Bottom Ash Data

2020 Week 2

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on January 27, 2020. The data represents bottom ash composite results for week 2 of 2020 (January 5, 2020 to January 11, 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	: **VA20A0389**	Page	: 1 of 12
Client	: **Covanta Burnaby R.E., 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	: 16-Jan-2020 13:37
PO	: VANCO 0000049378	Date Analysis Commenced	: 16-Jan-2020
C-O-C number	: ----	Issue Date	: 24-Jan-2020 16:28
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 21		
No. of samples analysed	: 21		

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*
Aaron Yu	Laboratory Analyst	Metals, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	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.

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-1	BA2002-A-2	BA2002-A-3	BA2002-A-4	BA2002-A-5
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
						VA20A0389-001	VA20A0389-002	VA20A0389-003	VA20A0389-004	VA20A0389-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		25.8	25.2	24.5	25.2	25.2
pH (1:2 soil:water)	----	E108	0.10	pH units		11.3	10.4	11.0	10.9	11.0
Metals										
aluminum	7429-90-5	E440	50	mg/kg		35600	43400	41600	40200	41600
antimony	7440-36-0	E440	0.10	mg/kg		199	126	131	156	122
arsenic	7440-38-2	E440	0.10	mg/kg		22.2	20.8	20.2	21.5	17.6
barium	7440-39-3	E440	0.50	mg/kg		442	401	433	511	576
beryllium	7440-41-7	E440	0.10	mg/kg		0.44	0.38	0.42	0.44	0.38
bismuth	7440-69-9	E440	0.20	mg/kg		8.71	22.8	9.88	8.36	7.24
boron	7440-42-8	E440	5.0	mg/kg		241	274	305	197	219
cadmium	7440-43-9	E440	0.020	mg/kg		15.7	14.1	16.8	15.1	11.1
calcium	7440-70-2	E440	50	mg/kg		147000	138000	139000	146000	136000
chromium	7440-47-3	E440	0.50	mg/kg		163	145	140	140	134
cobalt	7440-48-4	E440	0.10	mg/kg		96.8	21.0	72.6	379	36.0
copper	7440-50-8	E440	0.50	mg/kg		20700	3880	4140	2200	1990
iron	7439-89-6	E440	50	mg/kg		49900	52100	60100	59200	51500
lead	7439-92-1	E440	0.50	mg/kg		374	430	494	4330	367
lithium	7439-93-2	E440	2.0	mg/kg		30.5	18.8	23.9	31.0	21.6
magnesium	7439-95-4	E440	20	mg/kg		11900	12700	11500	13400	13600
manganese	7439-96-5	E440	1.0	mg/kg		899	766	894	747	879
mercury	7439-97-6	E510	0.0500	mg/kg		<0.0500	<0.0500	0.0694	<0.0500	<0.0500
molybdenum	7439-98-7	E440	0.10	mg/kg		32.2	24.6	25.5	35.3	27.8
nickel	7440-02-0	E440	0.50	mg/kg		119	118	159	126	160
phosphorus	7723-14-0	E440	50	mg/kg		11500	12300	11300	11800	11600
potassium	7440-09-7	E440	100	mg/kg		6230	6240	5640	6170	5380
selenium	7782-49-2	E440	0.20	mg/kg		0.47	0.42	0.47	0.46	0.48
silver	7440-22-4	E440	0.10	mg/kg		5.13	17.3	4.71	6.02	4.91
sodium	7440-23-5	E440	50	mg/kg		15400	16200	15300	15700	15400
strontium	7440-24-6	E440	0.50	mg/kg		824	328	345	679	365
sulfur	7704-34-9	E440	1000	mg/kg		14300	13800	13600	14400	12800

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-1	BA2002-A-2	BA2002-A-3	BA2002-A-4	BA2002-A-5
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
						VA20A0389-001	VA20A0389-002	VA20A0389-003	VA20A0389-004	VA20A0389-005
						Result	Result	Result	Result	Result
Metals										
thallium	7440-28-0	E440	0.050	mg/kg		0.064	<0.050	0.053	0.071	0.064
tin	7440-31-5	E440	2.0	mg/kg		167	1770	154	160	115
titanium	7440-32-6	E440	1.0	mg/kg		258	301	379	688	798
tungsten	7440-33-7	E440	0.50	mg/kg		17.4	13.5	10.6	9.78	9.22
uranium	7440-61-1	E440	0.050	mg/kg		5.09	4.70	4.78	5.10	4.59
vanadium	7440-62-2	E440	0.20	mg/kg		40.9	37.2	37.9	41.6	35.4
zinc	7440-66-6	E440	2.0	mg/kg		7630	5030	8320	4910	4240
zirconium	7440-67-7	E440	1.0	mg/kg		3.8	4.4	3.2	2.4	2.4
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.8	11.6	11.7	11.8	11.9
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		9.77	9.41	9.55	9.88	9.97
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		6.45	6.50	6.23	6.36	6.40
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		2.72	3.62	3.30	3.10	2.68
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.229	0.215	0.258	0.234	0.193
calcium, TCLP	7440-70-2	E444	2.0	mg/L		1920	1920	1910	1960	1840
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		0.656	1.56	0.868	0.909	0.368
copper, TCLP	7440-50-8	E444	0.050	mg/L		1.24	1.50	1.29	0.894	1.38
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	0.26	<0.25
magnesium, TCLP	7439-95-4	E444	0.50	mg/L		133	133	131	135	129
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		0.36	0.34	0.42	0.41	0.28
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**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-1	BA2002-A-2	BA2002-A-3	BA2002-A-4	BA2002-A-5
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
						VA20A0389-001	VA20A0389-002	VA20A0389-003	VA20A0389-004	VA20A0389-005
						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		47.9	42.2	56.7	42.6	41.1

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-6	BA2002-A-7	BA2002-A-8	BA2002-A-9	BA2002-A-10
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
						VA20A0389-006	VA20A0389-007	VA20A0389-008	VA20A0389-009	VA20A0389-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		25.9	25.4	26.2	24.4	25.2
pH (1:2 soil:water)	----	E108	0.10	pH units		10.9	10.8	10.6	10.5	10.6
Metals										
aluminum	7429-90-5	E440	50	mg/kg		40200	34400	37000	34000	44800
antimony	7440-36-0	E440	0.10	mg/kg		131	142	144	174	171
arsenic	7440-38-2	E440	0.10	mg/kg		20.3	23.1	23.1	23.8	23.8
barium	7440-39-3	E440	0.50	mg/kg		433	410	352	364	432
beryllium	7440-41-7	E440	0.10	mg/kg		0.41	0.41	0.36	0.39	0.48
bismuth	7440-69-9	E440	0.20	mg/kg		9.90	9.33	9.99	23.0	12.5
boron	7440-42-8	E440	5.0	mg/kg		274	212	253	282	254
cadmium	7440-43-9	E440	0.020	mg/kg		13.4	18.4	15.8	18.7	19.0
calcium	7440-70-2	E440	50	mg/kg		134000	138000	142000	138000	162000
chromium	7440-47-3	E440	0.50	mg/kg		161	174	190	149	158
cobalt	7440-48-4	E440	0.10	mg/kg		34.6	47.0	35.9	40.7	34.8
copper	7440-50-8	E440	0.50	mg/kg		22000	6990	3460	9770	4830
iron	7439-89-6	E440	50	mg/kg		47600	69900	54400	52000	55400
lead	7439-92-1	E440	0.50	mg/kg		348	369	610	1880	448
lithium	7439-93-2	E440	2.0	mg/kg		21.9	22.4	20.4	21.1	23.9
magnesium	7439-95-4	E440	20	mg/kg		10700	11400	12600	12100	12600
manganese	7439-96-5	E440	1.0	mg/kg		785	850	802	1970	813
mercury	7439-97-6	E510	0.0500	mg/kg		0.0584	0.0607	0.283	0.109	0.0692
molybdenum	7439-98-7	E440	0.10	mg/kg		32.1	26.2	33.9	29.2	32.0
nickel	7440-02-0	E440	0.50	mg/kg		140	148	189	128	150
phosphorus	7723-14-0	E440	50	mg/kg		11500	12200	13000	11500	14200
potassium	7440-09-7	E440	100	mg/kg		5890	5800	5940	6220	7410
selenium	7782-49-2	E440	0.20	mg/kg		0.49	0.46	0.43	0.46	0.50
silver	7440-22-4	E440.Ag	0.10	mg/kg		----	----	----	----	7.26
silver	7440-22-4	E440	0.10	mg/kg		6.21	6.28	5.62	5.82	----
sodium	7440-23-5	E440	50	mg/kg		15800	15700	15500	15800	18600
strontium	7440-24-6	E440	0.50	mg/kg		347	334	336	355	410
sulfur	7704-34-9	E440	1000	mg/kg		13900	14100	15200	15800	16800

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-6	BA2002-A-7	BA2002-A-8	BA2002-A-9	BA2002-A-10
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
						VA20A0389-006	VA20A0389-007	VA20A0389-008	VA20A0389-009	VA20A0389-010
						Result	Result	Result	Result	Result
Metals										
thallium	7440-28-0	E440	0.050	mg/kg		0.062	0.055	0.054	0.067	0.066
tin	7440-31-5	E440	2.0	mg/kg		388	137	159	189	158
titanium	7440-32-6	E440	1.0	mg/kg		330	235	271	230	354
tungsten	7440-33-7	E440	0.50	mg/kg		13.7	14.9	14.8	10.1	13.2
uranium	7440-61-1	E440	0.050	mg/kg		4.84	4.88	5.14	5.10	5.74
vanadium	7440-62-2	E440	0.20	mg/kg		37.8	37.9	41.8	38.2	45.1
zinc	7440-66-6	E440	2.0	mg/kg		4940	4420	5050	7530	5280
zirconium	7440-67-7	E440	1.0	mg/kg		2.7	2.8	2.9	3.2	4.9
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.6	11.6	11.6	11.7	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		9.59	9.53	9.40	9.68	9.40
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		6.35	6.08	6.13	6.40	6.39
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		3.29	3.72	3.74	3.14	3.27
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		1.25	0.239	0.269	0.253	0.222
calcium, TCLP	7440-70-2	E444	2.0	mg/L		2120	1910	1830	1950	1810
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		1.31	0.522	1.19	0.878	1.53
copper, TCLP	7440-50-8	E444	0.050	mg/L		0.937	3.55	1.06	1.41	0.815
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	0.26	<0.25	<0.25	<0.25
magnesium, TCLP	7439-95-4	E444	0.50	mg/L		129	130	125	132	124
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	0.52	0.56	0.36	0.43
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	BA2002-A-6	BA2002-A-7	BA2002-A-8	BA2002-A-9	BA2002-A-10
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00	08-Jan-2020 09:00
Analyte	CAS Number	Method	LOR	Unit		VA20A0389-006	VA20A0389-007	VA20A0389-008	VA20A0389-009	VA20A0389-010
						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		38.8	66.3	53.1	59.4	49.5

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-11	BA2002-A-12	BA2002-A-6 REP 1	BA2002-A-6 REP 2	BA2002-A-6 REP 3
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	21-Jan-2020	21-Jan-2020	21-Jan-2020
						VA20A0389-011	VA20A0389-012	VA20A0389-013	VA20A0389-014	VA20A0389-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		26.4	25.3	----	----	----
pH (1:2 soil:water)	----	E108	0.10	pH units		10.6	10.6	----	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg		38900	42800	----	----	----
antimony	7440-36-0	E440	0.10	mg/kg		169	161	----	----	----
arsenic	7440-38-2	E440	0.10	mg/kg		73.6	21.1	----	----	----
barium	7440-39-3	E440	0.50	mg/kg		369	456	----	----	----
beryllium	7440-41-7	E440	0.10	mg/kg		0.38	0.41	----	----	----
bismuth	7440-69-9	E440	0.20	mg/kg		11.5	9.65	----	----	----
boron	7440-42-8	E440	5.0	mg/kg		234	264	----	----	----
cadmium	7440-43-9	E440	0.020	mg/kg		16.6	13.3	----	----	----
calcium	7440-70-2	E440	50	mg/kg		136000	138000	----	----	----
chromium	7440-47-3	E440	0.50	mg/kg		171	136	----	----	----
cobalt	7440-48-4	E440	0.10	mg/kg		32.8	22.1	----	----	----
copper	7440-50-8	E440	0.50	mg/kg		2540	6110	----	----	----
iron	7439-89-6	E440	50	mg/kg		47100	47400	----	----	----
lead	7439-92-1	E440	0.50	mg/kg		1360	428	----	----	----
lithium	7439-93-2	E440	2.0	mg/kg		22.4	57.6	----	----	----
magnesium	7439-95-4	E440	20	mg/kg		12900	11500	----	----	----
manganese	7439-96-5	E440	1.0	mg/kg		1550	722	----	----	----
mercury	7439-97-6	E510	0.0500	mg/kg		0.0549	0.0518	----	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg		28.4	28.6	----	----	----
nickel	7440-02-0	E440	0.50	mg/kg		173	115	----	----	----
phosphorus	7723-14-0	E440	50	mg/kg		11600	13600	----	----	----
potassium	7440-09-7	E440	100	mg/kg		6500	5620	----	----	----
selenium	7782-49-2	E440	0.20	mg/kg		0.46	0.42	----	----	----
silver	7440-22-4	E440	0.10	mg/kg		5.78	4.88	----	----	----
sodium	7440-23-5	E440	50	mg/kg		16500	15100	----	----	----
strontium	7440-24-6	E440	0.50	mg/kg		338	423	----	----	----
sulfur	7704-34-9	E440	1000	mg/kg		15200	14200	----	----	----
thallium	7440-28-0	E440	0.050	mg/kg		0.057	0.054	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-11	BA2002-A-12	BA2002-A-6 REP 1	BA2002-A-6 REP 2	BA2002-A-6 REP 3
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	21-Jan-2020	21-Jan-2020	21-Jan-2020
						VA20A0389-011	VA20A0389-012	VA20A0389-013	VA20A0389-014	VA20A0389-015
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	2.0	mg/kg		561	130	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg		343	514	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg		9.12	10.7	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg		5.12	4.64	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg		38.5	38.2	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg		4430	5310	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg		3.4	2.3	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.6	11.6	11.6	11.6	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		9.53	9.25	9.59	9.59	9.59
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		6.51	6.07	6.16	6.13	6.13
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		3.76	2.93	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		5.40	0.216	0.269	0.231	0.249
calcium, TCLP	7440-70-2	E444	2.0	mg/L		2120	1820	----	----	----
chromium, TCLP	7440-47-3	E444	0.25	mg/L		<0.25	<0.25	----	----	----
cobalt, TCLP	7440-48-4	E444	0.050	mg/L		1.74	0.741	----	----	----
copper, TCLP	7440-50-8	E444	0.050	mg/L		0.794	2.52	----	----	----
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		132	122	----	----	----
mercury, TCLP	7439-97-6	E512	0.0100	mg/L		<0.0100	<0.0100	----	----	----
nickel, TCLP	7440-02-0	E444	0.25	mg/L		0.31	0.39	----	----	----
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**
(Matrix: **Soil**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-11	BA2002-A-12	BA2002-A-6 REP 1	BA2002-A-6 REP 2	BA2002-A-6 REP 3
					Client sampling date / time	08-Jan-2020 09:00	08-Jan-2020 09:00	21-Jan-2020	21-Jan-2020	21-Jan-2020
						VA20A0389-011	VA20A0389-012	VA20A0389-013	VA20A0389-014	VA20A0389-015
						Result	Result	Result	Result	Result
TCLP Metals										
zinc, TCLP	7440-66-6	E444	0.50	mg/L		41.4	51.5	----	----	----

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-6 REP 4	BA2002-A-11 REP1	BA2002-A-11 REP2	BA2002-A-11 REP3	BA2002-A-11 REP4
					Client sampling date / time	21-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020
						VA20A0389-016	VA20A0389-017	VA20A0389-018	VA20A0389-019	VA20A0389-020
						Result	Result	Result	Result	Result
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.6	11.6	11.6	11.6	11.6
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		9.59	9.53	9.53	9.53	9.53
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	5.96	6.18	6.16	6.05
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.224	0.253	0.284	0.229	0.270

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	BA2002-A-11 REP5	----	----	----	----
					Client sampling date / time	21-Jan-2020	----	----	----	----
						VA20A0389-021	--------	--------	--------	--------
						Result	----	----	----	----
TCLP Metals										
pH, TCLP 1st preliminary	----	EPP444	0.010	pH units		11.6	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444	0.010	pH units		9.53	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444	0.010	pH units		2.92	----	----	----	----
pH, TCLP final	----	EPP444	0.010	pH units		6.16	----	----	----	----
cadmium, TCLP	7440-43-9	E444	0.050	mg/L		0.242	----	----	----	----

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