

## Bottom Ash Data

### 2019 Week 51

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The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on January 6, 2020. The data represents bottom ash composite results for week 51 of 2019 (December 15, 2019 to December 21, 2019).

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



CERTIFICATE OF ANALYSIS

Work Order : **VA19A1029**  
Client : **Covanta Burnaby R.E., ULC**  
Contact : Steve McKinney  
Address : 5150 Riverbend Drive  
Burnaby BC Canada V3N 4V3  
Telephone : 604 521 1025  
Project : Weekly Bottom Ash - Suite  
PO : VANCO-0000048466  
C-O-C number : ----  
Sampler : ----  
Site : ----  
Quote number : Standing Offer  
No. of samples received : 12  
No. of samples analysed : 12

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 : 24-Dec-2019 11:45  
Date Analysis Commenced : 26-Dec-2019  
Issue Date : 03-Jan-2020 16:57

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
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Ophelia Chiu	Supervisor - Organics Instrumentation	Organics, 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).

<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	BA1951-A-1	BA1951-A-2	BA1951-A-3	BA1951-A-4	BA1951-A-5
(Matrix: Soil)					Client sampling date / time	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-001	VA19A1029-002	VA19A1029-003	VA19A1029-004	VA19A1029-005	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
moisture	----	E144	0.25	%	28.1	24.6	26.2	25.0	25.4	
pH (1:2 soil:water)	----	E108	0.10	pH units	10.3	10.3	10.3	9.51	10.4	
<b>Metals</b>										
aluminum	7429-90-5	E440	50	mg/kg	45700	31700	39000	31000	31000	
antimony	7440-36-0	E440	0.10	mg/kg	120	146	119	140	156	
arsenic	7440-38-2	E440	0.10	mg/kg	23.2	28.9	20.7	25.3	23.7	
barium	7440-39-3	E440	0.50	mg/kg	613	525	515	622	582	
beryllium	7440-41-7	E440	0.10	mg/kg	0.42	0.44	0.40	0.41	0.46	
bismuth	7440-69-9	E440	0.20	mg/kg	7.33	8.08	8.38	8.71	8.70	
boron	7440-42-8	E440	5.0	mg/kg	267	235	218	234	253	
cadmium	7440-43-9	E440	0.020	mg/kg	9.84	13.3	10.2	13.3	28.7	
calcium	7440-70-2	E440	50	mg/kg	130000	131000	129000	137000	143000	
chromium	7440-47-3	E440	0.50	mg/kg	217	168	127	207	216	
cobalt	7440-48-4	E440	0.10	mg/kg	26.1	42.3	63.6	264	312	
copper	7440-50-8	E440	0.50	mg/kg	6090	4240	2760	4130	5500	
iron	7439-89-6	E440	50	mg/kg	68800	67400	50800	95600	75600	
lead	7439-92-1	E440	0.50	mg/kg	427	435	319	1370	540	
lithium	7439-93-2	E440	2.0	mg/kg	26.6	19.1	19.8	75.4	24.1	
magnesium	7439-95-4	E440	20	mg/kg	11300	10600	11000	11100	10900	
manganese	7439-96-5	E440	1.0	mg/kg	909	950	800	982	1380	
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	22.9	28.7	27.0	31.0	33.4	
nickel	7440-02-0	E440	0.50	mg/kg	243	188	131	160	196	
phosphorus	7723-14-0	E440	50	mg/kg	10200	10600	11600	11500	10600	
potassium	7440-09-7	E440	100	mg/kg	5660	5580	6270	5260	5620	
selenium	7782-49-2	E440	0.20	mg/kg	0.34	0.42	0.40	0.35	0.45	
silver	7440-22-4	E440	0.10	mg/kg	10.6	7.47	9.41	9.04	10.1	
sodium	7440-23-5	E440	50	mg/kg	16100	14900	16200	14100	15100	
strontium	7440-24-6	E440	0.50	mg/kg	350	297	293	373	311	
sulfur	7704-34-9	E440	1000	mg/kg	12400	14000	12600	14000	14600	



## Analytical Results

Sub-Matrix: Soil					Client sample ID				
(Matrix: Soil)					BA1951-A-1	BA1951-A-2	BA1951-A-3	BA1951-A-4	BA1951-A-5
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-001	VA19A1029-002	VA19A1029-003	VA19A1029-004	VA19A1029-005
					Result	Result	Result	Result	Result
<b>Metals</b>									
thallium	7440-28-0	E440	0.050	mg/kg	<0.051	0.056	0.052	0.058	0.066
tin	7440-31-5	E440	2.0	mg/kg	122	242	145	149	174
titanium	7440-32-6	E440	1.0	mg/kg	1060	440	568	829	687
tungsten	7440-33-7	E440	0.50	mg/kg	28.7	31.9	20.8	34.9	34.7
uranium	7440-61-1	E440	0.050	mg/kg	4.67	5.60	4.97	5.33	5.87
vanadium	7440-62-2	E440	0.20	mg/kg	46.0	45.4	38.6	45.5	47.6
zinc	7440-66-6	E440	2.0	mg/kg	8270	5020	3620	5140	4680
zirconium	7440-67-7	E440	1.0	mg/kg	2.3	1.8	2.1	1.4	1.8
<b>TCLP Metals</b>									
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.5	11.6	11.5	11.6	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	9.00	8.75	8.55	8.70	8.92
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.92	2.92	2.92	2.92	2.92
pH, TCLP final	----	EPP444	0.010	pH units	6.24	6.07	6.06	6.26	6.34
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	4.66	3.39	3.47	4.97	3.76
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.190	0.284	0.211	0.196	0.242
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2310	2030	2060	2070	2220
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	0.580	0.579	1.32	1.03	0.730
copper, TCLP	7440-50-8	E444	0.050	mg/L	1.06	1.11	1.22	0.994	1.37
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	0.38	<0.25
magnesium, TCLP	7439-95-4	E444	0.50	mg/L	134	125	133	134	138
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	0.50	0.42	0.56	0.39	0.60
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)					Client sample ID	BA1951-A-1	BA1951-A-2	BA1951-A-3	BA1951-A-4	BA1951-A-5
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-001	VA19A1029-002	VA19A1029-003	VA19A1029-004	VA19A1029-005	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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	40.5	46.5	67.2	46.8	39.2	

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



## Analytical Results

Sub-Matrix: Soil					Client sample ID				
(Matrix: Soil)					BA1951-A-6	BA1951-A-7	BA1951-A-8	BA1951-A-9	BA1951-A-10
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-006	VA19A1029-007	VA19A1029-008	VA19A1029-009	VA19A1029-010
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
moisture	----	E144	0.25	%	26.7	25.5	25.0	26.2	24.7
pH (1:2 soil:water)	----	E108	0.10	pH units	10.5	10.4	10.5	10.4	10.4
<b>Metals</b>									
aluminum	7429-90-5	E440	50	mg/kg	31300	33100	34100	44200	33900
antimony	7440-36-0	E440	0.10	mg/kg	136	125	130	309	142
arsenic	7440-38-2	E440	0.10	mg/kg	20.4	29.7	23.9	22.7	27.4
barium	7440-39-3	E440	0.50	mg/kg	592	567	539	504	527
beryllium	7440-41-7	E440	0.10	mg/kg	0.37	0.43	0.40	0.41	0.38
bismuth	7440-69-9	E440	0.20	mg/kg	11.9	7.55	27.4	8.19	5.91
boron	7440-42-8	E440	5.0	mg/kg	213	306	220	239	253
cadmium	7440-43-9	E440	0.020	mg/kg	11.6	11.4	11.0	11.9	10.5
calcium	7440-70-2	E440	50	mg/kg	126000	127000	132000	132000	124000
chromium	7440-47-3	E440	0.50	mg/kg	170	230	141	169	592
cobalt	7440-48-4	E440	0.10	mg/kg	38.9	547	46.8	43.9	29.9
copper	7440-50-8	E440	0.50	mg/kg	8080	1580	7720	2140	17600
iron	7439-89-6	E440	50	mg/kg	59400	75100	61300	52800	61600
lead	7439-92-1	E440	0.50	mg/kg	435	294	363	4940	399
lithium	7439-93-2	E440	2.0	mg/kg	18.6	29.1	18.1	18.1	19.3
magnesium	7439-95-4	E440	20	mg/kg	10700	9640	12100	11800	9620
manganese	7439-96-5	E440	1.0	mg/kg	797	1010	900	1250	935
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	29.6	26.4	28.7	31.1	37.6
nickel	7440-02-0	E440	0.50	mg/kg	110	152	150	423	474
phosphorus	7723-14-0	E440	50	mg/kg	11700	9120	9890	11900	11300
potassium	7440-09-7	E440	100	mg/kg	5470	5600	5690	6730	5500
selenium	7782-49-2	E440	0.20	mg/kg	0.34	0.36	0.38	0.34	0.42
silver	7440-22-4	E440.Ag	0.10	mg/kg	----	----	8.27	----	----
silver	7440-22-4	E440	0.10	mg/kg	9.81	10.8	----	8.98	18.3
sodium	7440-23-5	E440	50	mg/kg	15600	15700	15300	16400	15400
strontium	7440-24-6	E440	0.50	mg/kg	274	286	294	296	269
sulfur	7704-34-9	E440	1000	mg/kg	12300	12000	13000	13100	12800



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1951-A-6	BA1951-A-7	BA1951-A-8	BA1951-A-9	BA1951-A-10
(Matrix: Soil)										
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-006	VA19A1029-007	VA19A1029-008	VA19A1029-009	VA19A1029-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
thallium	7440-28-0	E440	0.050	mg/kg	0.056	0.084	0.061	0.061	0.052	
tin	7440-31-5	E440	2.0	mg/kg	164	100	730	113	155	
titanium	7440-32-6	E440	1.0	mg/kg	438	757	702	422	580	
tungsten	7440-33-7	E440	0.50	mg/kg	27.6	25.9	30.3	25.1	25.9	
uranium	7440-61-1	E440	0.050	mg/kg	5.01	4.80	5.19	5.33	5.03	
vanadium	7440-62-2	E440	0.20	mg/kg	39.3	42.5	46.7	44.6	40.4	
zinc	7440-66-6	E440	2.0	mg/kg	3740	4580	9450	3860	3790	
zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.2	1.7	2.6	1.4	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.6	11.5	11.5	11.6	11.6	
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.96	8.83	8.92	8.99	8.74	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.92	2.92	2.92	2.92	2.92	
pH, TCLP final	----	EPP444	0.010	pH units	6.22	6.12	6.17	6.32	6.29	
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	3.66	3.82	3.52	4.03	3.90	
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.198	0.234	0.184	0.183	0.165	
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2180	2150	2140	2200	2100	
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	0.501	1.09	1.18	1.04	1.18	
copper, TCLP	7440-50-8	E444	0.050	mg/L	1.21	1.21	1.53	1.02	1.05	
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	0.36	<0.25	<0.25	
magnesium, TCLP	7439-95-4	E444	0.50	mg/L	131	130	132	140	128	
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	0.51	0.56	0.67	0.42	0.57	
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)					Client sample ID	BA1951-A-6	BA1951-A-7	BA1951-A-8	BA1951-A-9	BA1951-A-10
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00	18-Dec-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-006	VA19A1029-007	VA19A1029-008	VA19A1029-009	VA19A1029-010	
					Result	Result	Result	Result	Result	
<b>TCLP Metals</b>										
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	52.5	45.6	46.8	35.3	53.6	

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



**Analytical Results**

Sub-Matrix: Soil					Client sample ID	BA1951-A-11	BA1951-A-12	----	----	----
(Matrix: Soil)										
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	---	---	---	
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-011	VA19A1029-012	-----	-----	-----	
					Result	Result	---	---	---	
<b>Physical Tests</b>										
moisture	----	E144	0.25	%	24.5	25.0	----	----	----	
pH (1:2 soil:water)	----	E108	0.10	pH units	10.7	10.5	----	----	----	
<b>Metals</b>										
aluminum	7429-90-5	E440	50	mg/kg	35800	37800	----	----	----	
antimony	7440-36-0	E440	0.10	mg/kg	860	136	----	----	----	
arsenic	7440-38-2	E440	0.10	mg/kg	23.0	24.6	----	----	----	
barium	7440-39-3	E440	0.50	mg/kg	550	628	----	----	----	
beryllium	7440-41-7	E440	0.10	mg/kg	0.38	0.40	----	----	----	
bismuth	7440-69-9	E440	0.20	mg/kg	10.9	17.6	----	----	----	
boron	7440-42-8	E440	5.0	mg/kg	224	266	----	----	----	
cadmium	7440-43-9	E440	0.020	mg/kg	8.96	11.7	----	----	----	
calcium	7440-70-2	E440	50	mg/kg	120000	132000	----	----	----	
chromium	7440-47-3	E440	0.50	mg/kg	260	374	----	----	----	
cobalt	7440-48-4	E440	0.10	mg/kg	49.0	28.4	----	----	----	
copper	7440-50-8	E440	0.50	mg/kg	21700	4150	----	----	----	
iron	7439-89-6	E440	50	mg/kg	74100	69400	----	----	----	
lead	7439-92-1	E440	0.50	mg/kg	6850	432	----	----	----	
lithium	7439-93-2	E440	2.0	mg/kg	26.7	33.6	----	----	----	
magnesium	7439-95-4	E440	20	mg/kg	10800	11600	----	----	----	
manganese	7439-96-5	E440	1.0	mg/kg	909	1490	----	----	----	
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
molybdenum	7439-98-7	E440	0.10	mg/kg	34.0	29.0	----	----	----	
nickel	7440-02-0	E440	0.50	mg/kg	196	194	----	----	----	
phosphorus	7723-14-0	E440	50	mg/kg	9410	10900	----	----	----	
potassium	7440-09-7	E440	100	mg/kg	5050	5320	----	----	----	
selenium	7782-49-2	E440	0.20	mg/kg	0.33	0.31	----	----	----	
silver	7440-22-4	E440	0.10	mg/kg	11.9	9.96	----	----	----	
sodium	7440-23-5	E440	50	mg/kg	14900	15400	----	----	----	
strontium	7440-24-6	E440	0.50	mg/kg	262	303	----	----	----	
sulfur	7704-34-9	E440	1000	mg/kg	11100	12900	----	----	----	
thallium	7440-28-0	E440	0.050	mg/kg	0.063	0.052	----	----	----	



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1951-A-11	BA1951-A-12	----	----	----
(Matrix: Soil)										
Client sampling date / time					18-Dec-2019 09:00	18-Dec-2019 09:00	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-011	VA19A1029-012	-----	-----	-----	-----
					Result	Result	---	---	---	---
<b>Metals</b>										
tin	7440-31-5	E440	2.0	mg/kg	998	135	----	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg	860	1300	----	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg	21.3	37.5	----	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg	4.44	5.03	----	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg	39.6	47.2	----	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg	4610	5190	----	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg	1.4	1.7	----	----	----	----
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.6	11.6	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units	8.64	8.54	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.92	2.92	----	----	----	----
pH, TCLP final	----	EPP444	0.010	pH units	6.19	6.10	----	----	----	----
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	4.03	3.93	----	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.178	0.176	----	----	----	----
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2130	2140	----	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	----	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.954	0.629	----	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.944	1.29	----	----	----	----
iron, TCLP	7439-89-6	E444	5.0	mg/L	<5.0	<5.0	----	----	----	----
lead, TCLP	7439-92-1	E444	0.25	mg/L	0.43	<0.25	----	----	----	----
magnesium, TCLP	7439-95-4	E444	0.50	mg/L	132	130	----	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L	<0.0100	<0.0100	----	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.52	0.47	----	----	----	----
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	----	----	----	----



**Analytical Results**

Sub-Matrix: Soil					Client sample ID	BA1951-A-11	BA1951-A-12	----	----	----
(Matrix: Soil)					Client sampling date / time	18-Dec-2019 09:00	18-Dec-2019 09:00	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA19A1029-011	VA19A1029-012	-----	-----	-----	
TCLP Metals					Result	Result	---	---	---	
zinc, TCLP	7440-66-6	E444	0.50	mg/L	53.2	65.8	----	----	----	

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