

**Viridor**

**Transforming waste™**

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

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

**Environmental Monitoring Report**

**1 July – 30 September 2022**

Prepared by:  
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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**

Report Title:	Cardiff Energy Recovery Facility Environmental Report 1 July – 30 September 2022
Report Date:	26 October 2022
Version:	1

### **Report Generated By**

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Position:	EHS Manager – Cardiff ERF

## **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 33.5 MW of electrical power from the process.

In accordance with the requirements of Permit EPR/LP3030XA issued by Natural Resources Wales to Viridor Waste Management Limited (Viridor) on 4 May 2018, Viridor is required to submit an Environmental Monitoring Report on a quarterly basis.

This report summarises the environmental data collected at the site during the period from 1 July to 30 September 2022.

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.

### **2.2 Commentary on Data**

The concentrations recorded were obtained by running a quarterly continuous emissions report on CDAS software report.

Line 1 was in operation for 2,147.75 hours  
As this quarter had 92 days (92 days x 24 hours = 2208 hours)  
Line 1 was in operation 97.2%

Line 2 was in operation for 2,150.25 hours (97.38%).

This installation generated 80,773MWh of electricity during the period.

### **2.3 Schedule Notices Issued**

Part C notification

Daily (10 July 2022) value of HCl of 10.59mg/m<sup>3</sup> when ELV is 10mg/m<sup>3</sup>.

Daily (27 July 2022) value of HCl of 10.02mg/m<sup>3</sup> when ELV is 10mg/m<sup>3</sup>.

Part A and B notification

Event on 29 July 2022 for a fire within the waste bunker where SWFRS were called.

**Table 1: Emissions to Air from A1 and A2 (CEMS) taken from A1- Cbiss reports.**

**See attached PDF Data Sheets as agreed with NRW**

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/m <sup>3</sup>	Daily mean					BS EN 15267-3	
	400 mg/m <sup>3</sup>	½ hourly mean						
Particulate Matter	10 mg/m <sup>3</sup>	Daily mean						
	30 mg/m <sup>3</sup>	½ hourly mean						
Total Organic Carbon (TOC)	10 mg/m <sup>3</sup>	Daily mean						
	20 mg/m <sup>3</sup>	½ hourly mean						
Hydrogen chloride	10 mg/m <sup>3</sup>	Daily mean						
	60 mg/m <sup>3</sup>	½ hourly mean						
Sulphur dioxide	50 mg/m <sup>3</sup>	Daily mean						
	200 mg/m <sup>3</sup>	½ hourly mean						
Carbon monoxide	50 mg/m <sup>3</sup>	Daily mean						
	100 mg/m <sup>3</sup>	½ hourly mean*						

\* 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

\*\*\* Corrective factor determined by NPL during latest QAL 2 (inputted into CDAS on 22 February 2021). 4 of.

\*\*\*\* As the LINE 2 DUTY heated line was changed the LINE 2 DUTY Corrective Factor was reassessed by Socotec (inputted into CDAS on 15 June 2022)

**Table 2: Emissions to Air from A1 and A2 Periodic**

Results of 6-monthly emissions testing was submitted within the last report. Results for the second emissions testing visit shall be submitted within the next quarterly report.

### **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
		Received at lab 18_7_2022 Reported to Viridor 25_7_2022	Received at lab 18_7_2022 Reported to Viridor 25_7_2022		
Total Organic Carbon	3%	0.8%	0.6%		
		Composite			
		Received at lab 18_7_2022 Reported to Viridor 1_8_2022	Received at lab 18_7_2022 Metals reported to Viridor 21_7_2022 D, F + PCBs reported to Viridor 26_7_2022	Received at lab 18_7_2022 Metals reported to Viridor 21_7_2022 D, F + PCBs reported to Viridor 26_7_2022	
Antimony (mg/kg)	---	258	1,336	1,233	
Cadmium (mg/kg)	---	36.2	321	316	
Thallium (mg/kg)	---	<0.1	1.0	1.0	
Mercury (mg/kg)	---	<0.5	6.53	6.62	

Lead (mg/kg)	---	464.8	1,815	1,801
Chromium (mg/kg)	---	131	52.5	49.8
Copper (mg/kg)	---	1,874.1	627	561
Manganese (mg/kg)	---	1,246	382	387
Nickel (mg/kg)	---	119.1	17.9	17.7
Arsenic (mg/kg)	---	19.9	81.1	85.1
Cobalt (mg/kg)	---	203	16.7	7.7
Vanadium (mg/kg)	---	26.8	<10	<10
Zinc (mg/kg)	---	4,161.6	16,470	16,220
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	Dioxins = 1.21325 Furans = 2.58733	Dioxins = 159.506 Furans = 204.003	Dioxins = 172.112 Furans = 183.837
PCB (WHO 2005 TEQ) (ng/kg)	---	0.0405	7.3443	7.33763