

Bottom Ash Data

2019 Week 1

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on January 17, 2019. The data represents bottom ash composite results for week 1 of 2019 (December 30, 2018 to January 5, 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.



Covanta Burnaby R.E., ULC
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Date Received: 08-JAN-19
Report Date: 16-JAN-19 14:49 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2217711
Project P.O. #: VANCO-0000048466
Job Reference:
C of C Numbers:
Legal Site Desc: 46693 Weekly Bottom Ash -Suite

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

16-JAN-19 14:49 (MT)

Version: FINAL

		Sample ID	L2217711-1	L2217711-2	L2217711-3	L2217711-4	L2217711-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1901-A-1	BA1901-A-2	BA1901-A-3	BA1901-A-4	BA1901-A-5
Grouping	Analyte						
SOIL							
Physical Tests	Moisture (%)		23.4	24.0	24.7	24.2	23.8
	pH (1:2 soil:water) (pH)		11.15	11.04	11.23	11.28	11.07
Metals	Aluminum (Al) (mg/kg)		35700	40800	41100	53000	33700
	Antimony (Sb) (mg/kg)		128	213	126	122	175
	Arsenic (As) (mg/kg)		14.9	25.3	16.3	14.0	43.5
	Barium (Ba) (mg/kg)		472	460	425	537	503
	Beryllium (Be) (mg/kg)		0.41	0.42	0.42	0.38	0.41
	Bismuth (Bi) (mg/kg)		8.61	7.41	5.55	4.76	5.96
	Boron (B) (mg/kg)		195	203	231	203	226
	Cadmium (Cd) (mg/kg)		13.3	14.0	14.0	11.0	38.6
	Calcium (Ca) (mg/kg)		147000	160000	150000	143000	161000
	Chromium (Cr) (mg/kg)		176	160	180	153	156
	Cobalt (Co) (mg/kg)		41.5	359	48.9	78.2	60.9
	Copper (Cu) (mg/kg)		10300	18000	2820	3550	2940
	Iron (Fe) (mg/kg)		59400	41600	40400	58300	46500
	Lead (Pb) (mg/kg)		427	826	613	798	984
	Lithium (Li) (mg/kg)		19.2	43.2	19.5	19.7	22.6
	Magnesium (Mg) (mg/kg)		11200	12700	11800	12900	12700
	Manganese (Mn) (mg/kg)		763	970	809	941	884
	Mercury (Hg) (mg/kg)		0.240	0.155	0.187	0.125	0.201
	Molybdenum (Mo) (mg/kg)		21.6	25.7	18.8	28.4	22.9
	Nickel (Ni) (mg/kg)		146	132	163	102	142
	Phosphorus (P) (mg/kg)		13300	13600	13200	11500	15200
	Potassium (K) (mg/kg)		5670	6500	5620	5060	6500
	Selenium (Se) (mg/kg)		0.41	0.51	0.52	0.33	0.48
	Silver (Ag) (mg/kg)		4.86	8.18	5.43	5.79	5.22
	Sodium (Na) (mg/kg)		16200	17800	16600	15900	18500
	Strontium (Sr) (mg/kg)		296	340	310	278	316
	Sulfur (S) (mg/kg)		13900	15900	14000	13000	14800
	Thallium (Tl) (mg/kg)		0.082	0.090	0.090	0.081	0.089
Tin (Sn) (mg/kg)		129	196	128	147	181	
Titanium (Ti) (mg/kg)		369	504	433	960	466	
Tungsten (W) (mg/kg)		15.5	17.6	16.3	13.0	17.6	
Uranium (U) (mg/kg)		5.83	6.48	6.11	5.61	6.54	
Vanadium (V) (mg/kg)		44.4	54.0	46.6	46.5	46.0	
Zinc (Zn) (mg/kg)		8530	5170	3990	3190	4640	
Zirconium (Zr) (mg/kg)		1.2	1.2	1.4	1.9	1.1	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

16-JAN-19 14:49 (MT)

Version: FINAL

		Sample ID	L2217711-6	L2217711-7	L2217711-8	L2217711-9	L2217711-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1901-A-6	BA1901-A-7	BA1901-A-8	BA1901-A-9	BA1901-A-10
Grouping	Analyte						
SOIL							
Physical Tests	Moisture (%)		23.6	23.1	23.6	24.4	23.7
	pH (1:2 soil:water) (pH)		11.22	11.29	11.32	11.21	11.19
Metals	Aluminum (Al) (mg/kg)		30900	36600	44700	29300	35100
	Antimony (Sb) (mg/kg)		139	128	131	128	142
	Arsenic (As) (mg/kg)		18.2	15.2	18.7	16.2	16.5
	Barium (Ba) (mg/kg)		430	510	523	493	481
	Beryllium (Be) (mg/kg)		0.40	0.40	0.41	0.44	0.40
	Bismuth (Bi) (mg/kg)		5.91	4.68	11.9	5.41	5.63
	Boron (B) (mg/kg)		214	335	179	220	228
	Cadmium (Cd) (mg/kg)		14.2	13.2	15.8	11.7	12.4
	Calcium (Ca) (mg/kg)		156000	147000	144000	156000	151000
	Chromium (Cr) (mg/kg)		142	144	160	140	165
	Cobalt (Co) (mg/kg)		191	172	99.6	122	97.2
	Copper (Cu) (mg/kg)		2310	5220	19900	2180	2770
	Iron (Fe) (mg/kg)		35300	41300	47700	48800	65900
	Lead (Pb) (mg/kg)		817	667	1760	372	398
	Lithium (Li) (mg/kg)		23.9	27.3	18.3	44.3	18.3
	Magnesium (Mg) (mg/kg)		12000	12600	11300	14400	12600
	Manganese (Mn) (mg/kg)		785	716	840	1160	811
	Mercury (Hg) (mg/kg)		0.206	0.129	0.214	0.173	0.112
	Molybdenum (Mo) (mg/kg)		26.8	25.5	30.6	20.2	22.0
	Nickel (Ni) (mg/kg)		131	154	229	328	99.7
	Phosphorus (P) (mg/kg)		15400	13200	13300	14700	12900
	Potassium (K) (mg/kg)		5760	6020	6210	6170	6240
	Selenium (Se) (mg/kg)		0.43	0.45	0.36	0.38	0.51
	Silver (Ag) (mg/kg)		5.10	7.02	12.8	6.00	8.92
	Sodium (Na) (mg/kg)		17300	17500	16600	16900	16800
	Strontium (Sr) (mg/kg)		314	326	302	416	300
Sulfur (S) (mg/kg)		15900	13800	13300	13600	14400	
Thallium (Tl) (mg/kg)		0.089	0.080	0.107	0.074	0.083	
Tin (Sn) (mg/kg)		153	221	353	181	186	
Titanium (Ti) (mg/kg)		392	564	558	385	467	
Tungsten (W) (mg/kg)		15.8	12.6	14.2	13.6	12.7	
Uranium (U) (mg/kg)		6.31	5.54	5.87	5.49	5.79	
Vanadium (V) (mg/kg)		48.9	45.6	49.9	47.7	49.9	
Zinc (Zn) (mg/kg)		4180	5620	15000	4910	3690	
Zirconium (Zr) (mg/kg)		<1.0	1.0	1.2	1.2	1.2	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2217711-11	L2217711-12		
		Description	Soil	Soil		
		Sampled Date	02-JAN-19	02-JAN-19		
		Sampled Time	09:00	09:00		
		Client ID	BA1901-A-11	BA1901-A-12		
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	23.9	24.3			
	pH (1:2 soil:water) (pH)	10.57	10.77			
Metals	Aluminum (Al) (mg/kg)	42500	38400			
	Antimony (Sb) (mg/kg)	123	134			
	Arsenic (As) (mg/kg)	13.8	15.2			
	Barium (Ba) (mg/kg)	558	551			
	Beryllium (Be) (mg/kg)	0.45	0.44			
	Bismuth (Bi) (mg/kg)	5.40	5.47			
	Boron (B) (mg/kg)	214	200			
	Cadmium (Cd) (mg/kg)	11.8	13.2			
	Calcium (Ca) (mg/kg)	143000	143000			
	Chromium (Cr) (mg/kg)	147	141			
	Cobalt (Co) (mg/kg)	42.4	576			
	Copper (Cu) (mg/kg)	1860	1180			
	Iron (Fe) (mg/kg)	48300	54700			
	Lead (Pb) (mg/kg)	486	763			
	Lithium (Li) (mg/kg)	22.6	25.7			
	Magnesium (Mg) (mg/kg)	10200	9830			
	Manganese (Mn) (mg/kg)	689	670			
	Mercury (Hg) (mg/kg)	0.163	0.121			
	Molybdenum (Mo) (mg/kg)	21.7	36.3			
	Nickel (Ni) (mg/kg)	139	102			
	Phosphorus (P) (mg/kg)	13600	13900			
	Potassium (K) (mg/kg)	5510	5120			
	Selenium (Se) (mg/kg)	0.31	0.41			
	Silver (Ag) (mg/kg)	11.3	5.06			
	Sodium (Na) (mg/kg)	15600	14600			
	Strontium (Sr) (mg/kg)	317	436			
	Sulfur (S) (mg/kg)	13300	12700			
	Thallium (Tl) (mg/kg)	0.085	0.079			
	Tin (Sn) (mg/kg)	161	153			
	Titanium (Ti) (mg/kg)	554	571			
	Tungsten (W) (mg/kg)	12.2	10.8			
	Uranium (U) (mg/kg)	5.62	5.21			
Vanadium (V) (mg/kg)	45.4	41.9				
Zinc (Zn) (mg/kg)	4030	3330				
Zirconium (Zr) (mg/kg)	1.6	1.3				

* 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	L2217711-1 Soil 02-JAN-19 09:00 BA1901-A-1	L2217711-2 Soil 02-JAN-19 09:00 BA1901-A-2	L2217711-3 Soil 02-JAN-19 09:00 BA1901-A-3	L2217711-4 Soil 02-JAN-19 09:00 BA1901-A-4	L2217711-5 Soil 02-JAN-19 09:00 BA1901-A-5
Grouping	Analyte				
SOIL					
Speciated Metals	Hexavalent Chromium (mg/kg)	0.42			
TCLP Metals	1st Preliminary pH (pH)	11.31	11.31	11.32	11.45
	2nd Preliminary pH (pH)	8.86	8.65	8.75	9.33
	Final pH (pH)	6.42	6.40	6.38	6.29
	Extraction Solution Initial pH (pH)	2.89	2.89	2.89	2.89
	Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0
	Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0
	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025
	Boron (B)-Leachable (mg/L)	2.32	2.08	2.49	2.23
	Cadmium (Cd)-Leachable (mg/L)	0.263	0.132	0.146	0.161
	Calcium (Ca)-Leachable (mg/L)	2070	2130	2160	2160
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)	1.05	0.440	0.558	0.384
	Copper (Cu)-Leachable (mg/L)	0.856	0.914	0.585	1.15
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)	120	128	129	124
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)	0.32	0.36	0.88	0.40
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)	32.8	29.5	26.0	33.2

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2217711-6	L2217711-7	L2217711-8	L2217711-9	L2217711-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19	02-JAN-19
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1901-A-6	BA1901-A-7	BA1901-A-8	BA1901-A-9	BA1901-A-10
Grouping	Analyte						
SOIL							
Speciated Metals	Hexavalent Chromium (mg/kg)						
TCLP Metals	1st Preliminary pH (pH)	11.40	11.42	11.33	11.37	11.42	
	2nd Preliminary pH (pH)	8.57	9.19	9.01	9.13	9.49	
	Final pH (pH)	6.32	6.48	6.46	6.39	6.12	
	Extraction Solution Initial pH (pH)	2.89	2.89	2.89	2.89	2.89	
	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)	1.96	2.05	2.15	2.24	2.12	
	Cadmium (Cd)-Leachable (mg/L)	0.136	0.139	0.131	0.181	0.139	
	Calcium (Ca)-Leachable (mg/L)	2080	2110	2160	2070	1980	
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25	
	Cobalt (Co)-Leachable (mg/L)	0.531	0.759	1.76	0.566	0.449	
	Copper (Cu)-Leachable (mg/L)	0.800	0.644	0.814	0.888	1.14	
	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)	118	124	129	126	117	
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Leachable (mg/L)	0.54	0.45	0.42	0.52	0.49	
	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)	26.6	19.3	28.9	32.9	35.4	

* 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	L2217711-11 Soil 02-JAN-19 09:00 BA1901-A-11	L2217711-12 Soil 02-JAN-19 09:00 BA1901-A-12		
Grouping	Analyte				
SOIL					
Speciated Metals	Hexavalent Chromium (mg/kg)				
TCLP Metals	1st Preliminary pH (pH)	11.41	11.46		
	2nd Preliminary pH (pH)	9.38	9.07		
	Final pH (pH)	6.56	6.29		
	Extraction Solution Initial pH (pH)	2.89	2.89		
	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)	2.25	2.13		
	Cadmium (Cd)-Leachable (mg/L)	0.104	0.132		
	Calcium (Ca)-Leachable (mg/L)	2020	2010		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	1.06	1.04		
	Copper (Cu)-Leachable (mg/L)	0.477	0.802		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	123	124		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.31	0.36		
	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)	14.6	24.1		

* 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	Cadmium (Cd)	DUP-H	L2217711-11, -12
Duplicate	Lead (Pb)	DUP-H	L2217711-11, -12
Duplicate	Tin (Sn)	DUP-H	L2217711-11, -12
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2217711-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2217711-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2217711-1, -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**
CR-CR6-3060-ED	Soil	Chromium, Hexavalent (Cr +6)	APHA 3500-CR C, EPA 3060A ALKALINE
		Field moist samples are digested with a sodium hydroxide/sodium carbonate solution. After cooling and filtration, the rinsate is adjusted to pH 9, and injected on an ion chromatograph to separate the hexavalent chromium ion. A post column color reaction with diphenylcarbohydrazide and absorbance measurement at 530 nm completes the quantitation.	
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-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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
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.



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 checked="" type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Phone:	604-521-1025	Email 2:	rjohnson4@covanta.com		<input checked="" 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 checked="" 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?		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:		ALS Contact:							
Phone:		Sampler:							
Lab Work (lab L)									



Sample #	(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
BA1901-A-1		02-Jan-19	9:00	Soil	X	X	X	X					1
BA1901-A-2		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-3		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-4		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-5		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-6		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-7		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-8		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-9		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-10		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-11		02-Jan-19	9:00	Soil	X	X		X					1
BA1901-A-12		02-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-mm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:
<i>[Signature]</i>	8-Jan-19	08:00	<i>[Signature]</i>	Jan 8	11:20	18.9 °C				Yes / No ? If Yes add SIF