

Bottom Ash Data

2019 Week 5

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on February 11, 2019. The data represents bottom ash composite results for week 5 of 2019 (January 27, 2019 to February 2, 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: 05-FEB-19
Report Date: 11-FEB-19 13:33 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2228700
Project P.O. #: VANCO-0000048466
Job Reference:
C of C Numbers:
Legal Site Desc: (Includes 2:1 pH)

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L2228700-1 Soil 30-JAN-19 09:00 BA1905-A-1	L2228700-2 Soil 30-JAN-19 09:00 BA1905-A-2	L2228700-3 Soil 30-JAN-19 09:00 BA1905-A-3	L2228700-4 Soil 30-JAN-19 09:00 BA1905-A-4	L2228700-5 Soil 30-JAN-19 09:00 BA1905-A-5	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	20.4	21.4	22.0	20.9	22.0
	pH (1:2 soil:water) (pH)	10.88	11.09	11.01	11.24	10.77
Metals	Aluminum (Al) (mg/kg)	32600	44000	55300	47000	40700
	Antimony (Sb) (mg/kg)	151	136	173	389	156
	Arsenic (As) (mg/kg)	27.4	25.2	25.3	29.8	27.9
	Barium (Ba) (mg/kg)	447	414	509	505	536
	Beryllium (Be) (mg/kg)	0.44	0.38	0.41	0.42	0.43
	Bismuth (Bi) (mg/kg)	7.87	8.03	7.94	7.13	6.59
	Boron (B) (mg/kg)	281	625	282	250	256
	Cadmium (Cd) (mg/kg)	15.6	14.7	13.8	15.3	27.5
	Calcium (Ca) (mg/kg)	118000	119000	121000	118000	124000
	Chromium (Cr) (mg/kg)	808	124	172	119	137
	Cobalt (Co) (mg/kg)	140	106	31.1	69.0	43.6
	Copper (Cu) (mg/kg)	4510	2450	2290	6430	9960
	Iron (Fe) (mg/kg)	59500	62700	52000	63800	62800
	Lead (Pb) (mg/kg)	802	1010	1770	3080	1340
	Lithium (Li) (mg/kg)	20.9	18.3	17.2	22.1	17.9
	Magnesium (Mg) (mg/kg)	11100	12000	10300	10800	12900
	Manganese (Mn) (mg/kg)	920	824	923	763	845
	Mercury (Hg) (mg/kg)	0.051	0.054	<0.050	<0.050	0.140
	Molybdenum (Mo) (mg/kg)	68.7	49.1	93.8	45.0	53.0
	Nickel (Ni) (mg/kg)	355	113	91.5	224	279
	Phosphorus (P) (mg/kg)	8640	9770	9160	9290	8500
	Potassium (K) (mg/kg)	5570	6220	5740	5690	5790
	Selenium (Se) (mg/kg)	0.54	0.95	0.60	0.52	0.65
	Silver (Ag) (mg/kg)	7.14	5.37	6.64	6.32	7.18
	Sodium (Na) (mg/kg)	15400	16500	14900	15100	14400
	Strontium (Sr) (mg/kg)	265	272	344	281	297
	Sulfur (S) (mg/kg)	16300	17300	14700	16000	16600
	Thallium (Tl) (mg/kg)	0.088	0.092	0.085	0.088	0.100
	Tin (Sn) (mg/kg)	146	121	118	141	130
	Titanium (Ti) (mg/kg)	774	825	1590	1520	1280
	Tungsten (W) (mg/kg)	9.73	10.3	9.24	6.89	10.2
	Uranium (U) (mg/kg)	4.24	4.24	4.16	4.58	4.58
	Vanadium (V) (mg/kg)	55.1	50.9	45.4	52.2	49.9
	Zinc (Zn) (mg/kg)	4640	8400	5410	3750	5310
	Zirconium (Zr) (mg/kg)	1.3	2.0	3.9	2.6	1.6

* 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	L2228700-6 Soil 30-JAN-19 09:00 BA1905-A-6	L2228700-7 Soil 30-JAN-19 09:00 BA1905-A-7	L2228700-8 Soil 30-JAN-19 09:00 BA1905-A-8	L2228700-9 Soil 30-JAN-19 09:00 BA1905-A-9	L2228700-10 Soil 30-JAN-19 09:00 BA1905-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	20.2	22.3	21.4	21.3	22.0
	pH (1:2 soil:water) (pH)	10.93	11.00	11.04	10.95	11.04
Metals	Aluminum (Al) (mg/kg)	33200	43000	40100	41500	28800
	Antimony (Sb) (mg/kg)	132	154	180	151	137
	Arsenic (As) (mg/kg)	21.7	37.5	40.5	24.4	33.1
	Barium (Ba) (mg/kg)	488	527	471	552	515
	Beryllium (Be) (mg/kg)	0.43	0.41	0.41	0.43	0.37
	Bismuth (Bi) (mg/kg)	11.6	6.77	8.08	8.23	5.96
	Boron (B) (mg/kg)	328	320	238	244	312
	Cadmium (Cd) (mg/kg)	14.2	15.5	17.1	14.2	14.4
	Calcium (Ca) (mg/kg)	111000	121000	120000	129000	115000
	Chromium (Cr) (mg/kg)	126	146	150	201	125
	Cobalt (Co) (mg/kg)	77.6	30.6	25.3	36.4	38.0
	Copper (Cu) (mg/kg)	35400	17500	2430	2810	9160
	Iron (Fe) (mg/kg)	72600	51800	59200	62700	74800
	Lead (Pb) (mg/kg)	724	770	691	799	693
	Lithium (Li) (mg/kg)	26.3	20.0	17.2	18.8	18.0
	Magnesium (Mg) (mg/kg)	10300	11300	11700	12600	11400
	Manganese (Mn) (mg/kg)	960	854	741	845	959
	Mercury (Hg) (mg/kg)	<0.050	0.077	0.071	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	45.4	85.5	180	52.4	39.9
	Nickel (Ni) (mg/kg)	121	151	131	137	174
	Phosphorus (P) (mg/kg)	8110	9050	8660	9430	9000
	Potassium (K) (mg/kg)	6130	6680	6180	6460	5680
	Selenium (Se) (mg/kg)	0.60	0.55	0.65	0.49	0.62
	Silver (Ag) (mg/kg)	4.68	7.47	8.10	4.41	5.69
	Sodium (Na) (mg/kg)	15500	15900	16000	16500	15100
	Strontium (Sr) (mg/kg)	284	291	327	329	277
	Sulfur (S) (mg/kg)	15600	16300	17000	16000	14900
	Thallium (Tl) (mg/kg)	0.118	0.136	0.098	0.090	0.086
	Tin (Sn) (mg/kg)	135	127	144	142	140
	Titanium (Ti) (mg/kg)	957	922	981	1360	1270
	Tungsten (W) (mg/kg)	7.18	7.75	24.1	9.59	9.84
	Uranium (U) (mg/kg)	4.16	4.66	4.71	4.80	4.38
	Vanadium (V) (mg/kg)	45.3	50.3	51.8	54.9	49.2
	Zinc (Zn) (mg/kg)	15800	13800	28200	3940	7380
	Zirconium (Zr) (mg/kg)	1.5	1.4	2.0	1.6	1.4

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2228700-11	L2228700-12		
		Description	Soil	Soil		
		Sampled Date	30-JAN-19	30-JAN-19		
		Sampled Time	09:00	09:00		
		Client ID	BA1905-A-11	BA1905-A-12		
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.4	21.9			
	pH (1:2 soil:water) (pH)	11.13	10.80			
Metals	Aluminum (Al) (mg/kg)	32900	32800			
	Antimony (Sb) (mg/kg)	195	162			
	Arsenic (As) (mg/kg)	64.1	27.9			
	Barium (Ba) (mg/kg)	573	488			
	Beryllium (Be) (mg/kg)	0.47	0.49			
	Bismuth (Bi) (mg/kg)	7.37	7.89			
	Boron (B) (mg/kg)	296	271			
	Cadmium (Cd) (mg/kg)	14.2	17.1			
	Calcium (Ca) (mg/kg)	129000	136000			
	Chromium (Cr) (mg/kg)	1160	137			
	Cobalt (Co) (mg/kg)	37.8	26.1			
	Copper (Cu) (mg/kg)	9860	1710			
	Iron (Fe) (mg/kg)	89000	45300			
	Lead (Pb) (mg/kg)	2160	1070			
	Lithium (Li) (mg/kg)	16.3	18.1			
	Magnesium (Mg) (mg/kg)	10400	11300			
	Manganese (Mn) (mg/kg)	5530	1010			
	Mercury (Hg) (mg/kg)	<0.050	<0.050			
	Molybdenum (Mo) (mg/kg)	72.7	51.7			
	Nickel (Ni) (mg/kg)	417	154			
	Phosphorus (P) (mg/kg)	10500	11800			
	Potassium (K) (mg/kg)	5820	7000			
	Selenium (Se) (mg/kg)	0.63	0.62			
	Silver (Ag) (mg/kg)	4.84	17.6			
	Sodium (Na) (mg/kg)	16200	16400			
	Strontium (Sr) (mg/kg)	293	322			
	Sulfur (S) (mg/kg)	15300	17400			
	Thallium (Tl) (mg/kg)	0.084	0.106			
	Tin (Sn) (mg/kg)	139	141			
	Titanium (Ti) (mg/kg)	1080	672			
	Tungsten (W) (mg/kg)	13.1	16.1			
	Uranium (U) (mg/kg)	4.70	4.84			
Vanadium (V) (mg/kg)	62.0	53.2				
Zinc (Zn) (mg/kg)	5580	15300				
Zirconium (Zr) (mg/kg)	1.5	1.4				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2228700-1	L2228700-2	L2228700-3	L2228700-4	L2228700-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	30-JAN-19	30-JAN-19	30-JAN-19	30-JAN-19	30-JAN-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1905-A-1	BA1905-A-2	BA1905-A-3	BA1905-A-4	BA1905-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.48	11.46	11.50	11.63	11.45
	2nd Preliminary pH (pH)		9.77	9.55	9.64	9.46	9.39
	Final pH (pH)		6.08	5.95	5.99	6.14	5.99
	Extraction Solution Initial pH (pH)		2.88	2.88	2.88	2.88	2.88
	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)		4.04	3.41	3.34	3.59	3.54
	Cadmium (Cd)-Leachable (mg/L)		0.242	0.231	0.309	0.281	0.264
	Calcium (Ca)-Leachable (mg/L)		1960	1990	1890	1980	1920
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.609	0.683	0.395	0.770	0.403
	Copper (Cu)-Leachable (mg/L)		0.761	0.273	1.12	1.43	0.705
	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	0.29
	Magnesium (Mg)-Leachable (mg/L)		136	129	128	133	128
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.50	0.69	0.73	0.60	0.81
	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)		50.5	42.7	51.2	51.7	43.8

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2228700-6	L2228700-7	L2228700-8	L2228700-9	L2228700-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	30-JAN-19	30-JAN-19	30-JAN-19	30-JAN-19	30-JAN-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1905-A-6	BA1905-A-7	BA1905-A-8	BA1905-A-9	BA1905-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.54	11.57	11.60	11.52	11.57
	2nd Preliminary pH (pH)		9.20	9.58	9.45	9.14	9.34
	Final pH (pH)		6.09	5.97	6.12	6.05	6.10
	Extraction Solution Initial pH (pH)		2.88	2.88	2.88	2.88	2.88
	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)		3.61	3.52	3.63	3.82	3.51
	Cadmium (Cd)-Leachable (mg/L)		0.388	0.291	0.260	0.396	0.266
	Calcium (Ca)-Leachable (mg/L)		1960	1970	2060	2010	2020
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.818	1.34	0.919	1.78	1.09
	Copper (Cu)-Leachable (mg/L)		1.07	0.434	0.200	0.504	0.638
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		0.34	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		134	139	150	144	141
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.56	0.47	0.67	1.31	0.45
	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)		44.3	42.4	51.5	58.1	38.8

* 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	L2228700-11 Soil 30-JAN-19 09:00 BA1905-A-11	L2228700-12 Soil 30-JAN-19 09:00 BA1905-A-12		
Grouping	Analyte				
SOIL					
TCLP Metals	1st Preliminary pH (pH)	11.56	11.58		
	2nd Preliminary pH (pH)	9.15	9.58		
	Final pH (pH)	6.13	6.04		
	Extraction Solution Initial pH (pH)	2.88	2.88		
	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)	3.52	3.49		
	Cadmium (Cd)-Leachable (mg/L)	0.255	0.277		
	Calcium (Ca)-Leachable (mg/L)	2060	1970		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.998	0.399		
	Copper (Cu)-Leachable (mg/L)	0.433	0.550		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	0.29	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	139	135		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.60	0.61		
	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)	56.1	57.4		

* 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	Boron (B)	DUP-H	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cobalt (Co)	DUP-H	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Molybdenum (Mo)	DUP-H	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tungsten (W)	DUP-H	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2228700-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2228700-1, -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**
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 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
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.



L2228700-COFC

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

COC # _____

Page ____ 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 Skrypnik	<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="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Phone:	604-521-1025	Email 2:	rjohnson4@covanta.com		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	<input type="checkbox"/> Yes <input type="checkbox"/> No	Email 3:	dskrypnik@covanta.com		<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT
			brent.kirkpatrick@metrovancover.org		
			Sarah.Wellman@metrovancover.org		

Invoice To		Client / Project Information		Analysis Request	
Same as Report?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Job #:			Please indicate below Filtered, Preserved or both (F, P, F/P)
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:					

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
BA1905-A-1		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-2		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-3		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-4		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-5		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-6		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-7		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-8		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-9		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-10		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-11		30-Jan-19	9:00	Soil	X	X		X	1
BA1905-A-12		30-Jan-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:
[Signature]	5-FEB-19	08:00	AI JC	FEB - 5 2019	10:20 AM	15 ± 15 °C				Yes / No ? If Yes add SIF