

## Bottom Ash Data

2019 Week 47

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The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on December 12, 2019. The data represents bottom ash composite results for week 47 of 2019 (November 17, 2019 to November 23, 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 : **VA19A0080**  
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 : 26-Nov-2019 11:55  
Date Analysis Commenced : 27-Nov-2019  
Issue Date : 04-Dec-2019 13:34

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>
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Cristina Alexandre	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Ken Chan	Supervisor - Metals Prep & Mercury	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.

When sampling time information is not provided by the client, sampling dates are shown with a time of 00:00. In these instances, the time component has been assumed by the laboratory for processing purposes.

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)					BA1947-A-1	BA1947-A-2	BA1947-A-3	BA1947-A-4	BA1947-A-5
Client sampling date / time					20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-001	VA19A0080-002	VA19A0080-003	VA19A0080-004	VA19A0080-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
moisture	----	E144	0.25	%	22.6	22.0	23.9	23.1	21.4
pH (1:2 soil:water)	----	E108	0.10	pH units	11.2	11.4	11.2	11.4	11.6
<b>Metals</b>									
aluminum	7429-90-5	E440	50	mg/kg	41600	35800	39700	44100	47900
antimony	7440-36-0	E440	0.10	mg/kg	108	98.7	131	111	113
arsenic	7440-38-2	E440	0.10	mg/kg	27.6	28.4	25.9	27.4	24.3
barium	7440-39-3	E440	0.50	mg/kg	482	490	494	494	509
beryllium	7440-41-7	E440	0.10	mg/kg	0.49	0.43	0.50	0.49	0.42
bismuth	7440-69-9	E440	0.20	mg/kg	8.32	14.2	11.0	12.2	8.74
boron	7440-42-8	E440	5.0	mg/kg	318	216	242	262	230
cadmium	7440-43-9	E440	0.020	mg/kg	12.7	15.3	21.2	12.1	10.0
calcium	7440-70-2	E440	50	mg/kg	124000	134000	143000	152000	132000
chromium	7440-47-3	E440	0.50	mg/kg	137	177	144	154	133
cobalt	7440-48-4	E440	0.10	mg/kg	19.1	1640	21.1	47.4	32.2
copper	7440-50-8	E440	0.50	mg/kg	6300	9020	2500	3460	2160
iron	7439-89-6	E440	50	mg/kg	50400	71700	47000	53500	66200
lead	7439-92-1	E440	0.50	mg/kg	568	329	1580	490	1600
lithium	7439-93-2	E440	2.0	mg/kg	17.7	28.2	18.5	20.2	19.6
magnesium	7439-95-4	E440	20	mg/kg	9800	11900	12500	11700	10300
manganese	7439-96-5	E440	1.0	mg/kg	780	894	788	927	973
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	72.5	83.3	82.3	78.8	83.1
nickel	7440-02-0	E440	0.50	mg/kg	145	136	172	188	104
phosphorus	7723-14-0	E440	50	mg/kg	9400	10700	10200	14000	10700
potassium	7440-09-7	E440	100	mg/kg	4390	4510	4640	5160	4770
selenium	7782-49-2	E440	0.20	mg/kg	0.68	0.35	0.36	0.35	0.34
silver	7440-22-4	E440	0.10	mg/kg	4.94	5.88	9.84	7.49	6.43
sodium	7440-23-5	E440	50	mg/kg	15200	15500	15400	17000	16000
strontium	7440-24-6	E440	0.50	mg/kg	306	299	294	329	297
sulfur	7704-34-9	E440	1000	mg/kg	12000	13600	12200	13300	12500



## Analytical Results

Sub-Matrix: Soil (Matrix: Soil)					Client sample ID	BA1947-A-1	BA1947-A-2	BA1947-A-3	BA1947-A-4	BA1947-A-5
Client sampling date / time					20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-001	VA19A0080-002	VA19A0080-003	VA19A0080-004	VA19A0080-005	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
thallium	7440-28-0	E440	0.050	mg/kg	0.098	0.085	0.067	0.073	0.071	
tin	7440-31-5	E440	2.0	mg/kg	265	152	92.6	162	111	
titanium	7440-32-6	E440	1.0	mg/kg	952	885	895	560	612	
tungsten	7440-33-7	E440	0.50	mg/kg	13.5	13.7	14.9	17.2	10.8	
uranium	7440-61-1	E440	0.050	mg/kg	4.59	5.40	5.30	5.54	5.32	
vanadium	7440-62-2	E440	0.20	mg/kg	52.8	57.2	60.5	59.4	57.9	
zinc	7440-66-6	E440	2.0	mg/kg	11900	5880	3750	3700	3930	
zirconium	7440-67-7	E440	1.0	mg/kg	1.5	1.3	1.6	1.6	2.0	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.8	11.7	11.8	11.8	11.8	
pH, TCLP 2st preliminary	----	EPP444	0.010	pH units	9.89	8.82	9.50	9.40	9.94	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.93	2.93	2.93	2.93	2.93	
pH, TCLP final	----	EPP444	0.010	pH units	6.14	6.05	6.22	5.95	6.21	

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



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1947-A-6	BA1947-A-7	BA1947-A-8	BA1947-A-9	BA1947-A-10
(Matrix: Soil)					Client sampling date / time	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-006	VA19A0080-007	VA19A0080-008	VA19A0080-009	VA19A0080-010	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
moisture	----	E144	0.25	%	22.2	22.4	23.4	22.2	23.5	
pH (1:2 soil:water)	----	E108	0.10	pH units	11.1	11.4	11.4	11.6	11.6	
<b>Metals</b>										
aluminum	7429-90-5	E440	50	mg/kg	36800	38100	40300	31500	30700	
antimony	7440-36-0	E440	0.10	mg/kg	107	119	112	114	99.6	
arsenic	7440-38-2	E440	0.10	mg/kg	25.7	24.9	27.3	28.1	29.1	
barium	7440-39-3	E440	0.50	mg/kg	428	585	531	501	512	
beryllium	7440-41-7	E440	0.10	mg/kg	0.46	0.48	0.70	0.48	0.43	
bismuth	7440-69-9	E440	0.20	mg/kg	11.5	9.21	10.6	11.7	7.94	
boron	7440-42-8	E440	5.0	mg/kg	246	211	628	276	215	
cadmium	7440-43-9	E440	0.020	mg/kg	15.3	10.2	15.1	10.9	940	
calcium	7440-70-2	E440	50	mg/kg	138000	140000	147000	148000	135000	
chromium	7440-47-3	E440	0.50	mg/kg	212	173	164	200	177	
cobalt	7440-48-4	E440	0.10	mg/kg	31.4	37.4	65.4	60.1	33.3	
copper	7440-50-8	E440	0.50	mg/kg	1750	1150	1930	2820	6540	
iron	7439-89-6	E440	50	mg/kg	81700	55600	58400	67800	63100	
lead	7439-92-1	E440	0.50	mg/kg	473	365	451	569	481	
lithium	7439-93-2	E440	2.0	mg/kg	18.4	18.2	26.8	19.9	19.6	
magnesium	7439-95-4	E440	20	mg/kg	10500	12200	11000	11900	10400	
manganese	7439-96-5	E440	1.0	mg/kg	918	2440	794	830	722	
mercury	7439-97-6	E510	0.0500	mg/kg	0.0552	<0.0500	<0.0500	<0.0500	<0.0500	
molybdenum	7439-98-7	E440	0.10	mg/kg	78.8	77.3	73.5	92.5	101	
nickel	7440-02-0	E440	0.50	mg/kg	158	184	127	158	256	
phosphorus	7723-14-0	E440	50	mg/kg	10500	10800	11200	10700	10600	
potassium	7440-09-7	E440	100	mg/kg	4850	4900	5400	4960	4160	
selenium	7782-49-2	E440	0.20	mg/kg	0.41	0.39	0.39	0.40	0.34	
silver	7440-22-4	E440	0.10	mg/kg	6.64	5.76	8.01	7.28	4.37	
sodium	7440-23-5	E440	50	mg/kg	15700	17000	16600	15800	13900	
strontium	7440-24-6	E440	0.50	mg/kg	296	308	300	332	286	
sulfur	7704-34-9	E440	1000	mg/kg	14600	13000	14100	14400	12700	
thallium	7440-28-0	E440	0.050	mg/kg	0.073	0.069	0.070	0.065	0.090	



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1947-A-6	BA1947-A-7	BA1947-A-8	BA1947-A-9	BA1947-A-10
(Matrix: Soil)										
Client sampling date / time					20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-006	VA19A0080-007	VA19A0080-008	VA19A0080-009	VA19A0080-010	
					Result	Result	Result	Result	Result	
<b>Metals</b>										
tin	7440-31-5	E440	2.0	mg/kg	124	79.6	144	148	141	
titanium	7440-32-6	E440	1.0	mg/kg	448	960	591	573	846	
tungsten	7440-33-7	E440	0.50	mg/kg	14.5	19.1	12.0	11.7	17.2	
uranium	7440-61-1	E440	0.050	mg/kg	5.67	5.57	5.99	5.95	5.10	
vanadium	7440-62-2	E440	0.20	mg/kg	61.2	67.4	60.6	63.7	56.2	
zinc	7440-66-6	E440	2.0	mg/kg	3710	3350	4770	3720	7400	
zirconium	7440-67-7	E440	1.0	mg/kg	1.5	1.1	1.3	1.1	1.1	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.8	11.7	11.7	11.8	11.8	
pH, TCLP 2st preliminary	----	EPP444	0.010	pH units	9.66	9.30	9.38	9.68	9.59	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.93	2.93	2.93	2.93	2.93	
pH, TCLP final	----	EPP444	0.010	pH units	6.09	6.03	6.09	5.81	6.06	

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



## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1947-A-11	BA1947-A-12	----	----	----
(Matrix: Soil)					Client sampling date / time	20-Nov-2019 09:00	20-Nov-2019 09:00	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-011	VA19A0080-012	-----	-----	-----	
					Result	Result	---	---	---	
<b>Physical Tests</b>										
moisture	----	E144	0.25	%	22.5	23.0	----	----	----	
pH (1:2 soil:water)	----	E108	0.10	pH units	11.5	11.2	----	----	----	
<b>Metals</b>										
aluminum	7429-90-5	E440	50	mg/kg	35400	40000	----	----	----	
antimony	7440-36-0	E440	0.10	mg/kg	114	98.4	----	----	----	
arsenic	7440-38-2	E440	0.10	mg/kg	23.2	25.0	----	----	----	
barium	7440-39-3	E440	0.50	mg/kg	444	476	----	----	----	
beryllium	7440-41-7	E440	0.10	mg/kg	0.42	0.45	----	----	----	
bismuth	7440-69-9	E440	0.20	mg/kg	8.70	9.67	----	----	----	
boron	7440-42-8	E440	5.0	mg/kg	248	248	----	----	----	
cadmium	7440-43-9	E440	0.020	mg/kg	12.4	9.64	----	----	----	
calcium	7440-70-2	E440	50	mg/kg	138000	130000	----	----	----	
chromium	7440-47-3	E440	0.50	mg/kg	150	350	----	----	----	
cobalt	7440-48-4	E440	0.10	mg/kg	43.0	36.7	----	----	----	
copper	7440-50-8	E440	0.50	mg/kg	1680	8300	----	----	----	
iron	7439-89-6	E440	50	mg/kg	66300	47400	----	----	----	
lead	7439-92-1	E440	0.50	mg/kg	624	853	----	----	----	
lithium	7439-93-2	E440	2.0	mg/kg	18.4	19.5	----	----	----	
magnesium	7439-95-4	E440	20	mg/kg	10600	11800	----	----	----	
manganese	7439-96-5	E440	1.0	mg/kg	1020	788	----	----	----	
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	----	----	----	
molybdenum	7439-98-7	E440	0.10	mg/kg	744	91.5	----	----	----	
nickel	7440-02-0	E440	0.50	mg/kg	186	398	----	----	----	
phosphorus	7723-14-0	E440	50	mg/kg	11300	9670	----	----	----	
potassium	7440-09-7	E440	100	mg/kg	4580	4570	----	----	----	
selenium	7782-49-2	E440	0.20	mg/kg	0.30	0.33	----	----	----	
silver	7440-22-4	E440	0.10	mg/kg	7.82	8.34	----	----	----	
sodium	7440-23-5	E440	50	mg/kg	14700	15800	----	----	----	
strontium	7440-24-6	E440	0.50	mg/kg	296	348	----	----	----	
sulfur	7704-34-9	E440	1000	mg/kg	13000	12200	----	----	----	
thallium	7440-28-0	E440	0.050	mg/kg	0.062	0.065	----	----	----	





## Analytical Results

Sub-Matrix: Soil					Client sample ID	BA1947-A-11	BA1947-A-12	----	----	----
(Matrix: Soil)					Client sampling date / time	20-Nov-2019 09:00	20-Nov-2019 09:00	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-011	VA19A0080-012	-----	-----	-----	
					Result	Result	---	---	---	
<b>Metals</b>										
tin	7440-31-5	E440	2.0	mg/kg	1030	151	----	----	----	
titanium	7440-32-6	E440	1.0	mg/kg	538	637	----	----	----	
tungsten	7440-33-7	E440	0.50	mg/kg	14.4	15.8	----	----	----	
uranium	7440-61-1	E440	0.050	mg/kg	5.64	5.20	----	----	----	
vanadium	7440-62-2	E440	0.20	mg/kg	54.4	63.8	----	----	----	
zinc	7440-66-6	E440	2.0	mg/kg	3340	3390	----	----	----	
zirconium	7440-67-7	E440	1.0	mg/kg	1.7	7.5	----	----	----	
<b>TCLP Metals</b>										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units	11.8	11.8	----	----	----	
pH, TCLP 2st preliminary	----	EPP444	0.010	pH units	9.55	9.50	----	----	----	
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units	2.93	2.93	----	----	----	
pH, TCLP final	----	EPP444	0.010	pH units	6.03	5.94	----	----	----	

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



## Analytical Results

Sub-Matrix: TCLP Leachate

Client sample ID

(Matrix: Soil)

					BA1947-A-1	BA1947-A-2	BA1947-A-3	BA1947-A-4	BA1947-A-5
					20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-001	VA19A0080-002	VA19A0080-003	VA19A0080-004	VA19A0080-005
					Result	Result	Result	Result	Result
<b>TCLP Metals</b>									
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	2.80	2.52	2.98	2.74	2.56
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.186	0.166	0.173	0.170	0.179
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2140	2010	2140	2120	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	0.382	0.947	0.731	0.934	0.311
copper, TCLP	7440-50-8	E444	0.050	mg/L	0.899	1.37	1.11	1.22	0.811
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	128	132	130	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	0.58	0.68	0.49	0.43	0.46
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
zinc, TCLP	7440-66-6	E444	0.50	mg/L	95.1	44.9	35.4	42.2	48.9

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



## Analytical Results

Sub-Matrix: TCLP Leachate

Client sample ID

(Matrix: Soil)

					BA1947-A-6	BA1947-A-7	BA1947-A-8	BA1947-A-9	BA1947-A-10
Client sampling date / time					20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00	20-Nov-2019 09:00
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-006	VA19A0080-007	VA19A0080-008	VA19A0080-009	VA19A0080-010
					Result	Result	Result	Result	Result
<b>TCLP Metals</b>									
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	2.65	2.79	2.70	3.01	2.66
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.441	0.200	0.179	0.187	0.174
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2010	2210	2180	1960	1980
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	0.762	0.648	1.09	0.497	1.14
copper, TCLP	7440-50-8	E444	0.050	mg/L	1.27	1.06	1.10	1.37	0.728
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	0.45	<0.25	<0.25	<0.25
magnesium, TCLP	7439-95-4	E444	0.50	mg/L	121	137	134	125	122
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	1.03	0.60	0.56	0.42
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
zinc, TCLP	7440-66-6	E444	0.50	mg/L	50.7	62.3	46.8	54.5	40.2

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



**Analytical Results**

Sub-Matrix: TCLP Leachate

Client sample ID

(Matrix: Soil)

					BA1947-A-11	BA1947-A-12	----	----	----
					20-Nov-2019 09:00	20-Nov-2019 09:00	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA19A0080-011	VA19A0080-012	-----	-----	-----
					Result	Result	---	---	---
<b>TCLP Metals</b>									
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	2.98	4.58	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.326	0.210	----	----	----
calcium, TCLP	7440-70-2	E444	2.0	mg/L	2140	1940	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.627	0.321	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L	1.28	0.838	----	----	----
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	134	127	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L	<0.0100	<0.0100	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.66	0.51	----	----	----
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	47.7	36.0	----	----	----

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