Bottom Ash Data

2020 Week 17

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on May 12, 2020. The data represents bottom ash composite results for week 17 of 2020 (April 19, 2020 to April 25, 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	: **VA20A5436**	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	: Weekly Bottom Ash - Suite	Date Samples Received	: 28-Apr-2020 10:40
PO	: VANCO 0000049378	Date Analysis Commenced	: 29-Apr-2020
C-O-C number	: ----	Issue Date	: 08-May-2020 16:18
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 20		
No. of samples analysed	: 20		

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
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Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Organics, 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.

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2017-A-1	BA2017-A-2	BA2017-A-3	BA2017-A-4	BA2017-A-5
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
						VA20A5436-001	VA20A5436-002	VA20A5436-003	VA20A5436-004	VA20A5436-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		20.0	20.3	20.5	20.8	19.7
pH (1:2 soil:water)	----	E108	0.10	pH units		11.1	10.8	10.9	11.0	11.0
Metals										
aluminum	7429-90-5	E440	50	mg/kg		32700	41200	28800	44400	46200
antimony	7440-36-0	E440	0.10	mg/kg		191	296	163	156	158
arsenic	7440-38-2	E440	0.10	mg/kg		36.0	44.9	35.1	55.0	32.7
barium	7440-39-3	E440	0.50	mg/kg		561	572	522	521	492
beryllium	7440-41-7	E440	0.10	mg/kg		0.50	0.38	0.40	0.38	0.56
bismuth	7440-69-9	E440	0.20	mg/kg		7.23	8.96	18.2	6.15	7.47
boron	7440-42-8	E440	5.0	mg/kg		229	192	135	158	119
cadmium	7440-43-9	E440	0.020	mg/kg		59.2	31.7	26.2	20.0	23.8
calcium	7440-70-2	E440	50	mg/kg		129000	124000	118000	110000	117000
chromium	7440-47-3	E440	0.50	mg/kg		258	205	151	138	154
cobalt	7440-48-4	E440	0.10	mg/kg		95.0	28.3	24.0	22.3	22.9
copper	7440-50-8	E440	0.50	mg/kg		2220	1830	26500	11600	1110
iron	7439-89-6	E440	50	mg/kg		65600	65900	76600	84200	59300
lead	7439-92-1	E440	0.50	mg/kg		807	942	611	551	1360
lithium	7439-93-2	E440	2.0	mg/kg		23.2	17.0	18.2	15.0	14.2
magnesium	7439-95-4	E440	20	mg/kg		10700	10900	9570	9540	9740
manganese	7439-96-5	E440	1.0	mg/kg		850	1130	891	696	749
mercury	7439-97-6	E510	0.0500	mg/kg		0.145	0.153	0.134	0.0964	0.102
molybdenum	7439-98-7	E440	0.10	mg/kg		37.2	26.8	26.0	20.8	19.8
nickel	7440-02-0	E440	0.50	mg/kg		256	2920	126	112	95.0
phosphorus	7723-14-0	E440	50	mg/kg		12000	11800	11200	10100	10600
potassium	7440-09-7	E440	100	mg/kg		6550	6520	5560	5540	5530
selenium	7782-49-2	E440	0.20	mg/kg		0.53	0.59	0.50	0.47	0.41
silver	7440-22-4	E440	0.10	mg/kg		8.14	9.46	12.7	5.79	6.64
sodium	7440-23-5	E440	50	mg/kg		16800	16000	13400	13100	13200
strontium	7440-24-6	E440	0.50	mg/kg		352	356	331	283	296
sulfur	7704-34-9	E440	1000	mg/kg		12600	13300	11700	10700	11800

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2017-A-1	BA2017-A-2	BA2017-A-3	BA2017-A-4	BA2017-A-5
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
						VA20A5436-001	VA20A5436-002	VA20A5436-003	VA20A5436-004	VA20A5436-005
						Result	Result	Result	Result	Result
Metals										
thallium	7440-28-0	E440	0.050	mg/kg		0.086	0.075	0.077	0.076	0.065
tin	7440-31-5	E440	2.0	mg/kg		199	7190	298	140	160
titanium	7440-32-6	E440	1.0	mg/kg		288	1220	384	684	706
tungsten	7440-33-7	E440	0.50	mg/kg		12.6	21.3	12.0	9.01	7.71
uranium	7440-61-1	E440	0.050	mg/kg		6.55	7.48	6.77	6.36	7.04
vanadium	7440-62-2	E440	0.20	mg/kg		64.2	77.9	60.7	58.2	70.9
zinc	7440-66-6	E440	2.0	mg/kg		8940	4700	15100	7640	4830
zirconium	7440-67-7	E440	1.0	mg/kg		1.9	1.7	1.2	1.8	2.0
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	11.4	11.5	11.5	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		6.68	6.32	6.29	6.35	6.33
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.87	2.87	2.87	2.87	2.87
pH, TCLP final	----	EPP444	0.010	pH units		6.37	6.51	5.91	6.27	6.18
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		2.02	1.81	1.86	1.92	2.08
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.422	0.436	0.512	0.387	1.38
calcium, TCLP	7440-70-2	E444	2.0	mg/L		1920	2000	2110	1890	2160
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		0.391	0.950	0.592	0.476	1.50
copper, TCLP	7440-50-8	E444	0.050	mg/L		0.576	0.608	1.66	0.696	1.02
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	0.50	mg/L		132	125	134	130	134
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		0.54	0.56	0.60	0.54	0.70
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	BA2017-A-1	BA2017-A-2	BA2017-A-3	BA2017-A-4	BA2017-A-5
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
						VA20A5436-001	VA20A5436-002	VA20A5436-003	VA20A5436-004	VA20A5436-005
						Result	Result	Result	Result	Result
TCLP Metals										
vanadium, TCLP	7440-62-2	E444	0.15	mg/L		0.15	0.16	<0.15	0.15	0.22
zinc, TCLP	7440-66-6	E444	0.50	mg/L		44.8	42.7	83.0	41.0	45.5

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	BA2017-A-6	BA2017-A-7	BA2017-A-8	BA2017-A-9	BA2017-A-10
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
						VA20A5436-006	VA20A5436-007	VA20A5436-008	VA20A5436-009	VA20A5436-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		20.4	19.7	20.6	20.9	19.3
pH (1:2 soil:water)	----	E108	0.10	pH units		10.7	10.9	10.9	10.7	11.0
Metals										
aluminum	7429-90-5	E440	50	mg/kg		41100	38900	32500	33500	29600
antimony	7440-36-0	E440	0.10	mg/kg		174	161	172	230	169
arsenic	7440-38-2	E440	0.10	mg/kg		37.1	37.0	38.3	42.4	38.6
barium	7440-39-3	E440	0.50	mg/kg		537	631	568	544	540
beryllium	7440-41-7	E440	0.10	mg/kg		0.44	0.42	0.37	0.41	0.38
bismuth	7440-69-9	E440	0.20	mg/kg		22.8	21.7	7.73	8.18	7.34
boron	7440-42-8	E440	5.0	mg/kg		146	172	136	211	153
cadmium	7440-43-9	E440	0.020	mg/kg		30.6	27.0	28.3	25.6	33.0
calcium	7440-70-2	E440	50	mg/kg		133000	128000	120000	132000	113000
chromium	7440-47-3	E440	0.50	mg/kg		290	174	224	167	145
cobalt	7440-48-4	E440	0.10	mg/kg		25.7	68.2	116	49.9	26.5
copper	7440-50-8	E440	0.50	mg/kg		1660	13100	7870	9870	1510
iron	7439-89-6	E440	50	mg/kg		51200	70300	57200	74600	80500
lead	7439-92-1	E440	0.50	mg/kg		593	781	797	825	445
lithium	7439-93-2	E440	2.0	mg/kg		16.7	19.8	81.9	17.8	15.9
magnesium	7439-95-4	E440	20	mg/kg		11200	11600	11800	9410	10500
manganese	7439-96-5	E440	1.0	mg/kg		670	901	876	884	848
mercury	7439-97-6	E510	0.0500	mg/kg		0.123	0.175	0.135	0.142	0.139
molybdenum	7439-98-7	E440	0.10	mg/kg		43.8	23.9	24.6	39.7	29.2
nickel	7440-02-0	E440	0.50	mg/kg		316	253	282	97.6	136
phosphorus	7723-14-0	E440	50	mg/kg		13400	11600	11600	12700	11400
potassium	7440-09-7	E440	100	mg/kg		6000	5860	6420	6820	5620
selenium	7782-49-2	E440	0.20	mg/kg		0.62	0.61	0.48	0.63	0.57
silver	7440-22-4	E440	0.10	mg/kg		15.0	8.28	7.45	7.64	14.9
sodium	7440-23-5	E440	50	mg/kg		15400	15200	14000	15800	13200
strontium	7440-24-6	E440	0.50	mg/kg		341	310	454	530	291
sulfur	7704-34-9	E440	1000	mg/kg		12500	13200	11400	13700	12300
thallium	7440-28-0	E440	0.050	mg/kg		0.110	0.072	0.093	0.080	0.065

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2017-A-6	BA2017-A-7	BA2017-A-8	BA2017-A-9	BA2017-A-10
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
						VA20A5436-006	VA20A5436-007	VA20A5436-008	VA20A5436-009	VA20A5436-010
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	2.0	mg/kg		223	234	278	188	363
titanium	7440-32-6	E440	1.0	mg/kg		439	667	606	545	584
tungsten	7440-33-7	E440	0.50	mg/kg		12.5	11.7	13.7	12.0	10.5
uranium	7440-61-1	E440	0.050	mg/kg		8.10	7.17	7.21	7.73	7.32
vanadium	7440-62-2	E440	0.20	mg/kg		122	96.1	81.8	59.7	69.2
zinc	7440-66-6	E440	2.0	mg/kg		5730	7090	11400	4520	6820
zirconium	7440-67-7	E440	1.0	mg/kg		1.6	1.5	1.0	1.7	1.1
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	11.5	11.5	11.4	11.5
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		6.21	6.94	6.26	6.01	6.44
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.87	2.87	2.87	2.87	2.87
pH, TCLP final	----	EPP444	0.010	pH units		6.41	6.39	6.34	6.92	6.28
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		1.93	1.96	1.91	1.90	1.99
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.459	0.434	0.450	0.453	0.427
calcium, TCLP	7440-70-2	E444	2.0	mg/L		1850	1910	1900	1900	1990
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		0.285	1.02	0.767	0.576	0.698
copper, TCLP	7440-50-8	E444	0.050	mg/L		0.895	0.548	0.756	0.985	1.29
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	0.50	mg/L		134	134	132	133	130
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		0.57	0.55	0.68	0.53	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	0.16	<0.15	0.17	<0.15

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2017-A-6	BA2017-A-7	BA2017-A-8	BA2017-A-9	BA2017-A-10
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00	22-Apr-2020 09:00
Analyte	*CAS Number*	*Method*	*LOR*	*Unit*		**VA20A5436-006**	**VA20A5436-007**	**VA20A5436-008**	**VA20A5436-009**	**VA20A5436-010**
						Result	Result	Result	Result	Result
TCLP Metals										
zinc, TCLP	7440-66-6	E444	0.50	mg/L		50.7	51.9	48.5	49.4	52.4

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	BA2017-A-11	BA2017-A-12	BA2017-A-3 REP1	BA2017-A-3 REP2	BA2017-A-3 REP3
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	05-May-2020	05-May-2020	05-May-2020
						VA20A5436-011	VA20A5436-012	VA20A5436-013	VA20A5436-014	VA20A5436-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		20.7	19.5	----	----	----
pH (1:2 soil:water)	----	E108	0.10	pH units		10.9	10.7	----	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg		28500	31000	----	----	----
antimony	7440-36-0	E440	0.10	mg/kg		160	194	----	----	----
arsenic	7440-38-2	E440	0.10	mg/kg		34.5	36.3	----	----	----
barium	7440-39-3	E440	0.50	mg/kg		491	514	----	----	----
beryllium	7440-41-7	E440	0.10	mg/kg		0.40	0.42	----	----	----
bismuth	7440-69-9	E440	0.20	mg/kg		7.76	9.22	----	----	----
boron	7440-42-8	E440	5.0	mg/kg		131	184	----	----	----
cadmium	7440-43-9	E440	0.020	mg/kg		27.2	24.2	----	----	----
calcium	7440-70-2	E440	50	mg/kg		117000	123000	----	----	----
chromium	7440-47-3	E440	0.50	mg/kg		433	293	----	----	----
cobalt	7440-48-4	E440	0.10	mg/kg		33.1	31.4	----	----	----
copper	7440-50-8	E440	0.50	mg/kg		3460	8240	----	----	----
iron	7439-89-6	E440	50	mg/kg		65100	60400	----	----	----
lead	7439-92-1	E440	0.50	mg/kg		583	534	----	----	----
lithium	7439-93-2	E440	2.0	mg/kg		22.7	16.2	----	----	----
magnesium	7439-95-4	E440	20	mg/kg		10300	10300	----	----	----
manganese	7439-96-5	E440	1.0	mg/kg		908	842	----	----	----
mercury	7439-97-6	E510	0.0500	mg/kg		0.139	0.128	----	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg		22.6	73.8	----	----	----
nickel	7440-02-0	E440	0.50	mg/kg		299	154	----	----	----
phosphorus	7723-14-0	E440	50	mg/kg		10100	9890	----	----	----
potassium	7440-09-7	E440	100	mg/kg		6100	5950	----	----	----
selenium	7782-49-2	E440	0.20	mg/kg		0.51	0.57	----	----	----
silver	7440-22-4	E440	0.10	mg/kg		7.62	6.40	----	----	----
sodium	7440-23-5	E440	50	mg/kg		14000	14100	----	----	----
strontium	7440-24-6	E440	0.50	mg/kg		300	514	----	----	----
sulfur	7704-34-9	E440	1000	mg/kg		11000	12100	----	----	----
thallium	7440-28-0	E440	0.050	mg/kg		0.092	0.065	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2017-A-11	BA2017-A-12	BA2017-A-3 REP1	BA2017-A-3 REP2	BA2017-A-3 REP3
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	05-May-2020	05-May-2020	05-May-2020
						VA20A5436-011	VA20A5436-012	VA20A5436-013	VA20A5436-014	VA20A5436-015
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	2.0	mg/kg		178	530	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg		396	480	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg		11.8	12.5	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg		7.18	7.23	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg		64.4	68.7	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg		8280	6560	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg		1.3	1.2	----	----	----
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		7.36	6.62	6.35	6.35	6.35
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.87	2.87	2.94	2.94	2.94
pH, TCLP final	----	EPP444	0.010	pH units		6.21	6.37	6.25	6.24	6.16
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		1.92	1.81	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.429	0.476	0.455	0.465	0.460
calcium, TCLP	7440-70-2	E444	2.0	mg/L		1930	1960	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L		<0.25	<0.25	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L		0.621	0.673	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L		0.839	0.819	----	----	----
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	0.50	mg/L		135	139	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L		<0.0100	<0.0100	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L		0.53	0.60	----	----	----
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		0.17	<0.15	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2017-A-11	BA2017-A-12	BA2017-A-3 REP1	BA2017-A-3 REP2	BA2017-A-3 REP3
					Client sampling date / time	22-Apr-2020 09:00	22-Apr-2020 09:00	05-May-2020	05-May-2020	05-May-2020
						VA20A5436-011	VA20A5436-012	VA20A5436-013	VA20A5436-014	VA20A5436-015
						Result	Result	Result	Result	Result
TCLP Metals										
zinc, TCLP	7440-66-6	E444	0.50	mg/L		43.8	48.7	----	----	----

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	BA2017-A-3 REP4	BA2017-A-5 REP1	BA2017-A-5 REP2	BA2017-A-5 REP3	BA2017-A-5 REP4
					Client sampling date / time	05-May-2020	05-May-2020	05-May-2020	05-May-2020	05-May-2020
						VA20A5436-016	VA20A5436-017	VA20A5436-018	VA20A5436-019	VA20A5436-020
						Result	Result	Result	Result	Result
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.5	11.6	11.6	11.6	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		6.35	6.33	6.33	6.33	6.33
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.94	2.94	2.94	2.94	2.94
pH, TCLP final	----	EPP444	0.010	pH units		6.37	6.82	6.29	6.18	6.25
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.506	0.399	0.443	0.448	0.397

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