

Bottom Ash Data

2019 Week 38

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on October 11, 2019. The data represents bottom ash composite results for week 38 of 2019 (September 15, 2019 to September 22, 2019).

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



Covanta Burnaby R.E., ULC
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Burnaby BC V3N 4V3

Date Received: 25-SEP-19
Report Date: 11-OCT-19 13:16 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2354297
Project P.O. #: VANCO-0000048466
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 03-OCT-19 18:23

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

11-OCT-19 13:16 (MT)

Version: FINAL

		Sample ID	L2354297-1	L2354297-2	L2354297-3	L2354297-4	L2354297-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1938-A-1	BA1938-A-2	BA1938-A-3	BA1938-A-4	BA1938-A-5
Grouping	Analyte						
SOIL							
Physical Tests	Moisture (%)		24.1	24.5	25.6	24.4	24.9
	pH (1:2 soil:water) (pH)		10.11	10.12	10.01	10.13	10.11
Metals	Aluminum (Al) (mg/kg)		41600	33300	47400	47000	49600
	Antimony (Sb) (mg/kg)		114	138	90.5	125	96.0
	Arsenic (As) (mg/kg)		29.9	32.0	48.2	33.2	25.6
	Barium (Ba) (mg/kg)		549	471	502	486	532
	Beryllium (Be) (mg/kg)		0.59	0.40	0.39	0.46	0.41
	Bismuth (Bi) (mg/kg)		7.02	7.98	7.58	8.83	7.18
	Boron (B) (mg/kg)		241	222	277	256	202
	Cadmium (Cd) (mg/kg)		11.2	12.7	9.87	15.6	8.15
	Calcium (Ca) (mg/kg)		132000	121000	112000	133000	115000
	Chromium (Cr) (mg/kg)		152	146	122	145	126
	Cobalt (Co) (mg/kg)		56.7	32.2	32.9	41.9	52.6
	Copper (Cu) (mg/kg)		2490	1570	3410	7240	3150
	Iron (Fe) (mg/kg)		62800	47700	57500	53400	49700
	Lead (Pb) (mg/kg)		516	1810	318	740	681
	Lithium (Li) (mg/kg)		20.0	23.4	19.0	22.3	22.8
	Magnesium (Mg) (mg/kg)		11000	12600	9610	12400	13300
	Manganese (Mn) (mg/kg)		2630	874	845	902	615
	Mercury (Hg) (mg/kg)		0.209	<0.050	<0.050	0.071	<0.050
	Molybdenum (Mo) (mg/kg)		69.7	79.9	40.1	43.3	37.9
	Nickel (Ni) (mg/kg)		108	117	105	191	140
	Phosphorus (P) (mg/kg)		13100	12800	11400	12300	10200
	Potassium (K) (mg/kg)		6420	6350	5370	5770	5330
	Selenium (Se) (mg/kg)		0.31	0.34	0.26	0.25	0.28
	Silver (Ag) (mg/kg)		6.03	5.02	5.68	4.87	5.52
	Sodium (Na) (mg/kg)		17800	17200	15800	16600	15400
	Strontium (Sr) (mg/kg)		335	320	283	317	268
	Sulfur (S) (mg/kg)		14100	14100	12200	14000	12200
Thallium (Tl) (mg/kg)		<0.050	0.195	<0.050	0.053	<0.050	
Tin (Sn) (mg/kg)		108	110	73.0	103	73.8	
Titanium (Ti) (mg/kg)		780	866	1590	842	1350	
Tungsten (W) (mg/kg)		10.9	11.3	13.6	7.15	4.90	
Uranium (U) (mg/kg)		5.16	5.33	4.49	5.10	4.19	
Vanadium (V) (mg/kg)		65.6	66.8	53.9	227	52.8	
Zinc (Zn) (mg/kg)		3860	10800	3070	4310	3570	
Zirconium (Zr) (mg/kg)		2.1	2.5	5.8	2.5	5.0	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

11-OCT-19 13:16 (MT)

Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID	L2354297-6 Soil 18-SEP-19 09:00 BA1938-A-6	L2354297-7 Soil 18-SEP-19 09:00 BA1938-A-7	L2354297-8 Soil 18-SEP-19 09:00 BA1938-A-8	L2354297-9 Soil 18-SEP-19 09:00 BA1938-A-9	L2354297-10 Soil 18-SEP-19 09:00 BA1938-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	24.2	23.2	26.5	23.5	23.8
	pH (1:2 soil:water) (pH)	10.00	10.06	9.96	10.07	10.11
Metals	Aluminum (Al) (mg/kg)	39400	41500	35100	35900	35700
	Antimony (Sb) (mg/kg)	107	97.9	133	107	147
	Arsenic (As) (mg/kg)	31.7	27.7	37.6	32.7	39.3
	Barium (Ba) (mg/kg)	532	537	476	519	407
	Beryllium (Be) (mg/kg)	0.42	0.37	0.41	0.39	0.45
	Bismuth (Bi) (mg/kg)	13.9	7.22	11.5	9.87	10.7
	Boron (B) (mg/kg)	255	257	198	265	297
	Cadmium (Cd) (mg/kg)	12.5	9.91	15.3	9.70	17.5
	Calcium (Ca) (mg/kg)	127000	118000	120000	126000	144000
	Chromium (Cr) (mg/kg)	363	126	165	138	178
	Cobalt (Co) (mg/kg)	42.1	58.2	66.8	37.3	51.8
	Copper (Cu) (mg/kg)	2580	2050	1640	1230	2010
	Iron (Fe) (mg/kg)	66300	63400	70000	54000	44700
	Lead (Pb) (mg/kg)	1110	320	412	517	1470
	Lithium (Li) (mg/kg)	21.6	21.5	24.6	22.4	25.3
	Magnesium (Mg) (mg/kg)	12700	11200	13200	13200	12900
	Manganese (Mn) (mg/kg)	808	819	855	699	726
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	0.156	<0.050
	Molybdenum (Mo) (mg/kg)	97.3	72.6	45.2	55.7	83.3
	Nickel (Ni) (mg/kg)	377	166	128	121	204
	Phosphorus (P) (mg/kg)	11800	12200	11200	12600	13700
	Potassium (K) (mg/kg)	5920	5730	5530	5650	6440
	Selenium (Se) (mg/kg)	0.38	0.29	0.32	0.29	0.42
	Silver (Ag) (mg/kg)	6.85	3.32	3.69	4.08	6.21
	Sodium (Na) (mg/kg)	16000	16200	15500	17000	17000
	Strontium (Sr) (mg/kg)	316	287	323	307	439
	Sulfur (S) (mg/kg)	13500	13000	16700	13500	17000
	Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	0.051	0.058
	Tin (Sn) (mg/kg)	96.9	85.5	119	90.8	112
	Titanium (Ti) (mg/kg)	1170	623	929	467	643
	Tungsten (W) (mg/kg)	7.46	6.95	11.1	7.58	10.6
	Uranium (U) (mg/kg)	4.87	4.65	4.69	5.04	6.63
	Vanadium (V) (mg/kg)	81.4	60.9	61.9	67.1	78.6
	Zinc (Zn) (mg/kg)	4930	3590	4410	4830	5610
	Zirconium (Zr) (mg/kg)	2.6	2.3	1.6	1.9	2.5

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ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2354297-11	L2354297-12	L2354297-13	L2354297-14	L2354297-15
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	18-SEP-19	18-SEP-19			
		Sampled Time	09:00	09:00			
		Client ID	BA1938-A-11	BA1938-A-12	BA1938-A-1 REP 1	BA1938-A-1 REP 2	BA1938-A-1 REP 3
Grouping	Analyte						
SOIL							
Physical Tests	Moisture (%)		24.2	23.5			
	pH (1:2 soil:water) (pH)		9.94	9.94			
Metals	Aluminum (Al) (mg/kg)		39300	35200			
	Antimony (Sb) (mg/kg)		140	119			
	Arsenic (As) (mg/kg)		37.9	49.0			
	Barium (Ba) (mg/kg)		409	387			
	Beryllium (Be) (mg/kg)		0.42	0.49			
	Bismuth (Bi) (mg/kg)		12.4	6.93			
	Boron (B) (mg/kg)		213	227			
	Cadmium (Cd) (mg/kg)		13.3	10.7			
	Calcium (Ca) (mg/kg)		129000	115000			
	Chromium (Cr) (mg/kg)		219	143			
	Cobalt (Co) (mg/kg)		154	55.2			
	Copper (Cu) (mg/kg)		5050	2600			
	Iron (Fe) (mg/kg)		53400	104000			
	Lead (Pb) (mg/kg)		680	354			
	Lithium (Li) (mg/kg)		24.6	26.6			
	Magnesium (Mg) (mg/kg)		11600	10800			
	Manganese (Mn) (mg/kg)		1020	952			
	Mercury (Hg) (mg/kg)		<0.050	<0.050			
	Molybdenum (Mo) (mg/kg)		65.2	52.1			
	Nickel (Ni) (mg/kg)		261	201			
	Phosphorus (P) (mg/kg)		11100	9330			
	Potassium (K) (mg/kg)		6120	5460			
	Selenium (Se) (mg/kg)		0.30	0.40			
	Silver (Ag) (mg/kg)		4.71	5.60			
	Sodium (Na) (mg/kg)		16800	14600			
	Strontium (Sr) (mg/kg)		333	373			
	Sulfur (S) (mg/kg)		14900	13300			
	Thallium (Tl) (mg/kg)		0.051	<0.050			
Tin (Sn) (mg/kg)		113	103				
Titanium (Ti) (mg/kg)		532	663				
Tungsten (W) (mg/kg)		11.8	8.41				
Uranium (U) (mg/kg)		5.35	4.71				
Vanadium (V) (mg/kg)		106	66.1				
Zinc (Zn) (mg/kg)		5810	4220				
Zirconium (Zr) (mg/kg)		3.1	2.3				

* 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			
	L2354297-16 Soil BA1938-A-1 REP 4			
Grouping	Analyte			
SOIL				
Physical Tests	Moisture (%) pH (1:2 soil:water) (pH)			
Metals	Aluminum (Al) (mg/kg) Antimony (Sb) (mg/kg) Arsenic (As) (mg/kg) Barium (Ba) (mg/kg) Beryllium (Be) (mg/kg) Bismuth (Bi) (mg/kg) Boron (B) (mg/kg) Cadmium (Cd) (mg/kg) Calcium (Ca) (mg/kg) Chromium (Cr) (mg/kg) Cobalt (Co) (mg/kg) Copper (Cu) (mg/kg) Iron (Fe) (mg/kg) Lead (Pb) (mg/kg) Lithium (Li) (mg/kg) Magnesium (Mg) (mg/kg) Manganese (Mn) (mg/kg) Mercury (Hg) (mg/kg) Molybdenum (Mo) (mg/kg) Nickel (Ni) (mg/kg) Phosphorus (P) (mg/kg) Potassium (K) (mg/kg) Selenium (Se) (mg/kg) Silver (Ag) (mg/kg) Sodium (Na) (mg/kg) Strontium (Sr) (mg/kg) Sulfur (S) (mg/kg) Thallium (Tl) (mg/kg) Tin (Sn) (mg/kg) Titanium (Ti) (mg/kg) Tungsten (W) (mg/kg) Uranium (U) (mg/kg) Vanadium (V) (mg/kg) Zinc (Zn) (mg/kg) Zirconium (Zr) (mg/kg)			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2354297-1	L2354297-2	L2354297-3	L2354297-4	L2354297-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1938-A-1	BA1938-A-2	BA1938-A-3	BA1938-A-4	BA1938-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.02	11.15	11.12	11.14	11.10
	2nd Preliminary pH (pH)		6.92	7.98	8.18	8.35	8.60
	Final pH (pH)		5.96	6.15	6.04	6.07	6.07
	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)		2.22	2.16	2.39	2.31	2.11
	Cadmium (Cd)-Leachable (mg/L)		0.165	0.181	0.179	0.165	0.232
	Calcium (Ca)-Leachable (mg/L)		1710	1660	1830	1800	1730
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.579	0.471	1.06	0.634	0.787
	Copper (Cu)-Leachable (mg/L)		1.62	1.24	1.07	1.02	1.66
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		13.9	<0.25	<0.25	<0.25	0.31
	Magnesium (Mg)-Leachable (mg/L)		121	117	126	119	124
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.66	0.41	1.01	0.44	0.45
	Selenium (Se)-Leachable (mg/L)		<0.10	<0.10	<0.10	<0.10	<0.10
	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)		66.9	60.4	56.4	48.6	66.5

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2354297-6	L2354297-7	L2354297-8	L2354297-9	L2354297-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19	18-SEP-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1938-A-6	BA1938-A-7	BA1938-A-8	BA1938-A-9	BA1938-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.12	11.05	11.08	11.20	11.12
	2nd Preliminary pH (pH)		8.55	7.59	7.26	8.26	7.20
	Final pH (pH)		6.12	6.04	6.10	6.12	6.03
	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)		2.32	2.42	2.31	2.51	2.31
	Cadmium (Cd)-Leachable (mg/L)		0.188	0.186	0.209	0.272	0.162
	Calcium (Ca)-Leachable (mg/L)		1750	1750	1800	1790	1720
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.484	0.922	0.394	0.417	0.761
	Copper (Cu)-Leachable (mg/L)		1.80	1.46	0.896	1.40	1.18
	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	0.32
	Magnesium (Mg)-Leachable (mg/L)		120	118	122	130	118
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.72	0.49	0.53	0.45	0.47
	Selenium (Se)-Leachable (mg/L)		<0.10	<0.10	<0.10	<0.10	<0.10
	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)		53.3	61.0	59.5	53.3	54.4

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2354297-11	L2354297-12	L2354297-13	L2354297-14	L2354297-15
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	18-SEP-19	18-SEP-19			
		Sampled Time	09:00	09:00			
		Client ID	BA1938-A-11	BA1938-A-12	BA1938-A-1 REP 1	BA1938-A-1 REP 2	BA1938-A-1 REP 3
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.07	11.14			
	2nd Preliminary pH (pH)		7.68	7.32			
	Final pH (pH)		5.93	6.15			
	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)		2.34	2.46			
	Cadmium (Cd)-Leachable (mg/L)		0.236	0.171			
	Calcium (Ca)-Leachable (mg/L)		1700	1820			
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25			
	Cobalt (Co)-Leachable (mg/L)		0.978	2.23			
	Copper (Cu)-Leachable (mg/L)		0.706	1.18			
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0			
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		114	125			
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010			
	Nickel (Ni)-Leachable (mg/L)		0.71	0.45			
	Selenium (Se)-Leachable (mg/L)		<0.10	<0.10			
	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)		46.9	40.2			

* 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)
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2354297-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2354297-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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**
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, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H ₂ S) may be excluded if lost during sampling, storage, or digestion.			
MET-TCLP-CCMS-VA	Soil	Metals by ICPMS (TCLP)	EPA 1311/6020A
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. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).			
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 "pH, Electrometric in Soil and Sediment - Prescriptive Method", Rev. 2005, Section B Physical, Inorganic and Misc. Constituents, BC Environmental Laboratory Manual. 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

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.



City



L2354297-COFC

COC #

Page ___ of ___

Report To		Report		Service Requested (Rush for routine analysis subject to availability)	
Company:	Covanta Energy	<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)		
Contact:	Steve McKinney / Dan Skrypnyk	<input checked="" type="checkbox"/> PDF	<input type="checkbox"/> Excel	<input type="checkbox"/> Digital	<input type="checkbox"/> Fax
Address:	5150 Riverbend Drive Burnaby BC	Email 1:	smckinney@covanta.com	<input type="checkbox"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	
Phone:	604-521-1025	Email 2:	johnson4@covanta.com	<input type="checkbox"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	Email 3:	dskrpnyk@covanta.com	<input type="checkbox"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
			brent.kirkpatrick@metrovancover.org	Analysis Request	
			Sarah.Wellman@metrovancover.org		

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

Lab Work Order # (lab use only)		ALS Contact:	Sampler:												
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)					Number of Containers		
BA1938-A-1		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-2		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-3		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-4		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-5		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-6		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-7		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-8		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-9		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-10		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-11		18-Sep-19	9:00	Soil	X	X		X						1	
BA1938-A-12		18-Sep-19	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-mm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
<i>[Signature]</i>	25-SEP-19	0800	<i>[Signature]</i>	25	11:35am	20 °C				