

Bottom Ash Data

2018 Week 36

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on September 20, 2018. The data represents bottom ash composite results for week 36 of 2018 (September 2, 2018 to September 8, 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.



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Date Received: 11-SEP-18
Report Date: 20-SEP-18 11:56 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2162120
Project P.O. #: VANCO-0000047506
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	L2162120-1 soil 05-SEP-18 09:00 BA1836-A-1	L2162120-2 soil 05-SEP-18 09:00 BA1836-A-2	L2162120-3 soil 05-SEP-18 09:00 BA1836-A-3	L2162120-4 soil 05-SEP-18 09:00 BA1836-A-4	L2162120-5 soil 05-SEP-18 09:00 BA1836-A-5	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	18.3	19.0	19.7	19.6	20.1
	pH (1:2 soil:water) (pH)	10.42	10.64	10.56	10.61	10.69
Metals	Aluminum (Al) (mg/kg)	36800	43400	29900	38100	33300
	Antimony (Sb) (mg/kg)	113	101	117	118	115
	Arsenic (As) (mg/kg)	29.5	27.0	29.5	31.6	27.5
	Barium (Ba) (mg/kg)	605	696	667	681	717
	Beryllium (Be) (mg/kg)	0.40	0.38	0.31	0.43	0.38
	Bismuth (Bi) (mg/kg)	9.51	10.0	14.9	8.24	11.4
	Boron (B) (mg/kg)	272	261	210	288	253
	Cadmium (Cd) (mg/kg)	41.4	12.8	11.6	13.0	13.8
	Calcium (Ca) (mg/kg)	125000	125000	118000	136000	120000
	Chromium (Cr) (mg/kg)	161	379	148	194	173
	Cobalt (Co) (mg/kg)	64.5	28.8	129	32.0	26.1
	Copper (Cu) (mg/kg)	7450	3650	1670	4950	12300
	Iron (Fe) (mg/kg)	60600	51300	77600	64600	63900
	Lead (Pb) (mg/kg)	394	567	20600	549	524
	Lithium (Li) (mg/kg)	28.4	17.7	38.0	23.8	26.4
	Magnesium (Mg) (mg/kg)	10900	11100	10800	11900	11300
	Manganese (Mn) (mg/kg)	773	774	931	1000	955
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	45.2	45.1	49.6	55.0	68.6
	Nickel (Ni) (mg/kg)	160	241	259	238	194
	Phosphorus (P) (mg/kg)	12100	12000	12000	13600	11000
	Potassium (K) (mg/kg)	4990	5050	4480	5370	5060
	Selenium (Se) (mg/kg)	0.26	0.37	0.28	0.31	0.31
	Silver (Ag) (mg/kg)	3.15	4.13	3.44	11.3	5.67
	Sodium (Na) (mg/kg)	14500	14600	13000	16300	14800
	Strontium (Sr) (mg/kg)	319	289	272	365	390
	Sulfur (S) (mg/kg)	10700	11000	11000	11900	10700
	Thallium (Tl) (mg/kg)	0.111	0.113	0.118	0.118	0.106
	Tin (Sn) (mg/kg)	97.5	106	104	118	150
	Titanium (Ti) (mg/kg)	703	978	665	599	850
	Tungsten (W) (mg/kg)	5.29	5.26	6.03	6.83	5.25
	Uranium (U) (mg/kg)	6.73	6.29	6.32	6.90	5.96
	Vanadium (V) (mg/kg)	59.7	60.4	53.1	59.7	53.9
	Zinc (Zn) (mg/kg)	3240	4710	3430	4280	3810
	Zirconium (Zr) (mg/kg)	1.7	1.7	1.2	3.2	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	L2162120-6 soil 05-SEP-18 09:00 BA1836-A-6	L2162120-7 soil 05-SEP-18 09:00 BA1836-A-7	L2162120-8 soil 05-SEP-18 09:00 BA1836-A-8	L2162120-9 soil 05-SEP-18 09:00 BA1836-A-9	L2162120-10 soil 05-SEP-18 09:00 BA1836-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	19.9	19.7	19.6	19.1	20.1
	pH (1:2 soil:water) (pH)	10.52	10.50	10.89	10.83	10.91
Metals	Aluminum (Al) (mg/kg)	42200	30000	34300	33900	37700
	Antimony (Sb) (mg/kg)	112	112	103	99.7	116
	Arsenic (As) (mg/kg)	29.8	31.6	27.1	31.9	34.9
	Barium (Ba) (mg/kg)	618	690	537	690	678
	Beryllium (Be) (mg/kg)	0.41	0.38	0.34	0.39	0.46
	Bismuth (Bi) (mg/kg)	12.4	7.69	25.5	9.26	9.31
	Boron (B) (mg/kg)	272	283	275	279	246
	Cadmium (Cd) (mg/kg)	11.6	11.7	12.3	22.9	41.4
	Calcium (Ca) (mg/kg)	137000	123000	120000	122000	123000
	Chromium (Cr) (mg/kg)	214	156	178	172	165
	Cobalt (Co) (mg/kg)	271	36.2	89.4	1120	27.6
	Copper (Cu) (mg/kg)	2200	4450	4780	2380	2460
	Iron (Fe) (mg/kg)	62600	73800	87400	83800	75700
	Lead (Pb) (mg/kg)	355	422	383	479	363
	Lithium (Li) (mg/kg)	22.0	17.1	17.6	31.3	24.7
	Magnesium (Mg) (mg/kg)	14000	9870	10000	10900	11500
	Manganese (Mn) (mg/kg)	890	794	894	942	914
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	51.2	135	60.0	47.9	45.0
	Nickel (Ni) (mg/kg)	192	224	320	256	171
	Phosphorus (P) (mg/kg)	13200	11500	12200	12100	12800
	Potassium (K) (mg/kg)	5350	5170	5340	5160	4880
	Selenium (Se) (mg/kg)	0.38	0.29	0.42	0.33	0.35
	Silver (Ag) (mg/kg)	4.47	3.41	8.65	3.70	3.02
	Sodium (Na) (mg/kg)	15300	15100	14600	15500	15200
	Strontium (Sr) (mg/kg)	353	335	320	300	298
	Sulfur (S) (mg/kg)	13300	10500	10800	10500	10600
	Thallium (Tl) (mg/kg)	0.114	0.103	0.114	0.124	0.103
	Tin (Sn) (mg/kg)	538	109	181	117	120
	Titanium (Ti) (mg/kg)	764	654	447	660	701
	Tungsten (W) (mg/kg)	4.58	4.89	6.72	5.04	3.90
	Uranium (U) (mg/kg)	6.70	5.88	6.14	6.31	6.30
	Vanadium (V) (mg/kg)	59.4	53.5	92.2	52.0	58.2
	Zinc (Zn) (mg/kg)	4130	4690	10500	4310	3570
	Zirconium (Zr) (mg/kg)	1.8	1.3	1.9	1.4	1.8

* 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	L2162120-11 soil 05-SEP-18 09:00 BA1836-A-11	L2162120-12 soil 05-SEP-18 09:00 BA1836-A-12		
Grouping	Analyte				
SOIL					
Physical Tests	Moisture (%)	20.3	19.7		
	pH (1:2 soil:water) (pH)	11.07	10.90		
Metals	Aluminum (Al) (mg/kg)	29600	47700		
	Antimony (Sb) (mg/kg)	151	113		
	Arsenic (As) (mg/kg)	32.3	38.7		
	Barium (Ba) (mg/kg)	634	720		
	Beryllium (Be) (mg/kg)	0.36	0.40		
	Bismuth (Bi) (mg/kg)	19.1	9.70		
	Boron (B) (mg/kg)	265	266		
	Cadmium (Cd) (mg/kg)	12.6	17.9		
	Calcium (Ca) (mg/kg)	130000	121000		
	Chromium (Cr) (mg/kg)	216	178		
	Cobalt (Co) (mg/kg)	54.1	35.5		
	Copper (Cu) (mg/kg)	3870	3310		
	Iron (Fe) (mg/kg)	80600	69700		
	Lead (Pb) (mg/kg)	1970	631		
	Lithium (Li) (mg/kg)	21.8	19.2		
	Magnesium (Mg) (mg/kg)	9950	10600		
	Manganese (Mn) (mg/kg)	931	1350		
	Mercury (Hg) (mg/kg)	0.083	<0.050		
	Molybdenum (Mo) (mg/kg)	48.7	65.1		
	Nickel (Ni) (mg/kg)	239	184		
	Phosphorus (P) (mg/kg)	12300	13800		
	Potassium (K) (mg/kg)	5430	5190		
	Selenium (Se) (mg/kg)	0.38	0.30		
	Silver (Ag) (mg/kg)	8.52	2.91		
	Sodium (Na) (mg/kg)	15300	15000		
	Strontium (Sr) (mg/kg)	312	296		
	Sulfur (S) (mg/kg)	11700	10800		
	Thallium (Tl) (mg/kg)	0.121	0.122		
	Tin (Sn) (mg/kg)	157	122		
	Titanium (Ti) (mg/kg)	534	991		
	Tungsten (W) (mg/kg)	4.10	8.09		
	Uranium (U) (mg/kg)	6.43	6.42		
	Vanadium (V) (mg/kg)	54.9	56.9		
	Zinc (Zn) (mg/kg)	4840	4870		
	Zirconium (Zr) (mg/kg)	1.1	2.5		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2162120-1	L2162120-2	L2162120-3	L2162120-4	L2162120-5
		Description	soil	soil	soil	soil	soil
		Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1836-A-1	BA1836-A-2	BA1836-A-3	BA1836-A-4	BA1836-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.29	11.38	11.35	11.49	11.36
	2nd Preliminary pH (pH)		8.30	8.61	8.73	8.85	8.58
	Final pH (pH)		5.74	5.87	5.93	6.09	6.11
	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)		2.97	2.96	2.96	2.88	2.48
	Cadmium (Cd)-Leachable (mg/L)		0.291	0.249	0.355	0.775	0.152
	Calcium (Ca)-Leachable (mg/L)		1750	1850	1870	1830	1810
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.890	1.09	1.36	0.523	0.386
	Copper (Cu)-Leachable (mg/L)		0.724	1.90	1.34	1.11	0.751
	Iron (Fe)-Leachable (mg/L)		8.7	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		0.42	0.53	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		112	120	120	116	103
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.83	0.79	1.00	1.14	2.05
	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)		86.1	37.9	42.9	47.3	32.4

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2162120-6	L2162120-7	L2162120-8	L2162120-9	L2162120-10
		Description	soil	soil	soil	soil	soil
		Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1836-A-6	BA1836-A-7	BA1836-A-8	BA1836-A-9	BA1836-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.54	11.35	11.42	11.43	11.39
	2nd Preliminary pH (pH)		9.60	8.57	8.80	9.19	8.72
	Final pH (pH)		5.77	5.80	5.76	5.80	5.91
	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)		2.88	2.83	2.90	3.03	2.92
	Cadmium (Cd)-Leachable (mg/L)		0.437	0.338	0.206	0.205	0.176
	Calcium (Ca)-Leachable (mg/L)		1780	1820	1790	1790	1790
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.631	0.660	0.807	0.401	0.997
	Copper (Cu)-Leachable (mg/L)		1.39	2.55	1.77	2.20	1.57
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		0.60	3.52	<0.25	<0.25	0.60
	Magnesium (Mg)-Leachable (mg/L)		118	124	115	108	115
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.71	1.64	1.05	0.65	1.25
	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)		50.4	41.8	84.7	82.8	56.6

* 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	L2162120-11 soil 05-SEP-18 09:00 BA1836-A-11	L2162120-12 soil 05-SEP-18 09:00 BA1836-A-12		
Grouping	Analyte				
SOIL					
TCLP Metals	1st Preliminary pH (pH)	11.46	11.44		
	2nd Preliminary pH (pH)	8.72	9.06		
	Final pH (pH)	5.93	6.00		
	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)	2.85	3.68		
	Cadmium (Cd)-Leachable (mg/L)	0.169	0.166		
	Calcium (Ca)-Leachable (mg/L)	1850	1820		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.662	0.441		
	Copper (Cu)-Leachable (mg/L)	0.597	1.44		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	0.32	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	119	116		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	1.48	0.67		
	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)	36.5	58.6		

* 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	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cobalt (Co)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tin (Sn)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tungsten (W)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Zinc (Zn)	DUP-H	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2162120-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2162120-1, -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)
This method uses a heated strong acid digestion with HNO ₃ and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.			
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	CWS for PHC in Soil - Tier 1
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six 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.

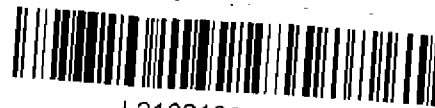
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.



L2162120-COFC

COC # _____

Page ____ of ____

Report To		Rept		Service Requested (Rush for routine analysis subject to availability)	
Company: Covanta Energy		<input type="checkbox"/> Standard <input type="checkbox"/> Other		(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		Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	
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: _____		Email 2: rjohnson4@covanta.com		Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
<input type="checkbox"/> Yes <input type="checkbox"/> No		Email 3: dskrypnik@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: _____ Fax: _____											

Lab Work Order # (lab use only)		ALS Contact:	Sampler:									Number of Containers	
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)					
BA1836-A-1		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-2		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-3		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-4		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-5		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-6		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-7		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-8		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-9		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-10		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-11		05-Sep-18	9:00	Soil	X	X		X					1
BA1836-A-12		05-Sep-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): 16-Sep-18	Time (hh:mm): 08:00	Received by:	Date: 9/11	Time: 12:40P	Temperature: 20 °C	Verified by: _____	Date: _____	Time: _____	Observations: Yes / No ? If Yes add SIF