

## Bottom Ash Data

2020 Week 19

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The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on May 27, 2020. The data represents bottom ash composite results for week 19 of 2020 (May 3, 2020 to May 9, 2020).

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



CERTIFICATE OF ANALYSIS

Work Order : **VA20A6226**  
Client : **Covanta Burnaby Renewable Energy, ULC**  
Contact : Steve McKinney  
Address : 5150 Riverbend Drive  
Burnaby BC Canada V3N 4V3  
Telephone : 604 521 1025  
Project : ----  
PO : VANCO 0000049378  
C-O-C number : ----  
Sampler : ----  
Site : ----  
Quote number : Standing Offer  
No. of samples received : 16  
No. of samples analysed : 16

Page : 1 of 11  
Laboratory : Vancouver - Environmental  
Account Manager : Brent Mack  
Address : 8081 Lougheed Highway  
Burnaby BC Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 12-May-2020 11:30  
Date Analysis Commenced : 14-May-2020  
Issue Date : 26-May-2020 16:22

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Cristina Alexandre	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Cristina Alexandre	Supervisor - Metals ICP Instrumentation	Organics, Burnaby, British Columbia
Erick Magalhaes	Laboratory Analyst	Metals, Burnaby, British Columbia
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## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in reports identified as "Preliminary Report" are considered authorized for use.



## Analytical Results

Sub-Matrix: Soil

Client sample ID

(Matrix: Soil/Solid)

					BA2019-A-1	BA2019-A-2	BA2019-A-3	BA2019-A-4	BA2019-A-5
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-001	VA20A6226-002	VA20A6226-003	VA20A6226-004	VA20A6226-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
moisture	----	E144	0.25	%	16.0	16.0	16.3	17.0	16.8
pH (1:2 soil:water)	----	E108	0.10	pH units	10.8	10.9	11.0	10.9	10.9
<b>Metals</b>									
aluminum	7429-90-5	E440	50	mg/kg	32600	31100	29800	28800	29000
antimony	7440-36-0	E440	0.10	mg/kg	121	197	148	820	133
arsenic	7440-38-2	E440	0.10	mg/kg	28.1	31.8	31.1	33.0	36.6
barium	7440-39-3	E440	0.50	mg/kg	453	513	485	459	458
beryllium	7440-41-7	E440	0.10	mg/kg	0.40	0.46	0.36	0.40	0.40
bismuth	7440-69-9	E440	0.20	mg/kg	7.10	8.48	7.63	8.15	8.58
boron	7440-42-8	E440	5.0	mg/kg	141	177	178	316	176
cadmium	7440-43-9	E440	0.020	mg/kg	14.9	18.5	19.7	16.4	19.9
calcium	7440-70-2	E440	50	mg/kg	118000	131000	116000	115000	127000
chromium	7440-47-3	E440	0.50	mg/kg	170	149	149	151	130
cobalt	7440-48-4	E440	0.10	mg/kg	85.3	88.4	43.1	22.3	30.0
copper	7440-50-8	E440	0.50	mg/kg	2750	3120	3070	2170	2310
iron	7439-89-6	E440	50	mg/kg	52700	60700	56400	53600	55500
lead	7439-92-1	E440	0.50	mg/kg	493	1400	537	2670	617
lithium	7439-93-2	E440	2.0	mg/kg	20.5	32.2	23.7	24.6	21.0
magnesium	7439-95-4	E440	20	mg/kg	10500	12800	10500	10500	12000
manganese	7439-96-5	E440	1.0	mg/kg	787	818	857	719	780
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	0.0537
molybdenum	7439-98-7	E440	0.10	mg/kg	51.3	71.1	27.2	36.8	194
nickel	7440-02-0	E440	0.50	mg/kg	450	221	188	174	96.8
phosphorus	7723-14-0	E440	50	mg/kg	10300	10400	9080	8950	10100
potassium	7440-09-7	E440	100	mg/kg	5260	6120	5220	5190	5860
selenium	7782-49-2	E440	0.20	mg/kg	0.34	0.37	0.37	0.28	0.35
silver	7440-22-4	E440.Ag	0.10	mg/kg	----	----	----	4.91	----
silver	7440-22-4	E440	0.10	mg/kg	4.06	7.27	15.0	----	4.65
sodium	7440-23-5	E440	50	mg/kg	14100	16500	13800	15800	16100
strontium	7440-24-6	E440	0.50	mg/kg	267	315	273	279	347



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA2019-A-1	BA2019-A-2	BA2019-A-3	BA2019-A-4	BA2019-A-5
(Matrix: Soil/Solid)										
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-001	VA20A6226-002	VA20A6226-003	VA20A6226-004	VA20A6226-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
sulfur	7704-34-9	E440	1000	mg/kg	11500	12600	11000	10800	11900	
thallium	7440-28-0	E440	0.050	mg/kg	0.064	0.060	<0.050	0.060	0.058	
tin	7440-31-5	E440	2.0	mg/kg	118	138	159	155	126	
titanium	7440-32-6	E440	1.0	mg/kg	550	356	413	236	327	
tungsten	7440-33-7	E440	0.50	mg/kg	6.52	6.49	7.17	5.31	9.76	
uranium	7440-61-1	E440	0.050	mg/kg	4.85	5.67	5.10	4.83	5.64	
vanadium	7440-62-2	E440	0.20	mg/kg	43.8	48.5	44.5	46.7	46.4	
zinc	7440-66-6	E440	2.0	mg/kg	6930	5130	3990	4410	4740	
zirconium	7440-67-7	E440	1.0	mg/kg	1.2	1.3	1.0	1.6	1.3	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.6	11.6	11.7	11.7	11.6	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.78	7.63	8.99	8.59	8.92	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.91	2.91	2.91	2.91	2.91	
pH, TCLP final	----	EPP444	0.010	pH units	6.59	6.59	6.68	6.42	6.78	
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	2.05	2.03	2.00	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.274	0.257	0.282	0.286	0.173	
calcium, TCLP	7440-70-2	E444	10	mg/L	2080	2050	2150	2180	2130	
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	0.674	0.541	0.882	1.54	1.22	
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.834	0.834	0.590	0.810	0.625	
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	141	130	131	141	132	
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	0.38	0.57	0.73	0.52	
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	



## Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2019-A-1	BA2019-A-2	BA2019-A-3	BA2019-A-4	BA2019-A-5
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-001	VA20A6226-002	VA20A6226-003	VA20A6226-004	VA20A6226-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<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	<0.15
zinc, TCLP	7440-66-6	E444	0.50	mg/L	36.7	28.2	30.3	51.2	27.1	

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



## Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2019-A-6	BA2019-A-7	BA2019-A-8	BA2019-A-9	BA2019-A-10
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-006	VA20A6226-007	VA20A6226-008	VA20A6226-009	VA20A6226-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
moisture	----	E144	0.25	%	16.7	17.0	16.5	16.8	17.2	
pH (1:2 soil:water)	----	E108	0.10	pH units	11.0	11.0	10.9	10.9	11.0	
<b>Metals</b>										
aluminum	7429-90-5	E440	50	mg/kg	31200	40000	32200	34700	29500	
antimony	7440-36-0	E440	0.10	mg/kg	125	141	131	123	137	
arsenic	7440-38-2	E440	0.10	mg/kg	31.6	35.6	28.6	29.8	33.8	
barium	7440-39-3	E440	0.50	mg/kg	454	483	498	525	455	
beryllium	7440-41-7	E440	0.10	mg/kg	0.43	0.42	0.61	0.42	0.40	
bismuth	7440-69-9	E440	0.20	mg/kg	6.94	10.9	7.97	8.81	9.67	
boron	7440-42-8	E440	5.0	mg/kg	168	171	157	184	177	
cadmium	7440-43-9	E440	0.020	mg/kg	19.0	31.9	19.0	15.3	19.1	
calcium	7440-70-2	E440	50	mg/kg	112000	132000	123000	120000	121000	
chromium	7440-47-3	E440	0.50	mg/kg	150	174	138	132	138	
cobalt	7440-48-4	E440	0.10	mg/kg	103	532	84.3	30.9	27.0	
copper	7440-50-8	E440	0.50	mg/kg	3480	1700	1620	10800	1520	
iron	7439-89-6	E440	50	mg/kg	63000	52600	56300	55300	53400	
lead	7439-92-1	E440	0.50	mg/kg	592	889	3510	699	490	
lithium	7439-93-2	E440	2.0	mg/kg	21.1	43.2	23.0	22.8	20.6	
magnesium	7439-95-4	E440	20	mg/kg	10300	12400	13600	11000	11300	
manganese	7439-96-5	E440	1.0	mg/kg	1060	803	849	808	1040	
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	0.0749	
molybdenum	7439-98-7	E440	0.10	mg/kg	45.6	46.7	51.7	72.3	45.2	
nickel	7440-02-0	E440	0.50	mg/kg	109	168	172	250	123	
phosphorus	7723-14-0	E440	50	mg/kg	8920	10600	9860	10700	9760	
potassium	7440-09-7	E440	100	mg/kg	5170	5630	5760	5250	5700	
selenium	7782-49-2	E440	0.20	mg/kg	0.31	0.44	0.39	0.36	0.36	
silver	7440-22-4	E440	0.10	mg/kg	9.58	7.49	4.71	4.93	5.49	
sodium	7440-23-5	E440	50	mg/kg	14500	15400	15700	14900	15100	
strontium	7440-24-6	E440	0.50	mg/kg	292	311	284	262	294	
sulfur	7704-34-9	E440	1000	mg/kg	10900	12400	11200	11000	12200	
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	0.056	<0.050	0.063	0.056	



## Analytical Results

Sub-Matrix: Soil					Client sample ID				
(Matrix: Soil/Solid)					BA2019-A-6	BA2019-A-7	BA2019-A-8	BA2019-A-9	BA2019-A-10
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-006	VA20A6226-007	VA20A6226-008	VA20A6226-009	VA20A6226-010
					Result	Result	Result	Result	Result
<b>Metals</b>									
tin	7440-31-5	E440	2.0	mg/kg	108	169	255	129	138
titanium	7440-32-6	E440	1.0	mg/kg	297	784	493	431	373
tungsten	7440-33-7	E440	0.50	mg/kg	5.90	12.5	7.12	8.19	14.0
uranium	7440-61-1	E440	0.050	mg/kg	5.07	6.00	5.17	5.30	5.72
vanadium	7440-62-2	E440	0.20	mg/kg	45.2	54.0	44.8	46.8	56.8
zinc	7440-66-6	E440	2.0	mg/kg	5000	5330	5300	7720	5920
zirconium	7440-67-7	E440	1.0	mg/kg	1.6	1.4	1.3	1.2	1.2
<b>TCLP Metals</b>									
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.6	11.6	11.7	11.7	11.7
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.88	9.17	8.88	9.05	9.08
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.91	2.91	2.91	2.91	2.91
pH, TCLP final	----	EPP444	0.010	pH units	6.77	6.60	6.56	6.87	6.61
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	2.04	2.02	2.05	2.07
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.252	0.248	0.224	0.422	0.278
calcium, TCLP	7440-70-2	E444	10	mg/L	2080	2020	1900	2050	2210
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	0.738	0.730	0.570	0.590	0.788
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.758	1.05	0.813	0.578	0.837
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	131	134	121	118	143
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	0.44	0.51	0.73	0.42	0.66
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	BA2019-A-6	BA2019-A-7	BA2019-A-8	BA2019-A-9	BA2019-A-10
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00	06-May-2020 09:00
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-006	VA20A6226-007	VA20A6226-008	VA20A6226-009	VA20A6226-010	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
zinc, TCLP	7440-66-6	E444	0.50	mg/L	20.1	40.9	35.1	20.8	36.6	

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



## Analytical Results

Sub-Matrix: Soil

(Matrix: Soil/Solid)

Client sample ID

					BA2019-A-11	BA2019-A-12	BA2019-A-12 REP1 REP of #12	BA2019-A-12 REP2 REP of #12	BA2019-A-12 REP3 REP of #12
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	21-May-2020	21-May-2020	21-May-2020
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-011	VA20A6226-012	VA20A6226-013	VA20A6226-014	VA20A6226-015
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
moisture	----	E144	0.25	%	17.0	16.5	----	----	----
pH (1:2 soil:water)	----	E108	0.10	pH units	11.1	10.9	----	----	----
<b>Metals</b>									
aluminum	7429-90-5	E440	50	mg/kg	28600	38200	----	----	----
antimony	7440-36-0	E440	0.10	mg/kg	169	135	----	----	----
arsenic	7440-38-2	E440	0.10	mg/kg	41.0	36.3	----	----	----
barium	7440-39-3	E440	0.50	mg/kg	465	420	----	----	----
beryllium	7440-41-7	E440	0.10	mg/kg	0.46	0.39	----	----	----
bismuth	7440-69-9	E440	0.20	mg/kg	12.0	23.6	----	----	----
boron	7440-42-8	E440	5.0	mg/kg	210	168	----	----	----
cadmium	7440-43-9	E440	0.020	mg/kg	42.8	20.9	----	----	----
calcium	7440-70-2	E440	50	mg/kg	138000	129000	----	----	----
chromium	7440-47-3	E440	0.50	mg/kg	258	152	----	----	----
cobalt	7440-48-4	E440	0.10	mg/kg	173	30.6	----	----	----
copper	7440-50-8	E440	0.50	mg/kg	2640	1680	----	----	----
iron	7439-89-6	E440	50	mg/kg	52900	50400	----	----	----
lead	7439-92-1	E440	0.50	mg/kg	638	2250	----	----	----
lithium	7439-93-2	E440	2.0	mg/kg	22.2	24.5	----	----	----
magnesium	7439-95-4	E440	20	mg/kg	11100	11200	----	----	----
manganese	7439-96-5	E440	1.0	mg/kg	958	1060	----	----	----
mercury	7439-97-6	E510	0.0500	mg/kg	0.0668	<0.0500	----	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg	42.8	54.9	----	----	----
nickel	7440-02-0	E440	0.50	mg/kg	267	117	----	----	----
phosphorus	7723-14-0	E440	50	mg/kg	11700	11500	----	----	----
potassium	7440-09-7	E440	100	mg/kg	5850	5860	----	----	----
selenium	7782-49-2	E440	0.20	mg/kg	0.50	0.38	----	----	----
silver	7440-22-4	E440	0.10	mg/kg	11.1	7.21	----	----	----
sodium	7440-23-5	E440	50	mg/kg	15600	15600	----	----	----
strontium	7440-24-6	E440	0.50	mg/kg	342	294	----	----	----
sulfur	7704-34-9	E440	1000	mg/kg	13700	12900	----	----	----



## Analytical Results

Sub-Matrix: Soil

Client sample ID

(Matrix: Soil/Solid)

					BA2019-A-11	BA2019-A-12	BA2019-A-12 REP1 REP of #12	BA2019-A-12 REP2 REP of #12	BA2019-A-12 REP3 REP of #12
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	21-May-2020	21-May-2020	21-May-2020
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-011	VA20A6226-012	VA20A6226-013	VA20A6226-014	VA20A6226-015
					Result	Result	Result	Result	Result
<b>Metals</b>									
thallium	7440-28-0	E440	0.050	mg/kg	0.060	0.059	----	----	----
tin	7440-31-5	E440	2.0	mg/kg	185	137	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg	306	249	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg	11.1	11.5	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg	6.47	5.94	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg	51.1	51.2	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg	5280	5560	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg	1.1	2.3	----	----	----
<b>TCLP Metals</b>									
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.7	11.7	11.7	11.7	11.7
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	9.10	8.81	8.81	8.81	8.81
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.91	2.91	2.85	2.85	2.85
pH, TCLP final	----	EPP444	0.010	pH units	6.87	6.65	6.53	6.61	6.58
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	1.98	1.99	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.198	2.17	0.293	0.469	0.305
calcium, TCLP	7440-70-2	E444	10	mg/L	2070	2040	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.555	0.492	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.585	0.807	----	----	----
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	126	143	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L	<0.0100	<0.0100	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.39	0.50	----	----	----
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	----	----	----



### Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2019-A-11	BA2019-A-12	BA2019-A-12 REP1 REP of #12	BA2019-A-12 REP2 REP of #12	BA2019-A-12 REP3 REP of #12
Client sampling date / time					06-May-2020 09:00	06-May-2020 09:00	21-May-2020	21-May-2020	21-May-2020	
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-011	VA20A6226-012	VA20A6226-013	VA20A6226-014	VA20A6226-015	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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	24.6	30.6	----	----	----	

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

### Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BA2019-A-12 REP4 REP of #12	----	----	----	----
Client sampling date / time					21-May-2020	----	----	----	----	
Analyte	CAS Number	Method	LOR	Unit	VA20A6226-016	-----	-----	-----	-----	
					Result	---	---	---	---	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.7	----	----	----	----	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.81	----	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.85	----	----	----	----	
pH, TCLP final	----	EPP444	0.010	pH units	6.45	----	----	----	----	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.317	----	----	----	----	

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