

Bottom Ash Data

2018 Week 10

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on March 26, 2018. The data represents bottom ash composite results for week 10 of 2018 (March 4, 2018 to March 10, 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: 13-MAR-18
Report Date: 20-MAR-18 10:50 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2066868
Project P.O. #: VANCO-0000047506
Job Reference:
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2066868-1 Soil 07-MAR-18 09:00 BA1810-A-1	L2066868-2 Soil 07-MAR-18 09:00 BA1810-A-2	L2066868-3 Soil 07-MAR-18 09:00 BA1810-A-3	L2066868-4 Soil 07-MAR-18 09:00 BA1810-A-4	L2066868-5 Soil 07-MAR-18 09:00 BA1810-A-5
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.8	22.9	21.8	23.6	23.5
	pH (1:2 soil:water) (pH)	11.75	11.90	11.85	11.83	11.79
Metals	Aluminum (Al) (mg/kg)	30800	30100	29800	34800	30900
	Antimony (Sb) (mg/kg)	185	226	181	155	202
	Arsenic (As) (mg/kg)	34.1	35.6	33.3	31.0	35.9
	Barium (Ba) (mg/kg)	392	439	510	493	432
	Beryllium (Be) (mg/kg)	0.43	0.37	0.39	0.39	0.40
	Bismuth (Bi) (mg/kg)	9.39	9.82	8.59	7.82	9.59
	Boron (B) (mg/kg)	804	247	246	350	271
	Cadmium (Cd) (mg/kg)	18.2	19.0	15.7	15.5	21.1
	Calcium (Ca) (mg/kg)	143000	142000	133000	137000	145000
	Chromium (Cr) (mg/kg)	209	152	165	311	163
	Cobalt (Co) (mg/kg)	27.9	29.3	128	27.0	45.8
	Copper (Cu) (mg/kg)	3920	20100	3490	1420	1930
	Iron (Fe) (mg/kg)	64500	52900	58300	53500	39500
	Lead (Pb) (mg/kg)	468	346	358	360	534
	Lithium (Li) (mg/kg)	17.1	17.3	21.7	13.7	14.1
	Magnesium (Mg) (mg/kg)	10200	9930	9970	11200	11000
	Manganese (Mn) (mg/kg)	822	754	744	881	3790
	Mercury (Hg) (mg/kg)	0.182	0.175	0.162	0.158	0.197
	Molybdenum (Mo) (mg/kg)	59.9	367	47.1	51.0	46.3
	Nickel (Ni) (mg/kg)	152	157	1830	170	170
	Phosphorus (P) (mg/kg)	12100	13100	11400	13000	13100
	Potassium (K) (mg/kg)	6920	6920	5980	5790	6180
	Selenium (Se) (mg/kg)	0.60	0.67	0.52	0.43	0.50
	Silver (Ag) (mg/kg)	7.01	6.43	5.43	5.14	18.3
	Sodium (Na) (mg/kg)	16700	16200	15400	14800	15800
	Strontium (Sr) (mg/kg)	329	335	330	327	323
	Sulfur (S) (mg/kg)	17700	17900	16500	16100	15800
	Thallium (Tl) (mg/kg)	0.083	0.078	0.082	0.082	0.079
	Tin (Sn) (mg/kg)	165	182	150	118	349
	Titanium (Ti) (mg/kg)	419	455	778	654	389
	Tungsten (W) (mg/kg)	5.29	6.39	275	5.53	5.04
	Uranium (U) (mg/kg)	7.09	6.77	6.00	6.13	6.92
	Vanadium (V) (mg/kg)	56.1	54.6	55.9	61.0	59.4
	Zinc (Zn) (mg/kg)	4130	4530	3700	3530	4040
	Zirconium (Zr) (mg/kg)	1.0	1.1	1.6	1.8	2.0

* 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		L2066868-6 Soil 07-MAR-18 09:00 BA1810-A-6	L2066868-7 Soil 07-MAR-18 09:00 BA1810-A-7	L2066868-8 Soil 07-MAR-18 09:00 BA1810-A-8	L2066868-9 Soil 07-MAR-18 09:00 BA1810-A-9	L2066868-10 Soil 07-MAR-18 09:00 BA1810-A-10
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	22.0	22.7	21.3	21.6	22.1
	pH (1:2 soil:water) (pH)	11.80	11.88	12.00	11.77	11.78
Metals	Aluminum (Al) (mg/kg)	32100	31100	31000	30300	33400
	Antimony (Sb) (mg/kg)	188	213	183	198	193
	Arsenic (As) (mg/kg)	34.4	43.3	33.0	32.1	35.3
	Barium (Ba) (mg/kg)	458	452	453	402	456
	Beryllium (Be) (mg/kg)	0.43	0.45	0.44	0.42	0.42
	Bismuth (Bi) (mg/kg)	8.72	10.6	8.93	8.64	8.32
	Boron (B) (mg/kg)	234	286	287	232	265
	Cadmium (Cd) (mg/kg)	18.8	22.4	17.2	18.2	17.1
	Calcium (Ca) (mg/kg)	139000	155000	139000	140000	133000
	Chromium (Cr) (mg/kg)	148	159	132	260	143
	Cobalt (Co) (mg/kg)	86.9	27.9	21.6	125	22.9
	Copper (Cu) (mg/kg)	1480	2960	34500	2610	2590
	Iron (Fe) (mg/kg)	56500	58300	47700	39600	41900
	Lead (Pb) (mg/kg)	456	445	573	541	401
	Lithium (Li) (mg/kg)	27.2	14.8	13.6	22.9	17.6
	Magnesium (Mg) (mg/kg)	10400	10900	9990	10300	10000
	Manganese (Mn) (mg/kg)	1010	870	682	697	717
	Mercury (Hg) (mg/kg)	0.223	0.231	0.220	0.219	0.227
	Molybdenum (Mo) (mg/kg)	43.9	55.4	208	73.4	49.9
	Nickel (Ni) (mg/kg)	278	194	128	163	204
	Phosphorus (P) (mg/kg)	11900	13600	12900	12000	11600
	Potassium (K) (mg/kg)	5890	5870	6880	6640	5860
	Selenium (Se) (mg/kg)	1.35	0.62	0.56	0.66	0.48
	Silver (Ag) (mg/kg)	5.50	6.78	5.19	5.08	6.08
	Sodium (Na) (mg/kg)	16700	14600	15700	15400	14800
	Strontium (Sr) (mg/kg)	401	361	336	330	341
	Sulfur (S) (mg/kg)	15300	18800	16700	16900	16800
	Thallium (Tl) (mg/kg)	0.073	0.089	0.089	0.089	0.072
	Tin (Sn) (mg/kg)	129	154	159	145	163
	Titanium (Ti) (mg/kg)	407	455	428	485	577
	Tungsten (W) (mg/kg)	4.70	5.75	4.36	5.57	7.55
	Uranium (U) (mg/kg)	6.53	7.43	6.62	6.74	6.40
	Vanadium (V) (mg/kg)	56.9	63.7	56.1	61.3	62.2
	Zinc (Zn) (mg/kg)	4230	5880	4550	3950	3960
	Zirconium (Zr) (mg/kg)	1.6	1.8	1.1	1.8	1.8

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2066868-11	L2066868-12		
		Description	Soil	Soil		
		Sampled Date	07-MAR-18	07-MAR-18		
		Sampled Time	09:00	09:00		
		Client ID	BA1810-A-11	BA1810-A-12		
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.5	22.1			
	pH (1:2 soil:water) (pH)	11.83	11.89			
Metals	Aluminum (Al) (mg/kg)	30900	27800			
	Antimony (Sb) (mg/kg)	183	189			
	Arsenic (As) (mg/kg)	32.4	36.1			
	Barium (Ba) (mg/kg)	453	449			
	Beryllium (Be) (mg/kg)	0.39	0.40			
	Bismuth (Bi) (mg/kg)	9.08	12.1			
	Boron (B) (mg/kg)	233	286			
	Cadmium (Cd) (mg/kg)	16.8	17.0			
	Calcium (Ca) (mg/kg)	137000	135000			
	Chromium (Cr) (mg/kg)	151	138			
	Cobalt (Co) (mg/kg)	19.4	19.6			
	Copper (Cu) (mg/kg)	1810	8560			
	Iron (Fe) (mg/kg)	66900	48600			
	Lead (Pb) (mg/kg)	344	320			
	Lithium (Li) (mg/kg)	13.8	14.5			
	Magnesium (Mg) (mg/kg)	10500	10200			
	Manganese (Mn) (mg/kg)	785	660			
	Mercury (Hg) (mg/kg)	0.172	0.187			
	Molybdenum (Mo) (mg/kg)	78.3	48.9			
	Nickel (Ni) (mg/kg)	234	110			
	Phosphorus (P) (mg/kg)	11800	12600			
	Potassium (K) (mg/kg)	5600	6380			
	Selenium (Se) (mg/kg)	0.67	0.52			
	Silver (Ag) (mg/kg)	5.64	8.61			
	Sodium (Na) (mg/kg)	13600	15500			
	Strontium (Sr) (mg/kg)	319	355			
	Sulfur (S) (mg/kg)	16900	17700			
	Thallium (Tl) (mg/kg)	0.076	0.090			
	Tin (Sn) (mg/kg)	237	137			
	Titanium (Ti) (mg/kg)	547	630			
	Tungsten (W) (mg/kg)	5.31	5.91			
	Uranium (U) (mg/kg)	6.34	6.60			
Vanadium (V) (mg/kg)	53.6	55.3				
Zinc (Zn) (mg/kg)	4260	5950				
Zirconium (Zr) (mg/kg)	1.4	1.5				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

20-MAR-18 10:50 (MT)

Version: FINAL

		Sample ID	L2066868-1	L2066868-2	L2066868-3	L2066868-4	L2066868-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	07-MAR-18	07-MAR-18	07-MAR-18	07-MAR-18	07-MAR-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1810-A-1	BA1810-A-2	BA1810-A-3	BA1810-A-4	BA1810-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.85	11.85	11.89	11.80	11.80
	2nd Preliminary pH (pH)		9.24	9.63	9.78	9.51	10.03
	Final pH (pH)		6.34	6.23	6.36	6.19	6.39
	Extraction Solution Initial pH (pH)		2.87	2.87	2.87	2.87	2.87
	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)		2.94	3.22	2.89	3.73	4.00
	Cadmium (Cd)-Leachable (mg/L)		0.183	0.185	0.304	0.186	0.182
	Calcium (Ca)-Leachable (mg/L)		2090	2020	2040	2000	2100
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.239	0.783	1.66	1.61	0.514
	Copper (Cu)-Leachable (mg/L)		0.677	0.912	0.546	0.502	1.48
	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	0.31	<0.25
	Magnesium (Mg)-Leachable (mg/L)		122	123	120	118	122
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.36	0.36	0.47	1.25	0.43
	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)		35.2	43.3	29.5	43.7	39.2

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2066868-6	L2066868-7	L2066868-8	L2066868-9	L2066868-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	07-MAR-18	07-MAR-18	07-MAR-18	07-MAR-18	07-MAR-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1810-A-6	BA1810-A-7	BA1810-A-8	BA1810-A-9	BA1810-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.87	11.79	11.84	11.77	11.85
	2nd Preliminary pH (pH)		10.07	9.74	9.96	9.81	9.69
	Final pH (pH)		6.47	6.72	6.25	6.24	6.25
	Extraction Solution Initial pH (pH)		2.87	2.87	2.87	2.87	2.87
	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)		3.15	3.23	2.99	3.27	4.77
	Cadmium (Cd)-Leachable (mg/L)		0.219	0.159	0.192	0.190	0.176
	Calcium (Ca)-Leachable (mg/L)		2040	2050	2050	2080	2080
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.408	1.09	0.443	0.380	0.665
	Copper (Cu)-Leachable (mg/L)		0.914	0.263	0.302	0.745	0.650
	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)		124	121	122	124	123
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.35	0.60	0.37	0.39	0.70
	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)		25.9	40.4	33.3	38.1	37.0

* 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	L2066868-11 Soil 07-MAR-18 09:00 BA1810-A-11	L2066868-12 Soil 07-MAR-18 09:00 BA1810-A-12		
Grouping	Analyte				
SOIL					
TCLP Metals	1st Preliminary pH (pH)	11.81	11.79		
	2nd Preliminary pH (pH)	9.73	9.65		
	Final pH (pH)	6.26	6.34		
	Extraction Solution Initial pH (pH)	2.87	2.87		
	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)	3.23	3.67		
	Cadmium (Cd)-Leachable (mg/L)	0.152	0.264		
	Calcium (Ca)-Leachable (mg/L)	2060	2110		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.532	0.846		
	Copper (Cu)-Leachable (mg/L)	0.201	0.373		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	122	124		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.76	0.38		
	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)	46.4	37.3		

* 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	Boron (B)	DUP-H	L2066868-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)	DUP-H	L2066868-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)	DUP-H	L2066868-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)	DUP-H	L2066868-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2066868-10, -11, -12, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2066868-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2066868-10, -11, -12, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2066868-10, -11, -12, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2066868-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2066868-10, -11, -12, -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.



L2066868-COFC

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

COC # _____

Page _____ of _____

Report To

Company: Covanta Energy
Contact: Steve McKinney / Dan Skrypnik
Address: 5150 Riverbend Drive
Burnaby BC
Phone: 604-521-1025 Fax: _____
 Yes No

Report Format / Distribution

Standard Other
 PDF Excel Digital Fax
Email 1: smckinney@covanta.com
Email 2: rjohnson4@covanta.com
Email 3: dskrypnik@covanta.com
brent.kirkpatrick@metrovancover.org
Sarah.Wellman@metrovancover.org

Service Requested (Rush for routine analysis subject to availability)

Regular (Standard Turnaround Times - Business Days)
 Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
 Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
 Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Invoice To Same as Report ?

Hardcopy of Invoice with Report? Yes No
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____

Client / Project Information

Job #: _____
PO / AFE: PO# 46693 Weekly Bottom Ash - Suite
LSD: (includes 2:1 pH)
Quote #: _____

Please indicate below Filtered, Preserved or both (F, P, F/P)

Lab Work Order # (lab use only)

ALS Contact: _____ Sampler: _____

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Analysis Request						Number of Containers
					MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR+FULL-VA (all metals)			
BA1810-A-1		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-2		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-3		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-4		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-5		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-6		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-7		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-8		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-9		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-10		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-11		07-Mar-18	9:00	Soil	X	X		X			1
BA1810-A-12		07-Mar-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)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:
<i>[Signature]</i>	13-Mar-18	07:00	zi JC	MAR 13 2018	11 AM	21 °C				Yes / No ? If Yes add SIF