Viridor Transforming waste™

The Environmental Permitting (England and Wales) Regulations 2010

Permit: EPR/LP3030XA
Cardiff Energy Recovery Facility

Environmental Monitoring Report
Q1 2021

1 January – 31 March 2021

Prepared by:
Viridor Trident Park Limited
Cardiff ERF
Trident Park
Glass Avenue
Cardiff
CF24 5EN

Version: 1.0
Issue Date: 29 April 2021

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
Report Date:	30 April 2021
Version:	1
Report Generated By	
Name:	Gwyn Jones
	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 Commercial and Industrial (C&I) waste. Due to the building of an electrical sub-station during 2020 the site now has the capability of exporting approximately 34 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 Trident Park Limited (Viridor).

This report summarises the environmental data collected at the site during the first quarter calendar period of 2021, between 1st January and 30th 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 the Permit, except for the events listed in 2.3. Line 1 was in operation for 1,969 hours (90 days x 24 hours = 2160 hours therefore 91.1%) of the quarter and Line 2 for 1,968 hours (91.1%).

This installation generated 71,317MWh of electricity during the period.
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2.3 Schedule Notices Issued

Schedule 5 Notifications were submitted to NRW for events on,

4 January 2021	Part C	Abnormal Operation
23 January 2021	Parts A+B	Elevated emissions.

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/m^3	Daily mean	176	173.3	187	185.3	BS EN 15267-3	
	400 mg/m^3	½ hourly mean	316		346			
Particulate Matter	10 mg/m^3	Daily mean	0.6	0.53	0.5	0.46		
	30 mg/m^3	½ hourly mean	0.7		0.7			
Total Organic Carbon (TOC)	10 mg/m^3	Daily mean	0.9	0.46	0.6	0.36		
	20 mg/m^3	½ hourly mean	63.2***		6.1			
Hydrogen chloride	10 mg/m^3	Daily mean	9.4	9.2	9.2	9.2		
	60 mg/m^3	½ hourly mean	27.3		36.3			
Sulphur dioxide	50 mg/m^3	Daily mean	35	29.6	29	26.3		
	200 mg/m^3	½ hourly mean	103		60			
Carbon monoxide	50 mg/m^3	Daily mean	11	3.72	24	7.01		
	100 mg/m^3	½ hourly mean*	See	note	below	---		

*Note. ½ hourly monitoring for CO is no longer required in the current version of the permit. Permit now states “95%ile 10 minute average in any 24 hour period”.
**Note. CEMS data figures are adjusted for the method uncertainty
*** Schedule 5 PART C submitted for event on 4 Jan 2021.

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 (i.e. 24 samples per year).

Air Pollution Control Residues

Figures shown in Table 3 detail the analysis of samples collected during January 2021.

Table 3: Residue Quality

Residue quality					
Parameter	**Limit**	**Normal Operation**			
		Bottom ash		**APC Residues**	
		Quarter		**Quarter**	**Quarter**
				Line 1 **Sample taken during Jan 2021**	**Line 2** **Sample taken during Jan 2021**
Total Organic Carbon	3%	**Line 1** **Sample taken on 12/01/2021** 1.5%	**Line 2** **Sample taken on 12/01/2021** 1.0%		
		Composite Sample **Sample taken on (date sample received at lab 30/07/19)**			
Antimony (mg/kg)	---	246		979	957
Cadmium (mg/kg)	---	24.6		249	294
Thallium (mg/kg)	---	<0.1		1.0	1.0
Mercury (mg/kg)	---	<0.5		5.37	6.3
Lead (mg/kg)	---	439		1575	1528
Chromium (mg/kg)	---	135		43.7	38.6

Copper (mg/kg)	---	1836.9	798	734
Manganese (mg/kg)	---	1135	485	428
Nickel (mg/kg)	---	100.4	20.3	19.2
Arsenic (mg/kg)	---	28.3	79.6	88.7
Cobalt (mg/kg)	---	39.8	5.6	3.6
Vanadium (mg/kg)	---	71.6	14.6	12.5
Zinc (mg/kg)	---	3051.6	16,270	16,433
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	Dioxins = 1.33544 Furans = 4.45532	Dioxins = 302.245 Furans = 420.845	Dioxins = 154.895 Furans = 246.156
PCB (WHO 2005 TEQ) (ng/kg)	---	0.41682	18.2898	7.84828