



**Transforming waste™**

**The Environmental Permitting (England  
and Wales) Regulations 2010**

**Permit: EPR/LP3030XA  
Cardiff Energy Recovery Facility**

**Environmental Monitoring Report  
1<sup>st</sup> Quarter 2017: 1<sup>st</sup> January – 31<sup>st</sup> March 2017**

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## Quality Assurance

This report has been prepared with all reasonable skill, care and diligence. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

### **Report Details**

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## **1. Introduction**

Cardiff Energy Recovery Facility is located immediately north of Cardiff Docks. The facility has an annual throughput of 350,000 tonnes per year of residual municipal and C&I waste and has the capability of exporting approximately 30MW of electrical power from the process.

In accordance with the requirements of Condition 4.2.3, Schedule 4 and table S4.1 of Permit EPR/LP3030XA issued by Natural Resources Wales to Viridor Waste Management Limited (Viridor) on 4th November 2010, Viridor is required to submit a summary of the environmental monitoring works undertaken at the site on a quarterly basis. Such reports will form the basis of the annual environmental review report, which is to be submitted to Natural Resources Wales by the 30<sup>th</sup> April as agreed in writing with Natural Resources Wales of each year in accordance with Condition 4.2.2 of the Permit.

Viridor took over the operation of the Plant on 31<sup>st</sup> January 2015; therefore 2017 is the third year of operations at the Facility.

This report summarises the environmental data collected at the site during the first quarter calendar period of 2017, between 1<sup>st</sup> January and 31<sup>st</sup> March.

The report will cover the following areas of environmental monitoring:

- Section 2 – Point Source Emissions to Air
- Section 3 – Point Source Emissions to Water
- Section 4 – Residue Quality Monitoring Requirements

## **2. Point Source Emissions to Air**

### **2.1. Introduction**

Permit Condition 3.5.1(a) and Tables S3.1 and S3.1(a) require Viridor to undertake performance monitoring of the point source emissions to air arising at sample points A1 and A2 on a continuous and periodic basis.

A summary of the continuous point source emissions to air monitoring data at sample point A1 and A2, for the period, is included as Table 1.

The measurement frequency for periodic point source emissions to air monitoring data at sample point A1 and A2 is on a bi-annual basis, after 12 months of operation. Periodic monitoring data is not included in this report, but will be included in the next quarterly report.

### **2.2 Commentary on Data**

The concentrations recorded under normal operation during the review period remained compliant with the limits set out in Permit.

Line 1 was in operation for 98% of the quarter and Line 2 for 99%.

### **2.3 Schedule Notices Issued**

22/02/2017 – Schedule Notification Part A and B was submitted due to elevated 10 minute average CO readings.

**Table 1: Emissions to Air from A1 and A2 (CEMS)**

Releases to Air from Incinerators – Continuous Monitoring – Air 2							
Parameter	Limit	Reference Period	A1		A2		Test Method
			Max	Avg	Max	Avg	
Oxides of nitrogen	200 mg/m <sup>3</sup>	Daily mean	191	177	199	183	BS EN 15267-3
	400 mg/m <sup>3</sup>	½ hourly mean	299		326		
Particulate Matter	10 mg/m <sup>3</sup>	Daily mean	1	1	0	0	
	30 mg/m <sup>3</sup>	½ hourly mean	1		1		
Total Organic Carbon (TOC)	10 mg/m <sup>3</sup>	Daily mean	1	0	1	0	
	20 mg/m <sup>3</sup>	½ hourly mean	8		20		
Hydrogen chloride	10 mg/m <sup>3</sup>	Daily mean	9	8	10	9	
	60 mg/m <sup>3</sup>	½ hourly mean	34		25		
Sulphur dioxide	50 mg/m <sup>3</sup>	Daily mean	28	13	12	6	
	200 mg/m <sup>3</sup>	½ hourly mean	75		48		
Carbon monoxide	50 mg/m <sup>3</sup>	Daily mean	30	7	130	8	
	150 mg/m <sup>3</sup>	½ hourly mean					
Ammonia	No limit set	Daily mean	1	0	3	1	

\*Note. ½ hourly monitoring for CO is no longer required in the latest version of the permit

\*\*Note. CEMS data figures are adjusted for the method uncertainty

### **3. Point Source Emissions to Water**

#### **3.1. Introduction**

Permit Condition 3.5.1(a) and Table S3.2 requires Viridor to ensure sample point W1 is free of oil, grease and visible solids.

#### **3.2 Commentary on Data**

During the quarter monitoring point W1 has remained free of oil and grease.

#### **3.3 Schedule Notices Issued**

No Permit limit exceedances were recorded during the review period for emissions to water.

## **4. Residue Quality Monitoring Requirements**

### **4.1. Introduction**

Permit Condition 3.5.1(c) and Table S3.5 require Viridor to undertake residue quality monitoring at quarterly intervals following the first year of operation. This applies for both bottom ash and air pollution control residues.

### **4.2 Commentary on Data**

#### **Incinerator Bottom Ash**

Figures shown in Table 3 detail the quarterly analysis undertaken in line with the criteria laid out in the ESA protocol.

#### **Air Pollution Control Residues**

Figures shown in Table 3 detail the analysis undertaken during the quarter.

**Table 3 Residue Quality**

Residue quality					
Parameter	Limit	Normal Operation			
		Bottom ash		APC Residues	
		Line 1	Line 2	Line 1	Line 2
		Quarter 1	Quarter 1		
Total Organic Carbon	3%	1.7	1.9		
		Composite			
Quarter		Quarter 1		Quarter 1	Quarter 1
Antimony (mg/kg)	---	255.2		808	723
Cadmium (mg/kg)	---	32.2		258	207
Thallium (mg/kg)	---	<0.1		1.0	0.9
Mercury (mg/kg)	---	<0.5		5.76	6.07
Lead (mg/kg)	---	632.7		2189	2021
Chromium (mg/kg)	---	147.4		29.0	25.9
Copper (mg/kg)	---	2261.6		512	455
Manganese (mg/kg)	---	1068.8		307	296
Nickel (mg/kg)	---	101.4		11.7	10.0
Arsenic (mg/kg)	---	23.1		60.8	52.6
Cobalt (mg/kg)	---	42		4.7	3.5
Vanadium (mg/kg)	---	73		<10	<10

Zinc (mg/kg)	---	4457.9	13300	10870
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	16.264	461.38	3201.58
PCB (WHO 2005 TEQ) (ng/kg)	---	1.7484	6.70	200.40