Bottom Ash Data

2020 Week 21

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on June 9, 2020. The data represents bottom ash composite results for week 21 of 2020 (May 17, 2020 to May 23, 2020).

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

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA20A7029**	Page	: 1 of 11
Client	: **Covanta Burnaby Renewable Energy, ULC**	Laboratory	: Vancouver - Environmental
Contact	: Steve McKinney	Account Manager	: Brent Mack
Address	: 5150 Riverbend Drive Burnaby BC Canada V3N 4V3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 604 521 1025	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 26-May-2020 12:00
PO	: VANCO 0000049378	Date Analysis Commenced	: 27-May-2020
C-O-C number	: ----	Issue Date	: 09-Jun-2020 10:00
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer (BC work)		
No. of samples received	: 16		
No. of samples analysed	: 16		

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*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Evan Ben-Oliel	Metal Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Kinny Wu	Laboratory Analyst	Metals, Burnaby, British Columbia
Ophelia Chiu	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Shaneel Dayal	Metal 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 in reports identified as "Preliminary Report" are considered authorized for use.

Qualifiers

Qualifier	*Description*
DLA	*Detection Limit adjusted for required dilution.*

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-1	BA2021-A-2	BA2021-A-3	BA2021-A-4	BA2021-A-5
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
						VA20A7029-001	VA20A7029-002	VA20A7029-003	VA20A7029-004	VA20A7029-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		16.1	15.5	16.1	16.0	14.6
pH (1:2 soil:water)	----	E108	0.10	pH units		11.0	11.1	11.0	10.9	11.1
Metals										
aluminum	7429-90-5	E440	50	mg/kg		35900	30200	28600	39000	27800
antimony	7440-36-0	E440	0.10	mg/kg		122	129	118	114	133
arsenic	7440-38-2	E440	0.10	mg/kg		39.7	40.8	34.8	39.3	36.3
barium	7440-39-3	E440	0.50	mg/kg		522	518	474	518	498
beryllium	7440-41-7	E440	0.10	mg/kg		0.37	0.34	0.34	0.37	0.43
bismuth	7440-69-9	E440	0.20	mg/kg		5.56	5.83	5.68	4.83	7.35
boron	7440-42-8	E440	5.0	mg/kg		214	158	118	149	188
cadmium	7440-43-9	E440	0.020	mg/kg		14.5	15.5	14.0	13.1	14.8
calcium	7440-70-2	E440	50	mg/kg		130000	121000	118000	136000	121000
chromium	7440-47-3	E440	0.50	mg/kg		158	150	188	184	224
cobalt	7440-48-4	E440	0.10	mg/kg		28.6	69.7	33.8	78.4	29.2
copper	7440-50-8	E440	0.50	mg/kg		2270	6670	2860	6840	3200
iron	7439-89-6	E440	50	mg/kg		58000	52200	69500	55500	54300
lead	7439-92-1	E440	0.50	mg/kg		335	3260	721	475	12300
lithium	7439-93-2	E440	2.0	mg/kg		19.1	17.8	17.1	14.9	15.7
magnesium	7439-95-4	E440	20	mg/kg		11100	10300	9520	11900	10400
manganese	7439-96-5	E440	1.0	mg/kg		894	884	796	941	706
mercury	7439-97-6	E510	0.0500	mg/kg		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
molybdenum	7439-98-7	E440	0.10	mg/kg		20.7	24.5	20.7	20.7	22.8
nickel	7440-02-0	E440	0.50	mg/kg		136	956	287	95.2	192
phosphorus	7723-14-0	E440	50	mg/kg		8980	8600	9520	8790	9070
potassium	7440-09-7	E440	100	mg/kg		5330	5000	4960	5060	5340
selenium	7782-49-2	E440	0.20	mg/kg		0.68	0.36	0.53	0.45	0.43
silver	7440-22-4	E440	0.10	mg/kg		5.30	12.3	5.09	3.80	15.3
sodium	7440-23-5	E440	50	mg/kg		16200	13200	12900	14200	14400
strontium	7440-24-6	E440	0.50	mg/kg		281	266	294	278	288
sulfur	7704-34-9	E440	1000	mg/kg		12100	11300	12700	11600	13000

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-1	BA2021-A-2	BA2021-A-3	BA2021-A-4	BA2021-A-5
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
						VA20A7029-001	VA20A7029-002	VA20A7029-003	VA20A7029-004	VA20A7029-005
						Result	Result	Result	Result	Result
Metals										
thallium	7440-28-0	E440	0.050	mg/kg		0.060	0.070	<0.050	0.050	0.115
tin	7440-31-5	E440	2.0	mg/kg		125	200	103	116	137
titanium	7440-32-6	E440	1.0	mg/kg		1370	1590	1370	1790	1240
tungsten	7440-33-7	E440	0.50	mg/kg		21.4	15.8	9.69	11.5	17.3
uranium	7440-61-1	E440	0.050	mg/kg		5.12	4.96	4.82	4.92	5.21
vanadium	7440-62-2	E440	0.20	mg/kg		48.3	46.7	55.1	44.7	54.4
zinc	7440-66-6	E440	2.0	mg/kg		4350	4160	4230	3230	4490
zirconium	7440-67-7	E440	1.0	mg/kg		1.9	2.1	1.5	2.2	1.3
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	11.6	11.6	11.5	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		6.57	7.67	7.58	7.43	7.99
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444	0.010	pH units		6.40	6.22	6.67	6.18	5.89
antimony, TCLP	7440-36-0	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
arsenic, TCLP	7440-38-2	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
barium, TCLP	7440-39-3	E444	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
beryllium, TCLP	7440-41-7	E444	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
boron, TCLP	7440-42-8	E444	0.50	mg/L		2.07	1.88	1.98	1.88	1.91
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.453	0.379	0.298	1.15	0.275
calcium, TCLP	7440-70-2	E444	10	mg/L		2270	2210	2190	2180	2150
chromium, TCLP	7440-47-3	E444	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
cobalt, TCLP	7440-48-4	E444	0.050	mg/L		0.851	1.04	1.04	0.499	0.394
copper, TCLP	7440-50-8	E444	0.050	mg/L		1.18	1.23	0.791	0.959	1.14
iron, TCLP	7439-89-6	E444	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
lead, TCLP	7439-92-1	E444	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	0.97
magnesium, TCLP	7439-95-4	E444	2.5	mg/L		149	147	150	146	137
mercury, TCLP	7439-97-6	E512	0.0100	mg/L		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
nickel, TCLP	7440-02-0	E444	0.25	mg/L		0.71	0.76	0.64	0.63	0.69
selenium, TCLP	7782-49-2	E444	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
silver, TCLP	7440-22-4	E444	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
thallium, TCLP	7440-28-0	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-1	BA2021-A-2	BA2021-A-3	BA2021-A-4	BA2021-A-5
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
						VA20A7029-001	VA20A7029-002	VA20A7029-003	VA20A7029-004	VA20A7029-005
						Result	Result	Result	Result	Result
TCLP Metals										
vanadium, TCLP	7440-62-2	E444	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15
zinc, TCLP	7440-66-6	E444	0.50	mg/L		36.6	60.6	45.8	41.1	67.4

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	LOR	Unit	Client sample ID	BA2021-A-6	BA2021-A-7	BA2021-A-8	BA2021-A-9	BA2021-A-10
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
						VA20A7029-006	VA20A7029-007	VA20A7029-008	VA20A7029-009	VA20A7029-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		17.1	17.1	15.8	16.9	15.6
pH (1:2 soil:water)	----	E108	0.10	pH units		11.2	11.0	11.1	11.0	11.0
Metals										
aluminum	7429-90-5	E440	50	mg/kg		34300	27500	27900	28600	25600
antimony	7440-36-0	E440	0.10	mg/kg		127	126	127	148	121
arsenic	7440-38-2	E440	0.10	mg/kg		41.5	35.8	38.9	33.2	34.7
barium	7440-39-3	E440	0.50	mg/kg		717	510	488	475	498
beryllium	7440-41-7	E440	0.10	mg/kg		<0.50 DLA	4.25	0.34	0.34	0.37
bismuth	7440-69-9	E440	0.20	mg/kg		7.26	4.86	13.0	4.76	4.97
boron	7440-42-8	E440	5.0	mg/kg		190	209	172	153	190
cadmium	7440-43-9	E440	0.020	mg/kg		16.0	25.9	14.2	12.2	12.3
calcium	7440-70-2	E440	50	mg/kg		118000	119000	127000	117000	120000
chromium	7440-47-3	E440	0.50	mg/kg		460	198	169	146	212
cobalt	7440-48-4	E440	0.10	mg/kg		32.5	36.5	24.0	29.5	74.1
copper	7440-50-8	E440	0.50	mg/kg		26000	2460	3100	6110	2530
iron	7439-89-6	E440	50	mg/kg		74300	54300	59700	61300	61500
lead	7439-92-1	E440	0.50	mg/kg		3440	971	402	292	423
lithium	7439-93-2	E440	2.0	mg/kg		16.6	19.0	14.6	16.3	22.3
magnesium	7439-95-4	E440	20	mg/kg		9920	10000	9710	8880	10400
manganese	7439-96-5	E440	1.0	mg/kg		912	879	1030	1130	4160
mercury	7439-97-6	E510	0.0500	mg/kg		<0.0500	<0.0500	<0.0500	<0.0500	0.0535
molybdenum	7439-98-7	E440	0.10	mg/kg		23.5	18.3	21.7	15.9	20.5
nickel	7440-02-0	E440	0.50	mg/kg		353	253	95.8	86.0	223
phosphorus	7723-14-0	E440	50	mg/kg		9360	7660	10500	9460	7070
potassium	7440-09-7	E440	100	mg/kg		4790	4650	4960	4400	4510
selenium	7782-49-2	E440	0.20	mg/kg		<1.00 DLA	0.36	0.45	0.32	0.48
silver	7440-22-4	E440	0.10	mg/kg		14.0	8.17	4.18	6.23	8.95
sodium	7440-23-5	E440	50	mg/kg		14600	13200	13300	13100	13100
strontium	7440-24-6	E440	0.50	mg/kg		276	384	275	262	269
sulfur	7704-34-9	E440	1000	mg/kg		9800	10900	10700	9800	10400
thallium	7440-28-0	E440	0.050	mg/kg		<0.250 DLA	<0.050	0.054	<0.050	0.060

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-6	BA2021-A-7	BA2021-A-8	BA2021-A-9	BA2021-A-10
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
						VA20A7029-006	VA20A7029-007	VA20A7029-008	VA20A7029-009	VA20A7029-010
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	2.0	mg/kg		245	298	114	103	192
titanium	7440-32-6	E440	1.0	mg/kg		1130	1150	977	667	1100
tungsten	7440-33-7	E440	0.50	mg/kg		11.4	8.63	12.8	8.79	9.10
uranium	7440-61-1	E440	0.050	mg/kg		4.66	4.45	4.57	4.24	4.35
vanadium	7440-62-2	E440	0.20	mg/kg		53.8	47.9	45.3	46.1	48.3
zinc	7440-66-6	E440	2.0	mg/kg		13800	3040	5200	4040	8530
zirconium	7440-67-7	E440	1.0	mg/kg		<5.0 DLA	1.1	1.1	<1.0	1.0
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.6	11.5	11.4	11.5	11.5
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		7.74	6.40	6.85	7.21	7.19
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.90	2.90	2.90	2.90	2.90
pH, TCLP final	----	EPP444	0.010	pH units		6.07	6.09	6.13	6.45	6.07
antimony, TCLP	7440-36-0	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
arsenic, TCLP	7440-38-2	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
barium, TCLP	7440-39-3	E444	2.5	mg/L		<2.5	<2.5	<2.5	<2.5	<2.5
beryllium, TCLP	7440-41-7	E444	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	<0.025
boron, TCLP	7440-42-8	E444	0.50	mg/L		1.97	2.02	2.00	1.99	2.04
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.274	0.250	0.272	0.239	0.292
calcium, TCLP	7440-70-2	E444	10	mg/L		2140	2260	2220	2260	2190
chromium, TCLP	7440-47-3	E444	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
cobalt, TCLP	7440-48-4	E444	0.050	mg/L		0.615	0.770	0.418	0.650	0.490
copper, TCLP	7440-50-8	E444	0.050	mg/L		1.40	1.40	1.28	0.795	1.15
iron, TCLP	7439-89-6	E444	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	<5.0
lead, TCLP	7439-92-1	E444	0.25	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25
magnesium, TCLP	7439-95-4	E444	2.5	mg/L		150	153	158	158	144
mercury, TCLP	7439-97-6	E512	0.0100	mg/L		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
nickel, TCLP	7440-02-0	E444	0.25	mg/L		0.60	0.57	0.65	0.71	0.55
selenium, TCLP	7782-49-2	E444	1.00	mg/L		<1.00	<1.00	<1.00	<1.00	<1.00
silver, TCLP	7440-22-4	E444	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
thallium, TCLP	7440-28-0	E444	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
vanadium, TCLP	7440-62-2	E444	0.15	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2021-A-6	BA2021-A-7	BA2021-A-8	BA2021-A-9	BA2021-A-10
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00	20-May-2020 09:00
Analyte	CAS Number	Method	LOR	Unit		VA20A7029-006	VA20A7029-007	VA20A7029-008	VA20A7029-009	VA20A7029-010
						Result	Result	Result	Result	Result
TCLP Metals										
zinc, TCLP	7440-66-6	E444	0.50	mg/L		46.8	54.5	57.3	58.7	52.8

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	LOR	Unit	Client sample ID	BA2021-A-11	BA2021-A-12	BA2021-A-4 Rep 1 REP of sample#4	BA2021-A-4 Rep 2 REP of sample#4	BA2021-A-4 Rep 3 REP of sample#4
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020	20-May-2020	20-May-2020
						VA20A7029-011	VA20A7029-012	VA20A7029-013	VA20A7029-014	VA20A7029-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		17.3	17.0	----	----	----
pH (1:2 soil:water)	----	E108	0.10	pH units		11.1	10.8	----	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg		27500	34800	----	----	----
antimony	7440-36-0	E440	0.10	mg/kg		104	131	----	----	----
arsenic	7440-38-2	E440	0.10	mg/kg		33.9	37.2	----	----	----
barium	7440-39-3	E440	0.50	mg/kg		460	566	----	----	----
beryllium	7440-41-7	E440	0.10	mg/kg		0.31	0.38	----	----	----
bismuth	7440-69-9	E440	0.20	mg/kg		4.66	4.90	----	----	----
boron	7440-42-8	E440	5.0	mg/kg		144	129	----	----	----
cadmium	7440-43-9	E440	0.020	mg/kg		14.7	20.1	----	----	----
calcium	7440-70-2	E440	50	mg/kg		113000	121000	----	----	----
chromium	7440-47-3	E440	0.50	mg/kg		162	203	----	----	----
cobalt	7440-48-4	E440	0.10	mg/kg		27.0	62.0	----	----	----
copper	7440-50-8	E440	0.50	mg/kg		2110	11300	----	----	----
iron	7439-89-6	E440	50	mg/kg		62800	56000	----	----	----
lead	7439-92-1	E440	0.50	mg/kg		434	366	----	----	----
lithium	7439-93-2	E440	2.0	mg/kg		15.4	20.2	----	----	----
magnesium	7439-95-4	E440	20	mg/kg		9390	9710	----	----	----
manganese	7439-96-5	E440	1.0	mg/kg		893	761	----	----	----
mercury	7439-97-6	E510	0.0500	mg/kg		<0.0500	<0.0500	----	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg		149	19.3	----	----	----
nickel	7440-02-0	E440	0.50	mg/kg		110	136	----	----	----
phosphorus	7723-14-0	E440	50	mg/kg		8560	10300	----	----	----
potassium	7440-09-7	E440	100	mg/kg		4870	5140	----	----	----
selenium	7782-49-2	E440	0.20	mg/kg		0.34	0.49	----	----	----
silver	7440-22-4	E440	0.10	mg/kg		4.68	4.49	----	----	----
sodium	7440-23-5	E440	50	mg/kg		12900	14400	----	----	----
strontium	7440-24-6	E440	0.50	mg/kg		264	288	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-11	BA2021-A-12	BA2021-A-4 Rep 1 REP of sample#4	BA2021-A-4 Rep 2 REP of sample#4	BA2021-A-4 Rep 3 REP of sample#4
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020	20-May-2020	20-May-2020
						VA20A7029-011	VA20A7029-012	VA20A7029-013	VA20A7029-014	VA20A7029-015
						Result	Result	Result	Result	Result
Metals										
sulfur	7704-34-9	E440	1000	mg/kg		10100	11400	----	----	----
thallium	7440-28-0	E440	0.050	mg/kg		<0.050	<0.050	----	----	----
tin	7440-31-5	E440	2.0	mg/kg		122	126	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg		974	782	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg		14.4	11.7	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg		4.89	4.68	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg		48.0	46.8	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg		5760	5460	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg		1.2	1.4	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	11.4	11.5	11.5	11.5
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		6.46	6.42	7.43	7.43	7.43
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.90	2.90	2.92	2.92	2.92
pH, TCLP final	----	EPP444	0.010	pH units		6.29	6.44	6.52	6.69	6.51
antimony, TCLP	7440-36-0	E444	1.0	mg/L		<1.0	<1.0	----	----	----
arsenic, TCLP	7440-38-2	E444	1.0	mg/L		<1.0	<1.0	----	----	----
barium, TCLP	7440-39-3	E444	2.5	mg/L		<2.5	<2.5	----	----	----
beryllium, TCLP	7440-41-7	E444	0.025	mg/L		<0.025	<0.025	----	----	----
boron, TCLP	7440-42-8	E444	0.50	mg/L		2.08	1.94	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.314	0.288	0.262	0.388	0.223
calcium, TCLP	7440-70-2	E444	10	mg/L		2250	2280	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L		<0.25	<0.25	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L		1.54	1.70	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L		1.20	1.08	----	----	----
iron, TCLP	7439-89-6	E444	5.0	mg/L		<5.0	<5.0	----	----	----
lead, TCLP	7439-92-1	E444	0.25	mg/L		<0.25	<0.25	----	----	----
magnesium, TCLP	7439-95-4	E444	2.5	mg/L		152	160	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L		<0.0100	<0.0100	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L		0.67	0.52	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2021-A-11	BA2021-A-12	BA2021-A-4 Rep 1 REP of sample#4	BA2021-A-4 Rep 2 REP of sample#4	BA2021-A-4 Rep 3 REP of sample#4
					Client sampling date / time	20-May-2020 09:00	20-May-2020 09:00	20-May-2020	20-May-2020	20-May-2020
						VA20A7029-011	VA20A7029-012	VA20A7029-013	VA20A7029-014	VA20A7029-015
						Result	Result	Result	Result	Result
TCLP Metals										
selenium, TCLP	7782-49-2	E444	1.00	mg/L		<1.00	<1.00	----	----	----
silver, TCLP	7440-22-4	E444	0.050	mg/L		<0.050	<0.050	----	----	----
thallium, TCLP	7440-28-0	E444	1.0	mg/L		<1.0	<1.0	----	----	----
vanadium, TCLP	7440-62-2	E444	0.15	mg/L		<0.15	<0.15	----	----	----
zinc, TCLP	7440-66-6	E444	0.50	mg/L		42.0	54.1	----	----	----

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	LOR	Unit	Client sample ID	BA2021-A-4 Rep 4 REP of sample#4	----	----	----	----
					Client sampling date / time	20-May-2020	----	----	----	----
						VA20A7029-016	--------	--------	--------	--------
						Result	----	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		7.43	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.92	----	----	----	----
pH, TCLP final	----	EPP444	0.010	pH units		6.04	----	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.350	----	----	----	----

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