

## Bottom Ash Data

2018 Week 31

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The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on August 16, 2018. The data represents bottom ash composite results for week 31 of 2018 (July 29, 2018 to August 4, 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.



Covanta Burnaby R.E., ULC  
ATTN: Steve McKinney  
5150 Riverbend Drive  
Burnaby BC V3N 4V3

Date Received: 08-AUG-18  
Report Date: 15-AUG-18 16:40 (MT)  
Version: FINAL

Client Phone: 604-521-1025

## Certificate of Analysis

Lab Work Order #: L2143128  
Project P.O. #: VANCO-0000047506  
Job Reference:  
C of C Numbers:  
Legal Site Desc:

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Brent Mack, B.Sc.  
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
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## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2143128-1	L2143128-2	L2143128-3	L2143128-4	L2143128-5
		Description	soil	soil	soil	soil	soil
		Sampled Date	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1831-A-1	BA1831-A-2	BA1831-A-3	BA1831-A-4	BA1831-A-5
Grouping	Analyte						
<b>SOIL</b>							
<b>Physical Tests</b>	Moisture (%)		13.2	13.7	14.8	14.1	14.3
	pH (1:2 soil:water) (pH)		11.10	11.00	11.20	10.90	11.25
<b>Metals</b>	Aluminum (Al) (mg/kg)		28100	25400	48200	29600	32800
	Antimony (Sb) (mg/kg)		84.2	113	109	112	113
	Arsenic (As) (mg/kg)		30.5	34.9	39.7	38.4	36.8
	Barium (Ba) (mg/kg)		556	524	586	588	549
	Beryllium (Be) (mg/kg)		0.34	0.37	0.37	0.37	0.39
	Bismuth (Bi) (mg/kg)		7.24	12.0	7.00	26.1	17.1
	Boron (B) (mg/kg)		193	280	231	199	275
	Cadmium (Cd) (mg/kg)		12.4	14.4	53.1	13.9	12.2
	Calcium (Ca) (mg/kg)		109000	122000	113000	115000	119000
	Chromium (Cr) (mg/kg)		138	165	198	160	151
	Cobalt (Co) (mg/kg)		19.3	18.2	19.3	168	84.2
	Copper (Cu) (mg/kg)		2110	6110	1740	3090	2220
	Iron (Fe) (mg/kg)		62000	83400	70100	71000	72500
	Lead (Pb) (mg/kg)		431	2490	1000	1180	605
	Lithium (Li) (mg/kg)		17.5	18.3	17.2	17.5	39.4
	Magnesium (Mg) (mg/kg)		10200	9910	10300	10200	11000
	Manganese (Mn) (mg/kg)		710	1170	1230	989	1180
	Mercury (Hg) (mg/kg)		<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)		85.5	123	103	191	107
	Nickel (Ni) (mg/kg)		125	1810	157	125	204
	Phosphorus (P) (mg/kg)		11400	10600	10800	11200	11000
	Potassium (K) (mg/kg)		4880	5250	4910	5660	5190
	Selenium (Se) (mg/kg)		0.24	0.40	0.34	0.30	0.35
	Silver (Ag) (mg/kg)		4.21	6.04	2.84	3.19	3.30
	Sodium (Na) (mg/kg)		13300	14500	13300	15000	13800
	Strontium (Sr) (mg/kg)		256	277	276	289	284
	Sulfur (S) (mg/kg)		10700	13400	11700	12400	12000
	Thallium (Tl) (mg/kg)		0.082	0.101	0.083	0.092	0.088
Tin (Sn) (mg/kg)		207	323	101	96.6	149	
Titanium (Ti) (mg/kg)		872	669	1310	903	873	
Tungsten (W) (mg/kg)		2.99	3.70	3.96	5.63	3.65	
Uranium (U) (mg/kg)		4.90	5.79	5.36	6.10	5.61	
Vanadium (V) (mg/kg)		42.5	47.5	50.7	50.2	50.6	
Zinc (Zn) (mg/kg)		2990	4950	3940	3180	3320	
Zirconium (Zr) (mg/kg)		1.1	<1.0	1.6	1.0	1.1	

\* 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	L2143128-6 soil 01-AUG-18 09:00 BA1831-A-6	L2143128-7 soil 01-AUG-18 09:00 BA1831-A-7	L2143128-8 soil 01-AUG-18 09:00 BA1831-A-8	L2143128-9 soil 01-AUG-18 09:00 BA1831-A-9	L2143128-10 soil 01-AUG-18 09:00 BA1831-A-10	
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	Moisture (%)	14.4	14.8	14.4	14.3	14.7
	pH (1:2 soil:water) (pH)	11.22	11.19	11.24	11.20	11.29
<b>Metals</b>	Aluminum (Al) (mg/kg)	38800	27600	37400	31400	31000
	Antimony (Sb) (mg/kg)	120	105	116	87.2	122
	Arsenic (As) (mg/kg)	41.5	35.3	35.6	37.6	44.3
	Barium (Ba) (mg/kg)	555	422	539	585	603
	Beryllium (Be) (mg/kg)	0.37	0.32	0.36	0.37	0.40
	Bismuth (Bi) (mg/kg)	7.26	8.91	7.51	8.98	7.94
	Boron (B) (mg/kg)	255	189	256	325	288
	Cadmium (Cd) (mg/kg)	16.0	19.1	13.2	12.5	15.7
	Calcium (Ca) (mg/kg)	125000	110000	112000	114000	121000
	Chromium (Cr) (mg/kg)	157	141	156	222	197
	Cobalt (Co) (mg/kg)	103	1820	20.4	21.1	24.1
	Copper (Cu) (mg/kg)	1530	13300	13800	2440	1730
	Iron (Fe) (mg/kg)	79700	82400	89400	83600	85000
	Lead (Pb) (mg/kg)	1060	1850	3010	767	428
	Lithium (Li) (mg/kg)	22.7	47.6	15.9	16.0	17.3
	Magnesium (Mg) (mg/kg)	11500	9180	9560	10600	11200
	Manganese (Mn) (mg/kg)	1040	746	1010	1110	800
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	133	177	120	99.5	115
	Nickel (Ni) (mg/kg)	114	118	111	108	105
	Phosphorus (P) (mg/kg)	12600	9270	10700	9650	9950
	Potassium (K) (mg/kg)	5050	4390	4750	5040	4860
	Selenium (Se) (mg/kg)	0.35	0.44	0.33	0.29	0.30
	Silver (Ag) (mg/kg)	5.95	4.56	2.45	2.87	4.29
	Sodium (Na) (mg/kg)	13600	11600	12700	13900	14000
	Strontium (Sr) (mg/kg)	618	250	258	263	287
	Sulfur (S) (mg/kg)	13000	11600	10900	11400	12000
	Thallium (Tl) (mg/kg)	0.098	0.084	0.084	0.094	0.105
	Tin (Sn) (mg/kg)	103	108	87.5	116	110
	Titanium (Ti) (mg/kg)	892	552	965	1030	1000
	Tungsten (W) (mg/kg)	4.45	5.60	6.15	3.65	5.02
	Uranium (U) (mg/kg)	5.82	5.20	5.29	5.28	5.58
	Vanadium (V) (mg/kg)	54.6	45.9	48.0	54.5	60.0
	Zinc (Zn) (mg/kg)	10100	7690	7240	4390	3570
	Zirconium (Zr) (mg/kg)	1.4	1.3	1.3	1.1	1.1

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2143128-11	L2143128-12		
		Description	soil	soil		
		Sampled Date	01-AUG-18	01-AUG-18		
		Sampled Time	09:00	09:00		
		Client ID	BA1831-A-11	BA1831-A-12		
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	Moisture (%)	13.9	14.3			
	pH (1:2 soil:water) (pH)	11.20	11.10			
<b>Metals</b>	Aluminum (Al) (mg/kg)	37100	31600			
	Antimony (Sb) (mg/kg)	98.2	104			
	Arsenic (As) (mg/kg)	35.2	38.7			
	Barium (Ba) (mg/kg)	589	511			
	Beryllium (Be) (mg/kg)	0.38	0.36			
	Bismuth (Bi) (mg/kg)	6.56	14.3			
	Boron (B) (mg/kg)	244	306			
	Cadmium (Cd) (mg/kg)	11.4	11.7			
	Calcium (Ca) (mg/kg)	115000	118000			
	Chromium (Cr) (mg/kg)	150	157			
	Cobalt (Co) (mg/kg)	19.1	28.5			
	Copper (Cu) (mg/kg)	1670	1750			
	Iron (Fe) (mg/kg)	62800	74900			
	Lead (Pb) (mg/kg)	419	502			
	Lithium (Li) (mg/kg)	15.8	17.4			
	Magnesium (Mg) (mg/kg)	10700	12700			
	Manganese (Mn) (mg/kg)	700	903			
	Mercury (Hg) (mg/kg)	<0.050	<0.050			
	Molybdenum (Mo) (mg/kg)	128	102			
	Nickel (Ni) (mg/kg)	156	218			
	Phosphorus (P) (mg/kg)	11400	10100			
	Potassium (K) (mg/kg)	5140	5210			
	Selenium (Se) (mg/kg)	0.29	0.28			
	Silver (Ag) (mg/kg)	3.17	10.1			
	Sodium (Na) (mg/kg)	14900	14900			
	Strontium (Sr) (mg/kg)	279	318			
	Sulfur (S) (mg/kg)	11600	11600			
	Thallium (Tl) (mg/kg)	0.080	0.085			
	Tin (Sn) (mg/kg)	145	815			
	Titanium (Ti) (mg/kg)	1070	684			
	Tungsten (W) (mg/kg)	5.29	3.89			
	Uranium (U) (mg/kg)	5.56	5.33			
Vanadium (V) (mg/kg)	48.1	48.5				
Zinc (Zn) (mg/kg)	3120	4790				
Zirconium (Zr) (mg/kg)	1.3	1.2				

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2143128-1	L2143128-2	L2143128-3	L2143128-4	L2143128-5
		Description	soil	soil	soil	soil	soil
		Sampled Date	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1831-A-1	BA1831-A-2	BA1831-A-3	BA1831-A-4	BA1831-A-5
Grouping	Analyte						
<b>SOIL</b>							
<b>TCLP Metals</b>	1st Preliminary pH (pH)		11.48	11.46	11.56	11.36	11.58
	2nd Preliminary pH (pH)		8.64	8.53	8.58	8.23	8.72
	Final pH (pH)		5.98	5.99	6.09	5.55	6.06
	Extraction Solution Initial pH (pH)		2.90	2.90	2.90	2.90	2.90
	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)		3.31	2.68	2.89	2.43	2.93
	Cadmium (Cd)-Leachable (mg/L)		0.187	0.173	0.412	0.207	0.203
	Calcium (Ca)-Leachable (mg/L)		1840	1870	1870	1700	1900
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.669	0.606	0.331	0.639	0.896
	Copper (Cu)-Leachable (mg/L)		1.84	1.38	1.27	2.43	1.38
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	9.6	<5.0
	Lead (Pb)-Leachable (mg/L)		0.34	0.35	0.63	0.75	0.68
	Magnesium (Mg)-Leachable (mg/L)		120	116	120	107	121
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.43	0.74	0.86	0.75	0.74
	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)		38.1	37.2	35.7	44.6	48.5

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2143128-6	L2143128-7	L2143128-8	L2143128-9	L2143128-10
		Description	soil	soil	soil	soil	soil
		Sampled Date	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18	01-AUG-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1831-A-6	BA1831-A-7	BA1831-A-8	BA1831-A-9	BA1831-A-10
Grouping	Analyte						
<b>SOIL</b>							
<b>TCLP Metals</b>	1st Preliminary pH (pH)		11.58	11.61	11.58	11.56	11.62
	2nd Preliminary pH (pH)		8.81	9.02	8.75	9.07	9.11
	Final pH (pH)		6.35	6.06	6.07	6.13	6.12
	Extraction Solution Initial pH (pH)		2.90	2.90	2.90	2.90	2.90
	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)		3.08	3.14	2.96	3.00	2.88
	Cadmium (Cd)-Leachable (mg/L)		0.191	0.223	0.267	0.174	0.241
	Calcium (Ca)-Leachable (mg/L)		1960	1880	1880	1930	1890
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.601	0.382	0.279	0.260	0.444
	Copper (Cu)-Leachable (mg/L)		1.49	1.62	2.82	1.65	1.40
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		<0.25	0.60	<0.25	0.27	<0.25
	Magnesium (Mg)-Leachable (mg/L)		123	121	118	121	118
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.45	0.81	0.56	0.44	0.53
	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)		39.8	53.4	54.5	36.4	66.1

\* 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	L2143128-11 soil 01-AUG-18 09:00 BA1831-A-11	L2143128-12 soil 01-AUG-18 09:00 BA1831-A-12		
Grouping	Analyte				
<b>SOIL</b>					
<b>TCLP Metals</b>	1st Preliminary pH (pH)	11.59	11.54		
	2nd Preliminary pH (pH)	8.99	8.72		
	Final pH (pH)	6.03	5.90		
	Extraction Solution Initial pH (pH)	2.90	2.90		
	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)	2.99	2.90		
	Cadmium (Cd)-Leachable (mg/L)	0.750	0.333		
	Calcium (Ca)-Leachable (mg/L)	1940	1950		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.585	1.48		
	Copper (Cu)-Leachable (mg/L)	1.70	1.30		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	<0.25	0.27		
	Magnesium (Mg)-Leachable (mg/L)	126	124		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.54	0.80		
	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)	36.8	64.2		

\* 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)
Duplicate	Antimony (Sb)	DUP-H	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)	DUP-H	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Iron (Fe)	DUP-H	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)	DUP-H	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tin (Sn)	DUP-H	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2143128-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2143128-1, -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**
<b>HG-200.2-CVAF-VA</b>	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.			
<b>HG-TCLP-CVAFS-VA</b>	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).			
<b>MET-200.2-CCMS-VA</b>	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
This method uses a heated strong acid digestion with HNO <sub>3</sub> 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.			
<b>MET-TCLP-ICP-VA</b>	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).			
<b>MOISTURE-VA</b>	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.			
<b>PH-1:2-VA</b>	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.*



Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # \_\_\_\_\_

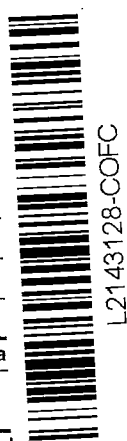
Page \_\_\_\_\_ of \_\_\_\_\_

<b>Report To</b>		<b>Report Format / Distribution</b>		<b>Service Requested</b> (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 Skrypnyk		<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		Email 1: <a href="mailto:smckinney@covanta.com">smckinney@covanta.com</a>		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	
Burnaby BC		Email 2: <a href="mailto:rjohnson4@covanta.com">rjohnson4@covanta.com</a>		<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Phone: 604-521-1025 Fax: _____		Email 3: <a href="mailto:dskrpnyk@covanta.com">dskrpnyk@covanta.com</a>		<b>Analysis Request</b>	
<input type="checkbox"/> Yes <input type="checkbox"/> No		<a href="mailto:brent.kirkpatrick@metrovancover.org">brent.kirkpatrick@metrovancover.org</a>			
		<a href="mailto:Sarah.Wellman@metrovancover.org">Sarah.Wellman@metrovancover.org</a>			

<b>Invoice To</b> Same as Report ?		<b>Client / Project Information</b>		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:											
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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												
BA1831-A-1		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-2		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-3		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-4		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-5		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-6		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-7		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-8		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-9		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-10		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-11		01-Aug-18	9:00	Soil	X	X		X													1
BA1831-A-12		01-Aug-18	9:00	Soil	X	X		X													1



<b>Special Instructions / Regula</b>		<b>land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details</b>									
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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): 8-Aug-18	Time (hh-mm): 08:00	Received by: SC	Date: 8/8/18	Time: 12pm	Temperature: 22.923 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF