

Bottom Ash Data

2019 Week 14

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on April 18, 2019. The data represents bottom ash composite results for week 14 of 2019 (March 31, 2019 to April 6, 2019).

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.



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Date Received: 09-APR-19
Report Date: 17-APR-19 15:24 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2255500
Project P.O. #: VANCO-0000048466
Job Reference:
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L2255500-1 Soil 03-APR-19 09:00 BA1914-A-1	L2255500-2 Soil 03-APR-19 09:00 BA1914-A-2	L2255500-3 Soil 03-APR-19 09:00 BA1914-A-3	L2255500-4 Soil 03-APR-19 09:00 BA1914-A-4	L2255500-5 Soil 03-APR-19 09:00 BA1914-A-5	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.4	22.0	21.6	21.6	22.2
	pH (1:2 soil:water) (pH)	10.20	10.38	10.34	10.33	10.34
Metals	Aluminum (Al) (mg/kg)	38900	32700	33800	52200	42000
	Antimony (Sb) (mg/kg)	115	169	126	119	141
	Arsenic (As) (mg/kg)	34.5	32.1	31.5	30.7	32.4
	Barium (Ba) (mg/kg)	743	680	656	698	763
	Beryllium (Be) (mg/kg)	0.46	0.44	0.42	0.47	0.43
	Bismuth (Bi) (mg/kg)	28.7	17.5	13.3	29.5	16.5
	Boron (B) (mg/kg)	212	234	232	209	298
	Cadmium (Cd) (mg/kg)	14.1	11.1	13.4	12.8	28.1
	Calcium (Ca) (mg/kg)	145000	127000	139000	140000	144000
	Chromium (Cr) (mg/kg)	570	171	152	195	216
	Cobalt (Co) (mg/kg)	187	27.7	51.7	23.4	32.9
	Copper (Cu) (mg/kg)	5170	1750	1750	1510	2210
	Iron (Fe) (mg/kg)	78300	61500	42400	79100	72300
	Lead (Pb) (mg/kg)	551	2820	914	602	615
	Lithium (Li) (mg/kg)	24.4	18.0	19.6	21.1	20.3
	Magnesium (Mg) (mg/kg)	12500	11100	11800	11800	11600
	Manganese (Mn) (mg/kg)	1050	1090	859	971	975
	Mercury (Hg) (mg/kg)	0.073	<0.050	0.055	0.052	<0.050
	Molybdenum (Mo) (mg/kg)	112	28.3	37.4	47.5	32.4
	Nickel (Ni) (mg/kg)	642	167	150	212	444
	Phosphorus (P) (mg/kg)	12600	12700	12200	12100	13000
	Potassium (K) (mg/kg)	6460	5880	6220	6710	6710
	Selenium (Se) (mg/kg)	0.49	0.42	0.53	0.41	0.48
	Silver (Ag) (mg/kg)	4.40	5.14	6.79	3.96	5.88
	Sodium (Na) (mg/kg)	18400	16800	17700	18800	18300
	Strontium (Sr) (mg/kg)	349	295	325	383	352
	Sulfur (S) (mg/kg)	14100	11800	13000	14500	14600
	Thallium (Tl) (mg/kg)	0.089	0.084	0.077	0.091	0.098
	Tin (Sn) (mg/kg)	157	168	94.4	110	150
	Titanium (Ti) (mg/kg)	965	890	725	1230	941
	Tungsten (W) (mg/kg)	12.0	15.6	15.2	13.1	16.3
	Uranium (U) (mg/kg)	6.29	5.61	5.90	6.29	6.49
	Vanadium (V) (mg/kg)	64.4	61.7	59.5	68.7	63.9
	Zinc (Zn) (mg/kg)	4400	6290	4430	3730	5020
	Zirconium (Zr) (mg/kg)	1.4	1.2	1.4	2.2	1.5

* 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	L2255500-6 Soil 03-APR-19 09:00 BA1914-A-6	L2255500-7 Soil 03-APR-19 09:00 BA1914-A-7	L2255500-8 Soil 03-APR-19 09:00 BA1914-A-8	L2255500-9 Soil 03-APR-19 09:00 BA1914-A-9	L2255500-10 Soil 03-APR-19 09:00 BA1914-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	22.1	23.1	21.1	20.8	22.1
	pH (1:2 soil:water) (pH)	10.46	10.37	10.25	10.29	10.64
Metals	Aluminum (Al) (mg/kg)	32900	39400	39100	49600	36200
	Antimony (Sb) (mg/kg)	98.8	118	141	111	132
	Arsenic (As) (mg/kg)	30.8	29.4	30.4	31.7	33.2
	Barium (Ba) (mg/kg)	589	710	707	726	741
	Beryllium (Be) (mg/kg)	0.38	0.43	0.46	0.39	0.43
	Bismuth (Bi) (mg/kg)	20.6	15.3	14.2	13.9	18.4
	Boron (B) (mg/kg)	267	189	262	248	212
	Cadmium (Cd) (mg/kg)	11.4	12.5	13.3	11.0	14.9
	Calcium (Ca) (mg/kg)	117000	131000	141000	126000	136000
	Chromium (Cr) (mg/kg)	170	165	179	152	198
	Cobalt (Co) (mg/kg)	28.2	271	386	72.7	108
	Copper (Cu) (mg/kg)	1620	1850	1870	2000	3730
	Iron (Fe) (mg/kg)	63400	69600	64700	74200	73500
	Lead (Pb) (mg/kg)	465	399	1270	1410	3230
	Lithium (Li) (mg/kg)	16.8	61.8	20.4	20.0	18.9
	Magnesium (Mg) (mg/kg)	10300	12600	10900	10700	11000
	Manganese (Mn) (mg/kg)	753	1100	1360	1010	917
	Mercury (Hg) (mg/kg)	0.059	0.132	0.053	<0.050	0.102
	Molybdenum (Mo) (mg/kg)	30.1	39.5	52.4	29.2	37.7
	Nickel (Ni) (mg/kg)	352	543	223	142	293
	Phosphorus (P) (mg/kg)	9840	13000	13600	13400	12300
	Potassium (K) (mg/kg)	5470	6140	6470	5810	5930
	Selenium (Se) (mg/kg)	0.50	0.49	0.34	0.48	0.57
	Silver (Ag) (mg/kg)	5.67	5.36	4.56	13.9	4.66
	Sodium (Na) (mg/kg)	15500	17700	17800	17200	17100
	Strontium (Sr) (mg/kg)	272	295	347	326	319
	Sulfur (S) (mg/kg)	12000	13000	12700	13100	13600
	Thallium (Tl) (mg/kg)	0.082	0.102	0.086	0.089	0.114
	Tin (Sn) (mg/kg)	122	120	132	103	189
	Titanium (Ti) (mg/kg)	807	886	630	1160	807
	Tungsten (W) (mg/kg)	19.2	14.2	12.4	13.5	15.6
	Uranium (U) (mg/kg)	5.11	6.08	5.92	5.89	6.20
	Vanadium (V) (mg/kg)	54.1	81.4	66.0	61.3	72.1
	Zinc (Zn) (mg/kg)	8290	3950	3920	3200	4910
	Zirconium (Zr) (mg/kg)	1.1	1.4	1.4	2.2	1.4

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2255500-11	L2255500-12		
		Description	Soil	Soil		
		Sampled Date	03-APR-19	03-APR-19		
		Sampled Time	09:00	09:00		
		Client ID	BA1914-A-11	BA1914-A-12		
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	23.3	22.0			
	pH (1:2 soil:water) (pH)	10.50	10.40			
Metals	Aluminum (Al) (mg/kg)	30400	38800			
	Antimony (Sb) (mg/kg)	111	118			
	Arsenic (As) (mg/kg)	28.6	29.8			
	Barium (Ba) (mg/kg)	607	627			
	Beryllium (Be) (mg/kg)	0.38	0.39			
	Bismuth (Bi) (mg/kg)	14.4	15.5			
	Boron (B) (mg/kg)	229	201			
	Cadmium (Cd) (mg/kg)	13.9	11.9			
	Calcium (Ca) (mg/kg)	127000	124000			
	Chromium (Cr) (mg/kg)	169	157			
	Cobalt (Co) (mg/kg)	95.0	42.2			
	Copper (Cu) (mg/kg)	3380	2210			
	Iron (Fe) (mg/kg)	66400	64600			
	Lead (Pb) (mg/kg)	692	329			
	Lithium (Li) (mg/kg)	17.2	19.3			
	Magnesium (Mg) (mg/kg)	10900	10000			
	Manganese (Mn) (mg/kg)	784	780			
	Mercury (Hg) (mg/kg)	0.091	<0.050			
	Molybdenum (Mo) (mg/kg)	33.0	34.5			
	Nickel (Ni) (mg/kg)	210	706			
	Phosphorus (P) (mg/kg)	11200	11800			
	Potassium (K) (mg/kg)	5810	5320			
	Selenium (Se) (mg/kg)	0.53	0.45			
	Silver (Ag) (mg/kg)	5.09	4.40			
	Sodium (Na) (mg/kg)	16200	16100			
	Strontium (Sr) (mg/kg)	304	434			
	Sulfur (S) (mg/kg)	12200	12600			
	Thallium (Tl) (mg/kg)	0.083	0.078			
	Tin (Sn) (mg/kg)	157	114			
	Titanium (Ti) (mg/kg)	731	715			
	Tungsten (W) (mg/kg)	9.58	11.1			
	Uranium (U) (mg/kg)	5.48	5.32			
Vanadium (V) (mg/kg)	59.7	60.8				
Zinc (Zn) (mg/kg)	5470	3120				
Zirconium (Zr) (mg/kg)	1.1	1.5				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2255500-1	L2255500-2	L2255500-3	L2255500-4	L2255500-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	03-APR-19	03-APR-19	03-APR-19	03-APR-19	03-APR-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1914-A-1	BA1914-A-2	BA1914-A-3	BA1914-A-4	BA1914-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.16	11.17	11.22	11.19	11.22
	2nd Preliminary pH (pH)		9.00	9.00	9.09	8.98	9.01
	Final pH (pH)		6.18	5.87	5.96	6.05	5.94
	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)		2.36	2.00	2.13	2.16	2.20
	Cadmium (Cd)-Leachable (mg/L)		0.242	0.232	0.208	0.208	0.197
	Calcium (Ca)-Leachable (mg/L)		2040	1860	1970	2010	2130
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.978	0.419	0.999	0.672	0.798
	Copper (Cu)-Leachable (mg/L)		0.601	1.02	1.02	0.909	0.786
	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)		121	114	115	122	118
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.47	0.55	0.83	0.55	0.62
	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)		43.6	41.2	52.1	44.7	53.7

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2255500-6	L2255500-7	L2255500-8	L2255500-9	L2255500-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	03-APR-19	03-APR-19	03-APR-19	03-APR-19	03-APR-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1914-A-6	BA1914-A-7	BA1914-A-8	BA1914-A-9	BA1914-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)	11.23	11.22	11.25	11.28	11.24	
	2nd Preliminary pH (pH)	9.02	9.03	9.11	9.16	9.12	
	Final pH (pH)	5.94	6.05	5.98	5.92	5.95	
	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)	2.33	2.17	2.22	2.23	2.34	
	Cadmium (Cd)-Leachable (mg/L)	0.218	0.213	0.206	0.252	0.205	
	Calcium (Ca)-Leachable (mg/L)	2040	2050	1990	1990	2120	
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25	
	Cobalt (Co)-Leachable (mg/L)	0.694	0.909	0.877	0.491	0.777	
	Copper (Cu)-Leachable (mg/L)	0.838	1.19	1.85	0.953	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	<0.25	
	Magnesium (Mg)-Leachable (mg/L)	120	125	117	116	120	
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Leachable (mg/L)	0.87	0.53	0.62	0.65	0.59	
	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)	54.4	37.8	74.2	51.9	40.6	

* 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	L2255500-11 Soil 03-APR-19 09:00 BA1914-A-11	L2255500-12 Soil 03-APR-19 09:00 BA1914-A-12		
Grouping	Analyte				
SOIL					
TCLP Metals	1st Preliminary pH (pH)	11.23	11.21		
	2nd Preliminary pH (pH)	9.25	9.12		
	Final pH (pH)	5.85	5.71		
	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)	2.13	2.12		
	Cadmium (Cd)-Leachable (mg/L)	0.249	0.211		
	Calcium (Ca)-Leachable (mg/L)	1920	1930		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.585	0.468		
	Copper (Cu)-Leachable (mg/L)	0.894	0.985		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	113	113		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	1.04	0.54		
	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)	69.7	55.3		

* 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	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cobalt (Co)	DUP-H	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)	DUP-H	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nickel (Ni)	DUP-H	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tin (Sn)	DUP-H	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2255500-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2255500-1, -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.
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 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.	EPA 200.2/6020A
HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS 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.	EPA 200.2/1631E (mod)
HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP) 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).	EPA 1311/245.7
MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS 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.	EPA 200.2/6020A (mod)
MET-TCLP-CCMS-VA	Soil	Metals by ICPMS (TCLP) 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).	EPA 1311/6020A
MOISTURE-VA	Soil	Moisture content This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.	CCME PHC in Soil - Tier 1 (mod)
PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction) 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.	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

** 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.



Chain of Custody / Analytical Request For
 Canada Toll Free: 1 800 668 9878
 www.alsglobal.com



L2255500-COFC

_____ of _____

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

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
BA1914-A-1		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-2		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-3		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-4		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-5		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-6		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-7		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-8		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-9		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-10		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-11		03-Apr-19	9:00	Soil	X	X		X	1
BA1914-A-12		03-Apr-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-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:
<i>[Signature]</i>	9-Apr-19	07:00	BC	4/9/19	11:55	22 °C				Yes / No ? If Yes add SIF