439-89-6	E444/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
Lead, TCLP	7439-92-1	E444/VA	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium, TCLP	7439-95-4	E444/VA	2.5	mg/L		129	121	116	114	113
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		0.51	0.31	0.30	0.39	0.31
Selenium, TCLP	7782-49-2	E444/VA	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-6	BA2436-A-7	BA2436-A-8	BA2436-A-9	BA2436-A-10
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00	04-Sep-2024 09:00
						VA24C3790-006	VA24C3790-007	VA24C3790-008	VA24C3790-009	VA24C3790-010
						Result	Result	Result	Result	Result
TCLP Metals										
Silver, TCLP	7440-22-4	E444/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Thallium, TCLP	7440-28-0	E444/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Uranium, TCLP	7440-61-1	E444/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium, TCLP	7440-62-2	E444/VA	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
Zinc, TCLP	7440-66-6	E444/VA	0.50	mg/L		37.8	13.3	12.9	14.6	13.8
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 result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BA2436-A-11	BA2436-A-12	----	----	----
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	----	----	----
						VA24C3790-011	VA24C3790-012	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		26.4	26.2	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		11.0	11.0	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		33000	32200	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		93.9	88.1	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		20.9	23.1	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		606	586	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.32	0.43	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		6.28	5.79	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		183	166	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		10.4	9.77	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		120000	124000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		221	144	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		55.3	133	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		3660	1730	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		60700	62700	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		561	387	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		24.2	54.2	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		11600	11700	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		692	757	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	<0.0500	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		18.1	19.0	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		348	133	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		9200	8800	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg		5940	5990	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.38	0.31	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		5.49	5.38	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		17500	16700	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		299	307	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		9400	10100	----	----	----

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2436-A-11	BA2436-A-12	----	----	----
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C3790-011	VA24C3790-012	--------	--------	--------
						Result	Result	----	----	----
Metals										
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		111	89.8	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		250	209	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		17.8	13.9	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.80	1.64	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		35.1	50.2	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		6300	3310	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.2	3.1	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444/VA	0.010	pH units		12.0	12.0	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/VA	0.010	pH units		6.18	6.97	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/VA	0.010	pH units		2.92	2.92	----	----	----
pH, TCLP final	----	EPP444/VA	0.010	pH units		6.48	6.17	----	----	----
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	----	----	----
Barium, TCLP	7440-39-3	E444/VA	2.5	mg/L		<2.5	<2.5	----	----	----
Beryllium, TCLP	7440-41-7	E444/VA	0.025	mg/L		<0.025	<0.025	----	----	----
Boron, TCLP	7440-42-8	E444/VA	0.50	mg/L		1.88	1.99	----	----	----
Cadmium, TCLP	7440-43-9	E444/VA	0.050	mg/L		0.140	0.175	----	----	----
Calcium, TCLP	7440-70-2	E444/VA	10	mg/L		1910	1840	----	----	----
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		1.44	1.16	----	----	----
Copper, TCLP	7440-50-8	E444/VA	0.050	mg/L		1.47	1.31	----	----	----
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		132	122	----	----	----
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		0.52	0.74	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2436-A-11	BA2436-A-12	----	----	----
					Client sampling date / time	04-Sep-2024 09:00	04-Sep-2024 09:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C3790-011	VA24C3790-012	--------	--------	--------
						Result	Result	----	----	----
TCLP Metals										
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		24.5	35.8	----	----	----
Zirconium, TCLP	7440-67-7	E444/VA	10	mg/L		<10	<10	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C3790**	Page	: 1 of 15
Client	: **Reworld Renewable Burnaby, ULC**	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 11-Sep-2024 12:50
PO	: VANCO0000052919	Issue Date	: 23-Sep-2024 09:18
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : High Silver in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-7	E440.Ag	04-Sep-2024	22-Sep-2024	180 days	18 days	✓	23-Sep-2024	180 days	19 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-1	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-10	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-11	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-12	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-2	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-3	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 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 BA2436-A-4	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-5	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-6	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-7	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-8	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
LDPE bag BA2436-A-9	E510	04-Sep-2024	20-Sep-2024	28 days	16 days	✓	20-Sep-2024	28 days	16 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-1	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-10	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-11	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 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 BA2436-A-12	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-2	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-3	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-4	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-5	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-6	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-7	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-8	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag BA2436-A-9	E440	04-Sep-2024	20-Sep-2024	180 days	16 days	✓	21-Sep-2024	180 days	17 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 : Moisture Content by Gravimetry										
LDPE bag BA2436-A-1	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-10	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-11	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-12	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-2	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-3	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-4	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-5	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-6	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	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 : Moisture Content by Gravimetry										
LDPE bag BA2436-A-7	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-8	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag BA2436-A-9	E144	04-Sep-2024	----	----	----		19-Sep-2024	----	15 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-1	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-10	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-11	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-12	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-2	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-3	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 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 BA2436-A-4	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-5	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-6	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-7	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-8	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag BA2436-A-9	E108	04-Sep-2024	20-Sep-2024	30 days	16 days	✓	20-Sep-2024	30 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-1	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-10	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-11	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 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) BA2436-A-12	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-2	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-3	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-4	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-5	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-6	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-7	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-8	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BA2436-A-9	E512	18-Sep-2024	20-Sep-2024	42 days	16 days	✓	20-Sep-2024	42 days	16 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) BA2436-A-1	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-10	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-11	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-12	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-2	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-3	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-4	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-5	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BA2436-A-6	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 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)										
BA2436-A-7	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2436-A-8	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
BA2436-A-9	E444	18-Sep-2024	20-Sep-2024	194 days	16 days	✓	21-Sep-2024	194 days	17 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS)										
BA2436-A-1	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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)										
BA2436-A-10	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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)										
BA2436-A-11	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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)										
BA2436-A-12	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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)										
BA2436-A-2	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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)										
BA2436-A-3	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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 : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 28 day HT (e.g. Hg, CrVI, PFAS) BA2436-A-4	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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) BA2436-A-5	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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) BA2436-A-6	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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) BA2436-A-7	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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) BA2436-A-8	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 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) BA2436-A-9	EPP444	04-Sep-2024	18-Sep-2024	----	----		----	28 days	14 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)							
Mercury by CVAAS (TCLP)	E512	1663264	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1660596	1	20	5.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1663263	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1660597	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1660599	1	12	8.3	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1660598	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	1666285	2	1	200.0	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	1660596	2	20	10.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1660597	2	20	10.0	10.0	✓
Moisture Content by Gravimetry	E144	1660599	1	12	8.3	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1660598	1	20	5.0	5.0	✓
Method Blanks (MB)							
High Silver in Soil/Solid by CRC ICPMS	E440.Ag	1666285	1	1	100.0	5.0	✓
Mercury by CVAAS (TCLP)	E512	1663264	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1660596	1	20	5.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1663263	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1660597	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1660599	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Mercury by CVAAS (TCLP)	E512	1663264	1	12	8.3	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1663263	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.
High Silver in Soil/Solid by CRC ICPMS	E440.Ag ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	Samples are sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. 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	SW 846 -1311/245.1 CVAA ON TCLP LEACHATE	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

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.
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.
Digestion for Silver	EP440.Ag 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	: **VA24C3790**	Page	: 1 of 12
Client	: Reworld Renewable Burnaby, ULC	Laboratory	: ALS Environmental - Vancouver
Contact	: Nicole Victor	Account Manager	: Gulraj Dhanaua
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Weekly Bottom Ash - Suite	Date Samples Received	: 11-Sep-2024 12:50
PO	: VANCO0000052919	Date Analysis Commenced	: 18-Sep-2024
C-O-C number	: ----	Issue Date	: 23-Sep-2024 09:21
Sampler	: ----		
Site	: ----		
Quote number	: Covanta Burnaby Standing Offer 2024		
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*
Ghazaleh Khanmirzaei	Analyst	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Organics, Burnaby, British Columbia
Maya Urquhart	Lab 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: 1660598)											
KS2403761-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	8.49	8.56	0.8%	5%	----
Physical Tests (QC Lot: 1660599)											
VA24C3790-001	BA2436-A-1	Moisture	----	E144	0.25	%	23.8	26.3	10.2%	20%	----
Metals (QC Lot: 1660596)											
KS2403761-001	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
Metals (QC Lot: 1660597)											
KS2403761-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	18900	19000	0.101%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.28	0.28	0.0008	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	3.14	3.48	10.4%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	139	139	0.0920%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.47	0.49	0.02	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.122	0.128	0.006	Diff <2x LOR	----
		Calcium	7440-70-2	E440	50	mg/kg	9640	9270	3.89%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	64.0	66.1	3.21%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	14.2	14.8	4.13%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	24.0	25.0	4.33%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	29400	30200	2.45%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	6.43	6.78	5.31%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	12.7	13.0	0.2	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	11400	11400	0.767%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	293	297	1.28%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.50	0.50	0.186%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	43.4	44.6	2.69%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	964	958	0.602%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	2540	2630	3.25%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	683	724	5.79%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1660597) - continued											
KS2403761-001	Anonymous	Strontium	7440-24-6	E440	0.50	mg/kg	86.6	88.7	2.42%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.138	0.142	0.004	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	1660	1750	5.15%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.738	0.786	6.33%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	70.8	73.6	3.81%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	61.9	61.9	0.114%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	10.5	12.2	15.0%	30%	----
TCLP Metals (QC Lot: 1663263)											
VA24C3790-001	BA2436-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	1.68	1.64	0.05	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.093	0.094	0.0009	Diff <2x LOR	----
		Calcium, TCLP	7440-70-2	E444	10	mg/L	1720	1720	0.397%	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	1.62	1.63	0.423%	30%	----
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	0.959	0.958	0.115%	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	111	112	0.576%	30%	----
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.38	0.39	0.004	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	10.2	10.3	0.468%	30%	----
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 1663264)											
VA24C3790-001	BA2436-A-1	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1660599)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1660596)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1660597)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1660597) - continued						
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Metals (QCLot: 1666285)						
Silver	7440-22-4	E440.Ag	0.1	mg/kg	<0.10	----
TCLP Metals (QCLot: 1663263)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----
TCLP Metals (QCLot: 1663264)						
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: 1660598)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	99.5	95.0	105	----
Physical Tests (QCLot: 1660599)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Metals (QCLot: 1660596)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	101	80.0	120	----
Metals (QCLot: 1660597)									
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	103	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	101	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	95.1	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	94.3	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	88.2	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	102	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	97.5	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	99.9	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	97.9	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	102	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	98.0	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	102	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	103	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	100	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	103	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	104	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	99.2	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	91.3	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	95.8	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	101	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: 1660597) - continued									
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	97.1	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	98.2	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	94.7	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	99.9	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	102	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	95.2	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	93.6	80.0	120	----
Metals (QCLot: 1666285)									
Silver	7440-22-4	E440.Ag	0.1	mg/kg	10 mg/kg	97.0	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: 1663263)										
VA24C3790-001	BA2436-A-1	Antimony, TCLP	7440-36-0	E444	5.00 mg/L	5 mg/L	100.0	50.0	140	----
		Arsenic, TCLP	7440-38-2	E444	5.2 mg/L	5 mg/L	104	50.0	140	----
		Barium, TCLP	7440-39-3	E444	12.2 mg/L	12.5 mg/L	97.3	50.0	140	----
		Beryllium, TCLP	7440-41-7	E444	0.226 mg/L	0.25 mg/L	90.2	50.0	140	----
		Boron, TCLP	7440-42-8	E444	8.36 mg/L	10 mg/L	83.6	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.241 mg/L	0.25 mg/L	96.6	50.0	140	----
		Calcium, TCLP	7440-70-2	E444	ND mg/L	----	ND	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.22 mg/L	1.25 mg/L	97.9	50.0	140	----
		Cobalt, TCLP	7440-48-4	E444	ND mg/L	----	ND	50.0	140	----
		Copper, TCLP	7440-50-8	E444	2.33 mg/L	2.5 mg/L	93.2	50.0	140	----
		Iron, TCLP	7439-89-6	E444	240 mg/L	250 mg/L	96.2	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.21 mg/L	10 mg/L	92.1	50.0	140	----
		Magnesium, TCLP	7439-95-4	E444	247 mg/L	250 mg/L	98.8	50.0	140	----
		Nickel, TCLP	7440-02-0	E444	2.48 mg/L	2.5 mg/L	99.1	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.01 mg/L	5 mg/L	100	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.065 mg/L	0.1 mg/L	65.3	50.0	140	----
		Thallium, TCLP	7440-28-0	E444	4.7 mg/L	5 mg/L	94.2	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.60 mg/L	5 mg/L	91.9	50.0	150	----
		Vanadium, TCLP	7440-62-2	E444	0.74 mg/L	0.75 mg/L	98.1	50.0	140	----
		Zinc, TCLP	7440-66-6	E444	ND mg/L	----	ND	50.0	140	----
		Zirconium, TCLP	7440-67-7	E444	0.8 mg/L	1 mg/L	78.0	50.0	150	----
TCLP Metals (QCLot: 1663264)										
VA24C3790-001	BA2436-A-1	Mercury, TCLP	7439-97-6	E512	0.0009 mg/L	0.001 mg/L	92.8	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: 1660596)									
QC-1660596-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	104	70.0	130	----
Metals (QCLot: 1660597)									
QC-1660597-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	110	70.0	130	----
QC-1660597-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	108	70.0	130	----
QC-1660597-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	103	70.0	130	----
QC-1660597-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	99.2	70.0	130	----
QC-1660597-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	107	70.0	130	----
QC-1660597-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	97.0	70.0	130	----
QC-1660597-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	107	70.0	130	----
QC-1660597-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	106	70.0	130	----
QC-1660597-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	105	70.0	130	----
QC-1660597-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	104	70.0	130	----
QC-1660597-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	102	70.0	130	----
QC-1660597-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	107	70.0	130	----
QC-1660597-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	98.3	70.0	130	----
QC-1660597-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	109	70.0	130	----
QC-1660597-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	104	70.0	130	----
QC-1660597-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	104	70.0	130	----
QC-1660597-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	104	70.0	130	----
QC-1660597-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	106	70.0	130	----
QC-1660597-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	101	70.0	130	----
QC-1660597-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	103	70.0	130	----
QC-1660597-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	103	60.0	140	----
QC-1660597-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	99.2	70.0	130	----
QC-1660597-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	107	70.0	130	----
QC-1660597-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	105	70.0	130	----
QC-1660597-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	128	50.0	150	----
QC-1660597-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	99.8	70.0	130	----
QC-1660597-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	106	40.0	160	----
QC-1660597-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	110	70.0	130	----
QC-1660597-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	111	70.0	130	----
QC-1660597-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	116	70.0	130	----
QC-1660597-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	103	70.0	130	----

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: 1660597) - continued									
QC-1660597-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	98.7	70.0	130	----
QC-1660597-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	99.7	70.0	130	----
Metals (QCLot: 1666285)									
QC-1666285-003	MRCA-21	Silver	7440-22-4	E440.Ag	8.98 mg/kg	101	70.0	130	----

ALS Environmental

Chain of Custody / Analytical Request Form

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COC # _____

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Report To			
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Contact:	Nicole Victor / Dan Skrypnyk		
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	Burnaby BC		
Phone:	604-521-1025	Fax:	
		☐ Yes	☐ No

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	Sarah.Wellman@metrovancouver.org			

Service Requested (Rush for routine analysis subject to availability)

- (●) Regular (Standard Turnaround Times - Business Days)
- ( ) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ( ) Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ( ) Same Day or Weekend Emergency - Contact ALS to Confirm TAT

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Hardcopy of Invoice with Report?	☐ Yes	☐ No	
Company:			
Contact:			
Address:			
Phone:		Fax:	

Client / Project Information	
Job #:	
PO / AFE:	PO# 46693 Weekly Bottom Ash - Suite
LSD:	(includes 2:1 pH)
Quote #:	

Lab Work Order # (lab use only): [redacted]

ALS Contact: [redacted] Sampler: [redacted]

Please indicate below Filtered, Preserved or both (F, P, F/P)

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
[redacted]	BA2436-A-1	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-2	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-3	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-4	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-5	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-6	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-7	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-8	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-9	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-10	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-11	04-Sep-24	9:00	Soil	X	X		X	1
[redacted]	BA2436-A-12	04-Sep-24	9:00	Soil	X	X		X	1

Environmental Division
Vancouver
Work Order Reference
VA24C3790

Telephone : +1 604 253 4188

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			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
[redacted]	11-Sep-24	[redacted]				°C	[redacted]	9/11/24	[redacted]	

GENF 20.00 Front

22, 24, 23

(2) buckets: no ice pack