

## Bottom Ash Data

2018 Week 42

---

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on November 2, 2018. The data represents bottom ash composite results for week 42 of 2018 (October 14, 2018 to October 20, 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: 24-OCT-18  
Report Date: 31-OCT-18 15:43 (MT)  
Version: FINAL

Client Phone: 604-521-1025

## Certificate of Analysis

Lab Work Order #: L2186647  
Project P.O. #: VANCO-0000047506  
Job Reference:  
C of C Numbers:  
Legal Site Desc: (includes 2:1 PH)

---

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	L2186647-1 Soil 17-OCT-18 09:00 BA1842-A-1	L2186647-2 Soil 17-OCT-18 09:00 BA1842-A-2	L2186647-3 Soil 17-OCT-18 09:00 BA1842-A-3	L2186647-4 Soil 17-OCT-18 09:00 BA1842-A-4	L2186647-5 Soil 17-OCT-18 09:00 BA1842-A-5	
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	Moisture (%)	23.3	24.2	24.1	24.4	23.4
	pH (1:2 soil:water) (pH)	10.64	10.78	10.81	10.76	10.72
<b>Metals</b>	Aluminum (Al) (mg/kg)	39300	34400	46100	34300	40000
	Antimony (Sb) (mg/kg)	164	196	175	181	187
	Arsenic (As) (mg/kg)	39.4	37.7	36.4	34.3	38.2
	Barium (Ba) (mg/kg)	444	432	458	396	449
	Beryllium (Be) (mg/kg)	0.36	0.38	0.40	0.39	0.40
	Bismuth (Bi) (mg/kg)	7.50	9.11	13.7	10.0	13.7
	Boron (B) (mg/kg)	231	247	219	211	216
	Cadmium (Cd) (mg/kg)	14.8	15.9	15.7	29.5	16.0
	Calcium (Ca) (mg/kg)	123000	132000	130000	125000	121000
	Chromium (Cr) (mg/kg)	189	164	189	202	173
	Cobalt (Co) (mg/kg)	137	65.9	64.8	36.5	51.2
	Copper (Cu) (mg/kg)	10400	3490	15600	3080	5580
	Iron (Fe) (mg/kg)	60300	58300	59900	45600	63200
	Lead (Pb) (mg/kg)	2070	1340	10700	456	373
	Lithium (Li) (mg/kg)	31.9	29.7	21.4	18.1	21.6
	Magnesium (Mg) (mg/kg)	11100	12100	10800	11200	10800
	Manganese (Mn) (mg/kg)	735	829	852	1300	814
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	0.075	0.087
	Molybdenum (Mo) (mg/kg)	138	90.8	126	88.8	119
	Nickel (Ni) (mg/kg)	313	130	128	136	401
	Phosphorus (P) (mg/kg)	10300	10500	9700	9780	9330
	Potassium (K) (mg/kg)	6920	7510	7170	6910	6740
	Selenium (Se) (mg/kg)	0.58	0.54	0.57	0.68	0.66
	Silver (Ag) (mg/kg)	6.07	5.49	4.99	4.98	5.25
	Sodium (Na) (mg/kg)	17900	19300	18200	18100	17300
	Strontium (Sr) (mg/kg)	298	300	302	279	1520
	Sulfur (S) (mg/kg)	18500	19200	18600	18700	16500
	Thallium (Tl) (mg/kg)	0.164	0.074	0.087	0.080	0.089
	Tin (Sn) (mg/kg)	263	437	153	319	138
	Titanium (Ti) (mg/kg)	874	722	1010	544	741
	Tungsten (W) (mg/kg)	17.7	8.13	7.72	10.0	7.81
	Uranium (U) (mg/kg)	3.93	4.42	4.37	4.73	4.53
	Vanadium (V) (mg/kg)	46.5	48.8	50.9	71.4	53.7
	Zinc (Zn) (mg/kg)	17900	5870	11900	4720	4120
	Zirconium (Zr) (mg/kg)	1.4	1.1	1.6	1.4	1.5

\* 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	L2186647-6 Soil 17-OCT-18 09:00 BA1842-A-6	L2186647-7 Soil 17-OCT-18 09:00 BA1842-A-7	L2186647-8 Soil 17-OCT-18 09:00 BA1842-A-8	L2186647-9 Soil 17-OCT-18 09:00 BA1842-A-9	L2186647-10 Soil 17-OCT-18 09:00 BA1842-A-10	
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	Moisture (%)	23.6	23.2	23.4	23.1	23.6
	pH (1:2 soil:water) (pH)	10.83	10.81	10.76	10.84	10.79
<b>Metals</b>	Aluminum (Al) (mg/kg)	42300	34200	40800	36900	32800
	Antimony (Sb) (mg/kg)	189	199	188	224	188
	Arsenic (As) (mg/kg)	68.7	33.9	34.0	37.9	45.9
	Barium (Ba) (mg/kg)	438	440	401	435	425
	Beryllium (Be) (mg/kg)	0.40	0.40	0.37	0.41	0.39
	Bismuth (Bi) (mg/kg)	11.5	11.3	11.6	10.3	10.8
	Boron (B) (mg/kg)	233	232	208	267	269
	Cadmium (Cd) (mg/kg)	22.4	16.3	16.1	18.7	18.3
	Calcium (Ca) (mg/kg)	131000	129000	117000	132000	122000
	Chromium (Cr) (mg/kg)	197	217	160	274	301
	Cobalt (Co) (mg/kg)	72.1	146	105	63.9	44.6
	Copper (Cu) (mg/kg)	3080	3520	5080	1100	8970
	Iron (Fe) (mg/kg)	59200	67200	62700	55400	60100
	Lead (Pb) (mg/kg)	1640	527	323	412	432
	Lithium (Li) (mg/kg)	19.8	18.0	19.4	21.2	17.4
	Magnesium (Mg) (mg/kg)	11700	11500	10200	11300	11500
	Manganese (Mn) (mg/kg)	959	818	4970	856	1240
	Mercury (Hg) (mg/kg)	0.093	0.063	0.062	0.081	0.119
	Molybdenum (Mo) (mg/kg)	95.1	93.3	76.5	95.2	82.4
	Nickel (Ni) (mg/kg)	196	112	122	176	174
	Phosphorus (P) (mg/kg)	11400	9690	9830	10100	9160
	Potassium (K) (mg/kg)	7140	7390	7050	7410	6720
	Selenium (Se) (mg/kg)	0.74	0.69	0.58	0.74	0.71
	Silver (Ag) (mg/kg)	6.29	5.64	6.54	7.20	6.49
	Sodium (Na) (mg/kg)	19100	18600	18200	19600	17300
	Strontium (Sr) (mg/kg)	285	298	404	415	323
	Sulfur (S) (mg/kg)	18500	18300	17400	19000	16600
	Thallium (Tl) (mg/kg)	0.085	0.077	0.084	0.088	0.076
	Tin (Sn) (mg/kg)	155	176	143	158	146
	Titanium (Ti) (mg/kg)	837	948	906	764	936
	Tungsten (W) (mg/kg)	10.2	8.06	8.76	10.5	316
	Uranium (U) (mg/kg)	4.65	4.56	4.58	5.25	4.28
	Vanadium (V) (mg/kg)	54.6	55.7	54.7	56.9	50.7
	Zinc (Zn) (mg/kg)	4990	5120	5660	5660	6060
	Zirconium (Zr) (mg/kg)	1.4	1.4	1.5	1.5	1.7

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2186647-11	L2186647-12		
		Description	Soil	Soil		
		Sampled Date	17-OCT-18	17-OCT-18		
		Sampled Time	09:00	09:00		
		Client ID	BA1842-A-11	BA1842-A-12		
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	Moisture (%)	23.0	22.6			
	pH (1:2 soil:water) (pH)	10.79	10.71			
<b>Metals</b>	Aluminum (Al) (mg/kg)	36500	40800			
	Antimony (Sb) (mg/kg)	164	169			
	Arsenic (As) (mg/kg)	30.6	30.2			
	Barium (Ba) (mg/kg)	434	435			
	Beryllium (Be) (mg/kg)	0.43	0.40			
	Bismuth (Bi) (mg/kg)	12.8	10.2			
	Boron (B) (mg/kg)	265	265			
	Cadmium (Cd) (mg/kg)	17.4	17.5			
	Calcium (Ca) (mg/kg)	127000	122000			
	Chromium (Cr) (mg/kg)	176	159			
	Cobalt (Co) (mg/kg)	419	55.5			
	Copper (Cu) (mg/kg)	4330	2230			
	Iron (Fe) (mg/kg)	53000	62200			
	Lead (Pb) (mg/kg)	420	373			
	Lithium (Li) (mg/kg)	27.2	22.9			
	Magnesium (Mg) (mg/kg)	11100	11900			
	Manganese (Mn) (mg/kg)	870	3360			
	Mercury (Hg) (mg/kg)	0.174	0.120			
	Molybdenum (Mo) (mg/kg)	78.7	78.2			
	Nickel (Ni) (mg/kg)	159	130			
	Phosphorus (P) (mg/kg)	10200	9850			
	Potassium (K) (mg/kg)	6880	6780			
	Selenium (Se) (mg/kg)	0.72	0.72			
	Silver (Ag) (mg/kg)	7.02	5.28			
	Sodium (Na) (mg/kg)	17500	18000			
	Strontium (Sr) (mg/kg)	265	289			
	Sulfur (S) (mg/kg)	16000	17100			
	Thallium (Tl) (mg/kg)	0.088	0.082			
	Tin (Sn) (mg/kg)	156	143			
	Titanium (Ti) (mg/kg)	542	897			
	Tungsten (W) (mg/kg)	11.1	9.79			
	Uranium (U) (mg/kg)	4.81	4.70			
Vanadium (V) (mg/kg)	66.1	55.6				
Zinc (Zn) (mg/kg)	4620	5430				
Zirconium (Zr) (mg/kg)	1.4	1.9				

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2186647-1	L2186647-2	L2186647-3	L2186647-4	L2186647-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	17-OCT-18	17-OCT-18	17-OCT-18	17-OCT-18	17-OCT-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1842-A-1	BA1842-A-2	BA1842-A-3	BA1842-A-4	BA1842-A-5
Grouping	Analyte						
<b>SOIL</b>							
<b>TCLP Metals</b>	1st Preliminary pH (pH)		11.12	11.14	11.19	11.22	11.30
	2nd Preliminary pH (pH)		9.02	9.33	9.12	9.05	9.11
	Final pH (pH)		6.02	6.20	6.17	6.10	6.12
	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)		3.71	3.83	3.89	3.79	3.93
	Cadmium (Cd)-Leachable (mg/L)		0.239	0.225	0.230	0.300	0.248
	Calcium (Ca)-Leachable (mg/L)		1910	1950	1980	1990	1940
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.409	0.585	0.294	0.516	0.781
	Copper (Cu)-Leachable (mg/L)		0.164	0.572	1.18	0.456	0.790
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25	0.30	0.67	0.26
	Magnesium (Mg)-Leachable (mg/L)		118	118	120	121	116
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.55	0.68	0.76	0.48	0.64
	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)		64.3	71.3	50.7	46.4	74.3

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2186647-6	L2186647-7	L2186647-8	L2186647-9	L2186647-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	17-OCT-18	17-OCT-18	17-OCT-18	17-OCT-18	17-OCT-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1842-A-6	BA1842-A-7	BA1842-A-8	BA1842-A-9	BA1842-A-10
Grouping	Analyte						
<b>SOIL</b>							
<b>TCLP Metals</b>	1st Preliminary pH (pH)		11.24	11.22	11.23	11.24	11.27
	2nd Preliminary pH (pH)		8.84	8.92	8.93	8.80	8.79
	Final pH (pH)		6.04	5.90	5.95	5.92	5.93
	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)		4.36	3.66	3.89	3.93	3.83
	Cadmium (Cd)-Leachable (mg/L)		0.265	0.300	0.276	0.582	0.322
	Calcium (Ca)-Leachable (mg/L)		1970	1970	1950	1990	1920
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.409	0.625	0.917	0.677	0.578
	Copper (Cu)-Leachable (mg/L)		0.948	0.602	1.01	1.00	1.20
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		0.34	0.46	0.38	0.28	<0.25
	Magnesium (Mg)-Leachable (mg/L)		122	120	118	120	117
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.58	0.50	0.52	1.45	0.66
	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)		48.9	105	44.9	52.2	78.9

\* 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	L2186647-11 Soil 17-OCT-18 09:00 BA1842-A-11	L2186647-12 Soil 17-OCT-18 09:00 BA1842-A-12		
Grouping	Analyte				
<b>SOIL</b>					
<b>TCLP Metals</b>	1st Preliminary pH (pH)	11.32	11.28		
	2nd Preliminary pH (pH)	8.93	8.81		
	Final pH (pH)	5.93	5.96		
	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)	4.10	3.98		
	Cadmium (Cd)-Leachable (mg/L)	0.342	0.269		
	Calcium (Ca)-Leachable (mg/L)	2000	1980		
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25		
	Cobalt (Co)-Leachable (mg/L)	0.407	0.352		
	Copper (Cu)-Leachable (mg/L)	0.528	1.22		
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0		
	Lead (Pb)-Leachable (mg/L)	0.50	<0.25		
	Magnesium (Mg)-Leachable (mg/L)	126	125		
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010		
	Nickel (Ni)-Leachable (mg/L)	0.45	0.50		
	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)	56.7	54.9		

\* 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)
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2186647-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2186647-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2186647-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2186647-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
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>AG-200.2-A-CCMS-VA</b>	Soil	Elevated Ag in Soil by CRC ICPMS 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.	EPA 200.2/6020A
<b>HG-200.2-CVAF-VA</b>	Soil	Mercury in Soil by CVAAS 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.	EPA 200.2/1631E (mod)
<b>HG-TCLP-CVAFS-VA</b>	Soil	Mercury by CVAAS (TCLP) 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).	EPA 1311/245.7
<b>MET-200.2-CCMS-VA</b>	Soil	Metals in Soil by CRC ICPMS 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, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H <sub>2</sub> S) may be excluded if lost during sampling, storage, or digestion.	EPA 200.2/6020A (mod)
<b>MET-TCLP-ICP-VA</b>	Soil	Metals by ICPOES (TCLP) 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).	EPA 1311/6010B
<b>MOISTURE-VA</b>	Soil	Moisture content This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.	CWS for PHC in Soil - Tier 1
<b>PH-1:2-VA</b>	Soil	pH in Soil (1:2 Soil:Water Extraction) 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.	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

\*\* 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.*



L2186647-COFC

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

**Rep**

Standard  Regular (Standard Turnaround Times - Business Days)  
 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)

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

**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	MET-TCLP-VA (all metals, Hg)			MET-CSR+FULL-VA (all metals)			Number of Containers	
					MOISTURE	Chrome 6						
BA1842-A-1		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-2		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-3		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-4		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-5		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-6		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-7		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-8		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-9		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-10		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-11		17/10/2018	9:00	Soil	X	X			X			1
BA1842-A-12		17/10/2018	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): 24-Oct-18	Time (hh-mm): 08:00	Received by: HA	Date: 10/24	Time: 11:35am	Temperature: 21 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF