

Permit Reference Number : AP3435SD

Operator : MES Environmental Ltd

Installation : Dudley EFW Facility

Form Number : Ash1 (dated 04/10/2005)

Reporting of Ash Composition for the period from ...December 2006...to...March 2007...

Ash Composition (TOC/LOI)		
	LOI (%)	% Carbon (TOC) w/w
Bottom Ash (Line 1)	*	2.2
Bottom Ash (Line 2)	*	2.3

*At least one of LOI or TOC to be reported

Ash Composition (Metals, Dioxins, etc.)																
	Cd %	Ti %	Hg %	Pb %	Cr %	Cu %	Mn %	Ni %	As %	Co %	V %	Zn %	DIOXIN I-TEQ ng/kg	DIOXIN WHO-TEQ ng/kg		
														Humans/ mammal	Birds	Fish
IBA Line 1	8.0E-4	<2E4	1.1E-4	7.5E-2	1.0E-2	1.6E-1	9.3E-2	1.1E-2	6.7E-4	3.3E-3	4.6E-3	2.7E-1	3.1	3.8	4.9	2.9
IBA Line 2	9.7E-4	<2E4	9.0E-5	4.9E-2	9.4E-3	1.4E-1	9.6E-2	6.3E-3	8.3E-4	2.2E-3	4.6E-3	2.7E-1	3.0	3.6	4.4	3.1
APCR Line 1	7.9E-3	<2E4	2.2E-4	7.4E-2	1.2E-2	4.5E-2	8.4E-2	3.1E-3	1.3E-3	1.5E-3	3.0E-3	5.4E-1	125.1	157.2	233.2	140.3
APCR Line 2	4.7E-3	<2E4	2.0E-4	6.5E-2	1.0E-2	4.2E-2	8.0E-2	4.6E-3	1.1E-3	1.7E-3	6.9E-3	4.5E-1	275.1	325.4	453.6	310.5

Signed
(authorised to sign as representative of Operator)

Date.....

Permit Reference Number : AP3435SD

Operator : MES Environmental Ltd

Installation : Dudley EFW Facility

Form Number : Ash1 (dated 04/10/2005)

Reporting of Ash Composition for the period from ...March 2007...to...June 2007...

Ash Composition (TOC/LOI)		
	LOI (%)	% Carbon (TOC) w/w
Bottom Ash (Line 1)	*	2.3
Bottom Ash (Line 2)	*	2.0

*At least one of LOI or TOC to be reported

Ash Composition (Metals, Dioxins, etc.)																
	Cd %	Ti %	Hg %	Pb %	Cr %	Cu %	Mn %	Ni %	As %	Co %	V %	Zn %	DIOXIN I-TEQ ng/kg	DIOXIN WHO-TEQ ng/kg		
														Humans/ mammal	Birds	Fish
IBA Line 1	7.3E-4	<2E4	1.0E-4 3.4E-2		1.2E-2	2.5E-1	1.00E-1	1.9E-2	5.8E-4	4.3E-3	2.3E-3	3.2E-1	2.8	3.2	6.7	2.6
IBA Line 2	1.9E-4	<2E4	9.0E-5	5.6E-2	9.3E-3	2.6E-1	8.8E-2	1.1E-2	5.1E-4	9.5E-3	2.2E-3	3.1E-1	1.1	1.5	2.2	1.0
APCR Line 1	1.2E-2	<2E4	2.9E-4	8.6E-2	9.7E-3	6.1E-2	6.6E-2	4.6E-3	1.1E-3	1.8E-3	1.3E-3	6.0E-1	726.2	798.2	1331.1	779.6
APCR Line 2	8.0E-3	<2E4	3.2E-4	6.8E-2	1.0E-2	4.9E-2	7.7E-2	3.0E-3	9.7E-4	1.7E-3	1.3E-3	5.4E-1	404.6	437.8	810.3	415.7

Signed
(authorised to sign as representative of Operator)

Date.....

Permit Reference Number : AP3835SM

Operator : MES Environmental Ltd

Installation : Wolverhampton EFW Facility

Form Number : Ash1 (dated 04/10/2005)

Reporting of Ash Composition for the period from ...December 2006...to...March 2007...

Ash Composition (TOC/LOI)		
	LOI (%)	% Carbon (TOC) w/w
Bottom Ash (Line 1)	*	2.3
Bottom Ash (Line 2)	*	2.6

*At least one of LOI or TOC to be reported

Ash Composition (Metals, Dioxins, etc.)																
	Cd %	TI %	Hg %	Pb %	Cr %	Cu %	Mn %	Ni %	As %	Co %	V %	Zn %	DIOXIN I-TEQ ng/kg	DIOXIN WHO-TEQ ng/kg		
														Humans/ mammal	Birds	Fish
IBA Line 1	5.3E-4	<2E-4	8.0E-5	3.5E-1	7.4E-3	2.8E-1	7.4E-2	6.5E-3	1.0E-3	1.7E-3	4.3E-3	2.9E-1	6.9	7.1	7.8	6.5
IBA Line 2	6.0E-4	<2E-4	<6E-5	6.8E-2	6.7E-3	1.7E-1	8.0E-2	6.0E-3	1.1E-3	1.5E-3	4.4E-3	2.5E-1	1.1	1.3	1.9	1.3
APCR Line 1	1.9E-2	<2E-4	4.4E-4	1.6E-1	6.8E-3	1.2E-1	5.4E-2	2.7E-3	4.4E-3	1.3E-3	3.0E-3	9.9E-1	146.2	175.4	286.9	157.5
APCR Line 2	2.3E-2	<2E-4	3.1E-4	2.1E-1	5.8E-3	1.9E-1	5.0E-2	2.3E-3	2.7E-3	1.1E-3	2.0E-3	1.3E0	542.2	610.3	1086.8	570.2

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Permit Reference Number : AP3835SM

Operator : MES Environmental Ltd

Installation : Wolverhampton EFW Facility

Form Number : Ash1 (dated 04/10/2005)

Reporting of Ash Composition for the period from ...March 2007...to...June 2007...

Ash Composition (TOC/LOI)		
	LOI (%)	% Carbon (TOC) w/w
Bottom Ash (Line 1)	*	1.8
Bottom Ash (Line 2)	*	1.6

*At least one of LOI or TOC to be reported

Ash Composition (Metals, Dioxins, etc.)																
	Cd %	Ti %	Hg %	Pb %	Cr %	Cu %	Mn %	Ni %	As %	Co %	V %	Zn %	DIOXIN I-TEQ ng/kg	DIOXIN WHO-TEQ ng/kg		
														Humans/ mammal	Birds	Fish
IBA Line 1	1.3E-3	<2E-4	9.0E-5	5.7E-2	8.8E-3	1.9E-1	7.7E-2	8.2E-3	1.0E-3	1.5E-3	2.5E-3	3.3E-1	5.6	6.0	8.0	4.7
IBA Line 2	1.0E-3	<2E-4	<6E-5	1.2E-1	7.6E-3	1.5E-1	7.2E-2	6.1E-3	8.0E-4	1.8E-3	2.5E-3	2.6E-1	25.5	29.7	33.8	23.7
APCR Line 1	1.8E-2	<2E-4	4.8E-4	1.5E-1	5.7E-3	6.4E-2	4.6E-2	2.4E-3	1.9E-3	1.0E-3	1.3E-3	1.0E0	499.1	579.2	765.1	487.2
APCR Line 2	9.7E-3	<2E-4	4.1E-4	9.2E-2	5.8E-3	4.6E-2	5.5E-2	2.6E-3	1.6E-3	1.5E-3	2.0E-3	6.0E-1	1368.8	1592.0	2174.4	1441.4

Signed
(authorised to sign as representative of Operator)

Date.....

Plant	Quarter	Sample Date	Sample	Total Organic Carbon (%)
Wolverhampton	1 07	29/03/07	Boiler 1 IBA	2.3
Wolverhampton	2 07	02/07/07	Boiler 1 IBA	1.8
Wolverhampton	3 07	20-09-07	Boiler 1 IBA	0.95
Wolverhampton	1 07	29/03/07	Boiler 2 IBA	2.6
Wolverhampton	2 07	02/07/07	Boiler 2 IBA	1.6
Wolverhampton	3 07	20-09-07	Boiler 2 IBA	1.23
Dudley	1 07	29/03/07	Boiler 1 IBA	2.2
Dudley	2 07	25/06/07	Boiler 1 IBA	2.3
Dudley	3 07	20-09-07	Boiler 1 IBA	1.1
Dudley	1 07	29/03/07	Boiler 2 IBA	2.3
Dudley	2 07	25/06/07	Boiler 2 IBA	2
Dudley	3 07	20-09-07	Boiler 2 IBA	1.4

LOI Temp = 450C

Loss on Ignition (%)
10
15
12.6
18
11
11.9
12
11
11
8.8
11
9.1
9

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Appendix 3 Guidance on Analytical Requirements

The determinands required depend on the objectives of the Sampling Plan and will differ. This section therefore considers determinands for various purposes.

1. Analytical methods to be used by PIR Function

This is not a definitive list but includes the main determinands that should be considered when taking into account the composition of incinerator IBA and APC from those processes described in the Protocols within this document. For specific sites, other determinands may also be required. Further guidance on methods for these can be obtained from a suitably accredited contractor or laboratory.

Table 1

Determinand	Analytical method
Total Dioxins	Method based on EPA 1613*
Total Metals	Methods for the Determination of Metals in Soils, sediments, and Sewage Sludge, and Plants by Hydrochloric-Nitric Acid Digestion, with a note on the determination of Insoluble Metal Contents 1986 ISBN No 0117519081 **
Loss on Ignition	Method based on 2 hours at 550°C ***
Total Organic Carbon	HNC Elemental analyser (based on a method used for sediments)
Total Protein	Aqueous extraction followed by PITC derivitisation and subsequent analysis by HPLC

* This method gives a number of scenarios for extraction, analysis etc. The laboratory should use a method based on EPA 1613 that has been accredited by an external body such as UKAS

** Guidance is to be issued on comparison of methods for metals determination from various matrices

*** This is the method used by Agency NLS, variations do exist that can be discussed with the Agency Officer

The mass of sample to be forwarded to the laboratory is determined by the analysis method. Further information on this can be obtained from the laboratory and the relevant Protocol.

2. Analytical methods to be used to determine whether the Ash is considered as 'Special Waste'.

Table 2 details the determinand limits that are required to be met in determining whether a combined sample of IBA and APC are to be consigned as 'Special Waste' under the Special Waste Regulations 1996 (reference 10). Although a highly alkaline pH itself can determine

*only do TOC
 LOI should be done at 550°C*