

Bottom Ash Data

2018 Week 47

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on December 6, 2018. The data represents bottom ash composite results for week 47 of 2018 (November 18, 2018 to November 24, 2018).

The bottom ash meets the requirements of Metro Vancouver's Bottom Ash Management Plan and is suitable for beneficial use during Coquitlam Landfill closure works.



Covanta Burnaby R.E., ULC
ATTN: Steve McKinney
5150 Riverbend Drive
Burnaby BC V3N 4V3

Date Received: 28-NOV-18
Report Date: 05-DEC-18 14:58 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2203021
Project P.O. #: VANCO-0000047506
Job Reference: WEEKLY BOTTOM ASH - SUITE (INCLUDES 2:1
PH)
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L2203021-1 soil 21-NOV-18 09:00 BA1847-A-1	L2203021-2 soil 21-NOV-18 09:00 BA1847-A-2	L2203021-3 soil 21-NOV-18 09:00 BA1847-A-3	L2203021-4 soil 21-NOV-18 09:00 BA1847-A-4	L2203021-5 soil 21-NOV-18 09:00 BA1847-A-5	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.2	21.2	20.1	20.3	19.8
	pH (1:2 soil:water) (pH)	12.32	12.33	12.36	12.33	12.37
Metals	Aluminum (Al) (mg/kg)	48300	34700	38700	41100	28000
	Antimony (Sb) (mg/kg)	90.5	98.4	93.5	91.6	98.8
	Arsenic (As) (mg/kg)	37.9	24.7	29.6	23.7	19.7
	Barium (Ba) (mg/kg)	754	610	661	567	440
	Beryllium (Be) (mg/kg)	0.47	0.42	0.41	0.44	0.54
	Bismuth (Bi) (mg/kg)	4.23	4.64	4.33	5.49	19.1
	Boron (B) (mg/kg)	293	287	332	280	309
	Cadmium (Cd) (mg/kg)	8.22	23.4	8.36	10.2	9.53
	Calcium (Ca) (mg/kg)	128000	125000	122000	122000	110000
	Chromium (Cr) (mg/kg)	146	144	146	942	1040
	Cobalt (Co) (mg/kg)	137	21.9	22.2	28.0	28.6
	Copper (Cu) (mg/kg)	3070	3130	967	1570	1940
	Iron (Fe) (mg/kg)	68300	49800	53300	56400	39100
	Lead (Pb) (mg/kg)	2120	658	281	1260	294
	Lithium (Li) (mg/kg)	39.0	17.3	15.2	17.5	13.9
	Magnesium (Mg) (mg/kg)	13200	11000	12200	11100	9730
	Manganese (Mn) (mg/kg)	881	677	700	936	614
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	38.4	34.7	35.8	56.0	124
	Nickel (Ni) (mg/kg)	277	149	91.9	449	653
	Phosphorus (P) (mg/kg)	10900	10000	9020	8770	7720
	Potassium (K) (mg/kg)	4910	4970	4620	4630	4150
	Selenium (Se) (mg/kg)	0.27	0.42	<0.20	0.24	<0.20
	Silver (Ag) (mg/kg)	3.83	3.84	2.74	3.12	3.74
	Sodium (Na) (mg/kg)	15500	16100	13700	14500	13200
	Strontium (Sr) (mg/kg)	279	262	281	306	239
	Sulfur (S) (mg/kg)	11100	11800	10700	12100	9100
	Thallium (Tl) (mg/kg)	0.089	0.071	0.060	0.073	0.057
	Tin (Sn) (mg/kg)	100	94.1	118	136	71.3
	Titanium (Ti) (mg/kg)	1480	900	1580	1350	484
	Tungsten (W) (mg/kg)	8.94	5.13	4.74	4.78	5.68
	Uranium (U) (mg/kg)	4.86	4.75	4.81	4.87	4.08
	Vanadium (V) (mg/kg)	53.6	46.5	49.3	54.2	41.8
	Zinc (Zn) (mg/kg)	4250	5120	5660	3260	2520
	Zirconium (Zr) (mg/kg)	1.5	<1.0	1.7	1.5	<1.0

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L2203021-6 soil 21-NOV-18 09:00 BA1847-A-6	L2203021-7 soil 21-NOV-18 09:00 BA1847-A-7	L2203021-8 soil 21-NOV-18 09:00 BA1847-A-8	L2203021-9 soil 21-NOV-18 09:00 BA1847-A-9	L2203021-10 soil 21-NOV-18 09:00 BA1847-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	19.6	20.7	20.4	19.4	21.4
	pH (1:2 soil:water) (pH)	12.23	12.31	12.35	12.37	12.33
Metals	Aluminum (Al) (mg/kg)	34600	32700	34700	40300	33000
	Antimony (Sb) (mg/kg)	109	90.0	129	93.4	107
	Arsenic (As) (mg/kg)	31.7	27.2	28.9	28.6	24.9
	Barium (Ba) (mg/kg)	604	553	664	637	605
	Beryllium (Be) (mg/kg)	0.39	0.41	0.44	0.43	0.42
	Bismuth (Bi) (mg/kg)	4.54	7.32	4.62	4.72	4.22
	Boron (B) (mg/kg)	368	256	342	271	441
	Cadmium (Cd) (mg/kg)	9.19	8.68	9.91	9.22	8.73
	Calcium (Ca) (mg/kg)	123000	117000	127000	124000	129000
	Chromium (Cr) (mg/kg)	227	164	186	243	148
	Cobalt (Co) (mg/kg)	30.5	18.8	28.9	58.4	25.1
	Copper (Cu) (mg/kg)	2500	1120	16800	4370	2090
	Iron (Fe) (mg/kg)	58100	50300	61200	58900	56000
	Lead (Pb) (mg/kg)	433	435	387	280	288
	Lithium (Li) (mg/kg)	16.6	16.6	21.2	17.0	16.2
	Magnesium (Mg) (mg/kg)	11600	10500	10900	10800	11600
	Manganese (Mn) (mg/kg)	729	673	803	797	875
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	50.8	44.0	46.9	38.2	44.8
	Nickel (Ni) (mg/kg)	111	104	233	211	237
	Phosphorus (P) (mg/kg)	9260	8850	8710	9590	8970
	Potassium (K) (mg/kg)	4750	4470	5190	4840	4890
	Selenium (Se) (mg/kg)	0.24	0.31	0.28	0.23	0.24
	Silver (Ag) (mg/kg)	5.50	2.76	3.66	3.92	3.26
	Sodium (Na) (mg/kg)	14200	13500	14900	14600	13900
	Strontium (Sr) (mg/kg)	258	376	301	325	306
	Sulfur (S) (mg/kg)	10400	10900	10900	10500	12400
	Thallium (Tl) (mg/kg)	0.060	0.073	0.063	0.061	0.057
	Tin (Sn) (mg/kg)	94.1	86.2	182	83.6	127
	Titanium (Ti) (mg/kg)	1150	1000	1100	995	995
	Tungsten (W) (mg/kg)	4.12	6.59	9.20	4.46	8.00
	Uranium (U) (mg/kg)	4.75	4.95	5.04	4.96	4.45
	Vanadium (V) (mg/kg)	46.3	47.5	52.7	50.1	42.8
	Zinc (Zn) (mg/kg)	2590	7550	4240	3160	3270
	Zirconium (Zr) (mg/kg)	1.3	1.0	1.0	1.1	1.2

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L2203021-11 soil 21-NOV-18 09:00 BA1847-A-11	L2203021-12 soil 21-NOV-18 09:00 BA1847-A-12		
Grouping	Analyte				
SOIL					
Physical Tests	Moisture (%)	19.4	20.8		
	pH (1:2 soil:water) (pH)	12.37	12.47		
Metals	Aluminum (Al) (mg/kg)	42500	43400		
	Antimony (Sb) (mg/kg)	92.4	98.3		
	Arsenic (As) (mg/kg)	25.3	25.5		
	Barium (Ba) (mg/kg)	619	601		
	Beryllium (Be) (mg/kg)	0.42	0.46		
	Bismuth (Bi) (mg/kg)	5.94	6.97		
	Boron (B) (mg/kg)	307	330		
	Cadmium (Cd) (mg/kg)	28.8	8.67		
	Calcium (Ca) (mg/kg)	131000	130000		
	Chromium (Cr) (mg/kg)	219	133		
	Cobalt (Co) (mg/kg)	151	31.7		
	Copper (Cu) (mg/kg)	2540	3160		
	Iron (Fe) (mg/kg)	50900	60000		
	Lead (Pb) (mg/kg)	381	303		
	Lithium (Li) (mg/kg)	16.5	16.1		
	Magnesium (Mg) (mg/kg)	10700	10100		
	Manganese (Mn) (mg/kg)	938	752		
	Mercury (Hg) (mg/kg)	<0.050	<0.050		
	Molybdenum (Mo) (mg/kg)	67.8	56.3		
	Nickel (Ni) (mg/kg)	131	161		
	Phosphorus (P) (mg/kg)	9990	10000		
	Potassium (K) (mg/kg)	4980	4520		
	Selenium (Se) (mg/kg)	0.31	0.34		
	Silver (Ag) (mg/kg)	6.90	3.06		
	Sodium (Na) (mg/kg)	15000	14300		
	Strontium (Sr) (mg/kg)	322	332		
	Sulfur (S) (mg/kg)	10700	11000		
	Thallium (Tl) (mg/kg)	0.078	0.063		
	Tin (Sn) (mg/kg)	107	107		
	Titanium (Ti) (mg/kg)	860	1100		
	Tungsten (W) (mg/kg)	12.0	4.15		
	Uranium (U) (mg/kg)	4.61	4.48		
	Vanadium (V) (mg/kg)	50.8	46.1		
	Zinc (Zn) (mg/kg)	7260	3380		
	Zirconium (Zr) (mg/kg)	1.4	2.1		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2203021-1	L2203021-2	L2203021-3	L2203021-4	L2203021-5
		Description	soil	soil	soil	soil	soil
		Sampled Date	21-NOV-18	21-NOV-18	21-NOV-18	21-NOV-18	21-NOV-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1847-A-1	BA1847-A-2	BA1847-A-3	BA1847-A-4	BA1847-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.92	11.70	11.57	11.94	11.85
	2nd Preliminary pH (pH)		9.96	8.87	8.84	10.10	9.46
	Final pH (pH)		6.21	6.22	6.24	6.28	6.08
	Extraction Solution Initial pH (pH)		2.85	2.85	2.85	2.85	2.85
	Antimony (Sb)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Arsenic (As)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Barium (Ba)-Leachable (mg/L)		<2.5	<2.5	<2.5	<2.5	<2.5
	Beryllium (Be)-Leachable (mg/L)		<0.025	<0.025	<0.025	<0.025	<0.025
	Boron (B)-Leachable (mg/L)		3.80	4.19	4.35	3.83	4.14
	Cadmium (Cd)-Leachable (mg/L)		0.152	0.132	0.140	0.125	0.169
	Calcium (Ca)-Leachable (mg/L)		1980	2080	2120	2120	2040
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.383	0.354	0.417	0.756	0.956
	Copper (Cu)-Leachable (mg/L)		0.951	0.862	0.840	0.690	0.984
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		126	129	136	135	134
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.56	0.37	0.56	0.36	0.36
	Selenium (Se)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)		<0.15	<0.15	<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)		56.1	45.6	25.8	29.7	30.8

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2203021-6	L2203021-7	L2203021-8	L2203021-9	L2203021-10
		Description	soil	soil	soil	soil	soil
		Sampled Date	21-NOV-18	21-NOV-18	21-NOV-18	21-NOV-18	21-NOV-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1847-A-6	BA1847-A-7	BA1847-A-8	BA1847-A-9	BA1847-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)	11.82	11.80	11.86	11.91	11.86	
	2nd Preliminary pH (pH)	9.16	8.89	9.36	9.54	9.33	
	Final pH (pH)	6.01	6.17	6.13	6.24	6.36	
	Extraction Solution Initial pH (pH)	2.85	2.85	2.85	2.85	2.85	
	Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	
	Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	
	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<2.5	
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025	
	Boron (B)-Leachable (mg/L)	4.17	3.87	3.81	4.10	3.96	
	Cadmium (Cd)-Leachable (mg/L)	0.142	0.159	0.131	0.188	0.120	
	Calcium (Ca)-Leachable (mg/L)	2040	2120	1990	2020	2070	
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25	
	Cobalt (Co)-Leachable (mg/L)	0.633	0.680	0.841	1.13	0.476	
	Copper (Cu)-Leachable (mg/L)	1.43	1.09	0.523	1.20	0.820	
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0	<5.0	<5.0	<5.0	
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25	<0.25	0.38	0.37	
	Magnesium (Mg)-Leachable (mg/L)	134	137	135	137	141	
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Leachable (mg/L)	0.79	0.46	0.40	0.43	0.43	
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15	<0.15	
	Zinc (Zn)-Leachable (mg/L)	39.3	31.7	40.1	39.4	21.1	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L2203021-11 soil 21-NOV-18 09:00 BA1847-A-11	L2203021-12 soil 21-NOV-18 09:00 BA1847-A-12		
Grouping	Analyte				
SOIL					
TCLP Metals	1st Preliminary pH (pH)	11.87	11.87		
	2nd Preliminary pH (pH)	9.47	9.44		
	Final pH (pH)	6.32	6.04		
	Extraction Solution Initial pH (pH)	2.85	2.85		
	Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0		
	Arsenic (As)-Leachable (mg/L)	<1.0	<1.0		
	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5		
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025		
	Boron (B)-Leachable (mg/L)	3.84	3.73		
	Cadmium (Cd)-Leachable (mg/L)	0.124	0.135		
	Calcium (Ca)-Leachable (mg/L)	1950	1930		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.657	0.331		
	Copper (Cu)-Leachable (mg/L)	0.716	1.26		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	126	133		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.40	0.43		
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0		
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050		
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0		
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15		
	Zinc (Zn)-Leachable (mg/L)	28.0	32.2		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bismuth (Bi)	DUP-H	L2203021-10, -11, -12
Duplicate	Copper (Cu)	DUP-H	L2203021-10, -11, -12
Duplicate	Lead (Pb)	DUP-H	L2203021-10, -11, -12
Duplicate	Molybdenum (Mo)	DUP-H	L2203021-10, -11, -12
Duplicate	Nickel (Ni)	DUP-H	L2203021-10, -11, -12
Duplicate	Tin (Sn)	DUP-H	L2203021-10, -11, -12
Duplicate	Zirconium (Zr)	DUP-H,J	L2203021-10, -11, -12
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2203021-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2203021-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2203021-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
DUP-H,J	Duplicate results outside ALS DQO, due to sample heterogeneity. Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AG-200.2-A-CCMS-VA	Soil	Elevated Ag in Soil by CRC ICPMS	EPA 200.2/6020A
Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.			
HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.			
HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7
This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).			
MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.			
Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.			
MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B
This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.			
PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL
This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
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Reference Information

VA

ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Ch#



COC #

Page ___ of ___

L2203021-COFC

Report To		Report Format		e Requested (Rush for routine analysis subject to availability)	
Company:	Covanta Energy	<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> PDF	<input type="checkbox"/> Excel	<input type="checkbox"/> Digital
Contact:	Steve Mckinney / Dan Skrypnyk	<input type="checkbox"/> Fax	<input type="checkbox"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	Standard Turnaround Times - Business Days	
Address:	5150 Riverbend Drive Burnaby BC	Email 1:	smckinney@covanta.com	Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
Phone:	604-521-1025	Fax:	rjohnson4@covanta.com	Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	Email 3:	dskrypnyk@covanta.com	Analysis Request	
			brent.kirkpatrick@metrovancover.org		
			Sarah.Wellman@metrovancover.org		

Invoice To	Same as Report ?	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)											
Hardcopy of Invoice with Report?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Job #:													
Company:		PO / AFE:	PO# 46693 Weekly Bottom Ash - Suite												
Contact:		LSD:	(includes 2:1 pH)												
Address:		Quote #:													
Phone:															

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)											Number of Containers				
BA1847-A-1		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-2		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-3		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-4		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-5		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-6		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-7		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-8		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-9		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-10		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-11		21-Nov-18	9:00	Soil	X	X		X															1
BA1847-A-12		21-Nov-18	9:00	Soil	X	X		X															1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
 By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
 Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:
<i>[Signature]</i>	28-Nov-18	08:00	HA	11/28	11:05	17 °C				Yes / No ? If Yes add SIF