



**Transforming waste™**

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

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

**Environmental Monitoring Report  
3<sup>rd</sup> Quarter 2016: 1<sup>st</sup> July – 30<sup>th</sup> September 2017**

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Version: 1.0  
**Issue Date: 08/10/2017**



## 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**

Report Title:	Cardiff Energy Recovery Facility – 3 <sup>rd</sup> Quarter 2017 Environmental Report
Report Date:	08 November 2017
Version:	1

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Position:	Head of Technical Compliance.

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## **1. Introduction**

Cardiff Energy Recovery Facility is located immediately north of Cardiff Docks. The facility has an annual throughput of up to 425,000 tonnes per year of residual municipal and C&I waste and has the capability of exporting approximately 30 MW 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).

This report summarises the environmental data collected at the site during the third quarter calendar period of 2017, between 1<sup>st</sup> July and 30<sup>th</sup> September.

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 the Permit, with the exception of the events listed in 2.3. Line 1 was in operation for 83.14% of the quarter and Line 2 for 91.96%.

### **2.3 Schedule Notices Issued**

Date and Time of detection 04/07/2017 at 08:30H

Emission Point A1 + A2

Parameter CO (daily exceedance)

Date and Time of detection 04/07/2017 at 08:30H

Emission Point A1

Parameter CO (exceeded 95%ile 10 minute average)

Date and Time of detection 21/07/2017 at 08:30H

Emission Point A2

Parameter CO (daily exceedance)

Date and Time of detection 24/07/2017 at 08:30H

Emission Point A2

Parameter CO (daily exceedance)

Date and Time of detection 28/07/2017 at 09:30H

Emission Point A2

Parameter CO (daily exceedance)

Date and Time of detection 31/07/2017 at 09:30H

Emission Point A2

Parameter CO (daily exceedance)

It may be noted that that the magnitude of CO releases during the events listed above skewed the "Daily Mean" for CO. These releases have already been addressed within CAR\_NRW0032019 dated 28/9/17.

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**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	Uncertainty**
			Max	Avg	Max	Avg		
Oxides of nitrogen	200 mg/m³	Daily mean	196.4	176.1	195.1	181.83	BS EN 15267-3	
	400 mg/m³	½ hourly mean	273		325			
Particulate Matter	10 mg/m³	Daily mean	0.75	0.6	0.45	0.38		
	30 mg/m³	½ hourly mean	1		1			
Total Organic Carbon (TOC)	10 mg/m³	Daily mean	1.17	0.4	0.92	0.25		
	20 mg/m³	½ hourly mean	6.7		7.7			
Hydrogen chloride	10 mg/m³	Daily mean	9.41	7.63	9.75	8.12		
	60 mg/m³	½ hourly mean	22.3		32			
Sulphur dioxide	50 mg/m³	Daily mean	36.31	12.07	19.32	5.20		
	200 mg/m³	½ hourly mean	76.7		44.3			
Carbon monoxide	50 mg/m³	Daily mean	356.3	14.47	192.1	14.75		
	100 mg/m³	½ hourly mean*						
Ammonia	No limit set	Daily mean	2.62	<1	3.86	1.19		

\*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.

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## **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 of samples collected on 30 October 2017. Please note that due to the requirement of submitting this report data on Dioxins, Furans and PCBs have yet to be returned to us from the laboratory undertaking the analysis. When Viridor receive the data from the laboratory, it shall without delay, be forwarded to NRW for review.

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**Table 3: Residue Quality**

Residue quality					
Parameter	Limit	Normal Operation			
		Bottom ash		APC Residues	
		Line 1	Line 2	Line 1	Line 2
		Quarter 3	Quarter 3		
Total Organic Carbon	3%	1.4	1.1		
		Composite (27/7/17)			
Quarter		Quarter 3		Quarter 3	Quarter 3
Antimony (mg/kg)	---	96.1		967	1607
Cadmium (mg/kg)	---	9.44		201	254
Thallium (mg/kg)	---	0.11		1.0	0.9
Mercury (mg/kg)	---	<0.5		7.62	2.73
Lead (mg/kg)	---	715.8		1420	1783
Chromium (mg/kg)	---	153		103	70.5
Copper (mg/kg)	---	1704.7		559	596
Manganese (mg/kg)	---	887		471	561
Nickel (mg/kg)	---	76.7		32.5	18.3
Arsenic (mg/kg)	---	11.7		62.3	92.7
Cobalt (mg/kg)	---	25.6		9.3	6.0



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Vanadium (mg/kg)	---	23.5	12.4	10.3
Zinc (mg/kg)	---	2405.4	10,160	12,990
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	12.342		
PCB (WHO 2005 TEQ) (ng/kg)	---	0.960		

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