Analysis Report

Client:	Veolia	Report Ref:	UC13846.1
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		Report Date:	May 2019

Sheffield ERF – Comparison of IBA from May 2019 with historic dataset

Aim

Due to a change in the composition of waste feedstock entering the Sheffield Energy Recovery Facility (ERF), the Incinerator Bottom Ash (IBA) sample taken from this facility on 10th May 2019 was compared with the historic dataset of IBA from this facility. This was to identify whether the IBA composition from sample 'SHE-IBA1-COM-100519' was within facility specific historic ranges for samples taken between 2011 and 2019 inclusive.

Results

The historic dataset of IBA samples, together with the composition of the above sample, is shown in Table 1.

Several determinands were found above the average concentrations (arsenic, barium, beryllium, copper, iron, lead, magnesium, manganese, phosphorus, potassium, sodium and titanium), and none of the determinands were found above the 95th percentile concentration of the historic dataset.

The composition of sample 'SHE-IBA1-COM-100519' does not therefore deviate from expected ranges for all determinands assessed.

Table 1 Comparison of IBA from May 2019 with historic dataset

Veolia - Sheffield ERF		2011-2019						May-19
	Units	min	average	95%ile	max	RSD%	n	SHE-IBA1-COM-100519
pH : Solid sample	pH Units	10.30	12.11	12.74	12.84	5.01	197	11.42
Alkali Reserve	g/100g	0.02	0.64	1.41	1.62	73.6	154	<0.1
Moisture Content @ 30°C	%	9.20	15.9	21.1	25.3	20.6	197	15.7
Concentrations 'as received'[1]								
Aluminium	mg/kg	14258	23868	32350	74775	27.5	197	23827
Antimony	mg/kg	20.1	62.7	105	144	33.0	198	55.5
Arsenic	mg/kg	0.72	6.18	10.4	20.3	45.5	198	6.88
Barium	mg/kg	72.3	412	710	1111	52.5	197	538
Beryllium	mg/kg	0.26	0.77	1.88	2.35	58.5	197	<0.84
Boron	mg/kg	43.9	92.9	142	226	28.9	197	75.1
Cadmium	mg/kg	1.46	11.4	25.8	104	82.7	198	10.2
Calcium	mg/kg	51927	93644	128102	164163	19.0	197	89126
Chromium	mg/kg	48.8	135	204	586	37.1	198	117
Cobalt	mg/kg	9.15	44.2	79.6	313	64.9	198	39.4
Copper	mg/kg	923	2179	3328	6763	32.8	198	2364
Iron	mg/kg	14619	42655	58653	101254	24.9	197	46550
Lead	mg/kg	137	753	1516	2216	48.1	198	1085
Lithium	mg/kg	8.40	17.2	21.8	78.3	34.0	197	15.8
Magnesium	mg/kg	5192	7883	10515	11684	16.4	197	7939
Manganese	mg/kg	279	924	1400	3098	33.3	198	1142
Mercury	mg/kg	0.15	0.82	1.76	3.19	70.8	198	<0.42
Molybdenum	mg/kg	1.69	31.3	73.4	342	128	197	22.3
Nickel	mg/kg	43.4	158	291	752	55.7	198	123
Phosphorus	mg/kg	2175	5071	6843	7820	20.8	197	5592
Potassium	mg/kg	1614	4447	6383	11689	28.5	197	4817
Selenium	mg/kg	0.38	1.16	1.02	17.9	229	197	0.52
Silver	mg/kg	0.88	7.20	16.4	66.3	87.5	197	6.85
Sodium	mg/kg	5245	9554	12255	14887	18.2	197	10708
Strontium	mg/kg	129	268	492	1876	62.5	197	187
Thallium	mg/kg	0.08	1.05	2.63	16.0	138	198	<0.08
Tin	mg/kg	77.1	163	241	1134	61.2	198	141
Titanium	mg/kg	764	1847	2272	2668	16.6	197	1850
Vanadium	mg/kg	14.3	69.5	152	214	58.7	198	50.0
Zinc	mg/kg	796	2423	3646	5739	27.2	198	1880
sample information								
Total sample received	kg	25.6	43.4	51.3	52.9	12.3	151	40.3
Inert items removed during grinding	dry wt %	0.00	1.51	8.81	16.1	203	151	0.00
Metal items (non-clinker)	dry wt %	0.33	3.06	6.21	8.58	50.5	151	1.66
Ferrous Metals	dry wt %	0.13	0.51	0.97	1.33	65.9	14	0.36
Non-Ferrous Metals	dry wt %	0.33	1.76	2.65	3.15	45.0	14	1.30
Batteries	dry wt %	0.00	0.03	0.13	0.17	186	13	0.00

[1] Adjusted for moisture content and inert non-grindables

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