

Viridor

Transforming waste™

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

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

**Environmental Monitoring Report
Q3 2020**

1 July – 30 September 2020

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
Q3 1 July – 30 September 2020

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Report Generated By

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Position: EHS Manager - Cardiff ERF/ Graduate EHS Manager

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 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 Q3 of 2020 (1 July – 30 September 2020).

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 78.5% (~1732.5 hours) of the quarter and Line 2 was in operation for 63.4% (~1400.5 hours) of the quarter (1 July – 30 September 2020= 92 days).

The 2020 Outage (started 1 September and ended 13 October 2020) impacted on the operability of both lines throughout the month of September,

2.3 Schedule Notices Issued

14 July 2020: Elevated VOC reading whilst entering shutdown for Tube Leak on LINE 2. Reading of 30.5mg/m³ when permitted ELV of 1/2 hourly average is 20mg/m³. Dampers closed at 10:00am, Burners in at 11:00am. Continued to shut down LINE 2 to repair tube leak.

30 August 2020: Elevated daily CO reading on LINE 2. Reading of 56.86mg/m³ when permitted ELV of daily average is 50mg/m³. Cause determined to be combustion of older waste from the base of the bunker in preparation for the 2020 outage.

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	183	178.3	264	214.6	BS EN 15267-3	
	400 mg/m³	½ hourly mean	276		383			
Particulate Matter	10 mg/m³	Daily mean	0.7	0.6	0.5	0.4		
	30 mg/m³	½ hourly mean	0.8		1.5			
Total Organic Carbon (TOC)	10 mg/m³	Daily mean	1.3	0.6	1.5	0.7		
	20 mg/m³	½ hourly mean	11.7		30.5***			
Hydrogen chloride	10 mg/m³	Daily mean	9.0	8.9	9.1	8.8		
	60 mg/m³	½ hourly mean	44.5		16.6			
Sulphur dioxide	50 mg/m³	Daily mean	27	24	44	26		
	200 mg/m³	½ hourly mean	170		98			
Carbon monoxide	50 mg/m³	Daily mean	176****	8.9	104***	12.5		
	100 mg/m³	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

*** Note 30.5mg/m³ and 104.2 mg/m³ occurred during the Schedule 5 events described in section 2.3 for events that took place on 14 July and 30 August 2020 respectively.

**** Note Daily mean 164mg/m³ occurred due to a single CO spike over 3 consecutive 10 minute data points that occurred between 00:50H and 01:20H on 31 August 2020. Invalid day as CEMS either OFF or NA for 16 x 10 minutes data points.

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No Table 2 as Periodic Data is submitted twice per year

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 21_07_2020 Reported to Viridor 27_07_2020	Received at lab 21_07_2020 Reported to Viridor 27_07_2020		
Total Organic Carbon	3%	0.7%	0.4%		
		Composite			
		Received at lab 14_08_2020 Reported to Viridor 26_08_2020		Received at lab 17_07_2020 Metals reported 22_07_2020 D+F reported 28_07_2020	Received at lab 17_07_2020 Metals reported 22_07_2020 D+F reported 28_07_2020
Antimony (mg/kg)	---	212		913	873
Cadmium (mg/kg)	---	23.1		334	289
Thallium (mg/kg)	---	<0.10		1.0	0.9
Mercury (mg/kg)	---	<0.5		4.45	8.54

Lead (mg/kg)	---	985.2	1844	1890
Chromium (mg/kg)	---	149	38.1	42.0
Copper (mg/kg)	---	1828.2	633	645
Manganese (mg/kg)	---	1066	360	387
Nickel (mg/kg)	---	77.5	13.9	16.8
Arsenic (mg/kg)	---	16.9	69.4	65.1
Cobalt (mg/kg)	---	43.5	5.3	5.1
Vanadium (mg/kg)	---	28.2	<10	<10
Zinc (mg/kg)	---	3007.6	13980	13401
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	Dioxins Lower = 0.62967 Upper = 0.74589 Furans Lower = 0.42076 Upper = 0.53102	Dioxins = 131.093 Furans = 249.32	Dioxins = 230.906 Furans = 428.938
PCB (WHO 2005 TEQ) (ng/kg)	---	Lower = 0.16607 Upper = 0.16609	15.625	40.6339