Viridor Transforming waste™

The Environmental Permitting (England and Wales) Regulations 2010

Permit: EPR/LP3030XA
Cardiff Energy Recovery Facility

Environmental Monitoring Report
4th Quarter 2018: 1st October – 31st December 2018

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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 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 fourth quarter calendar period of 2018, between 1st October and 31st December

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. During the quarter Line 1 was in operation for 92.7% and Line 2 was in operation 93.8% of the time.

2.3 Schedule Notices Issued

Date of schedule 31/10/2018
Part C - Abnormal operation
Ref: No spare standby analyser to switch Line 2 duty analyser onto. Discussion with NRW held with and solution identified.

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	191.2	180.1	201.2	173.6	BS EN 15267-3	
	400 mg/m^3	½ hourly mean	310.1		358.6			
Particulate Matter	10 mg/m^3	Daily mean	0.6	0.5	0.4	0.4		
	30 mg/m^3	½ hourly mean	1.1		0.6			
Total Organic Carbon (TOC)	10 mg/m^3	Daily mean	1.0	0.4	0.8	0.2		
	20 mg/m^3	½ hourly mean	4.7		3.9			
Hydrogen chloride	10 mg/m^3	Daily mean	9.9	8.8	14.1	8.4		
	60 mg/m^3	½ hourly mean	40.2		107.7			
Sulphur dioxide	50 mg/m^3	Daily mean	19.6	12.5	15.0	8.2		
	200 mg/m^3	½ hourly mean	104.7		52.6			
Carbon monoxide	50 mg/m^3	Daily mean	12.9	3.1	42.6	6.3		
	100 mg/m^3	½ hourly mean*	398.3		661.1			
Ammonia	No limit set	Daily mean	0.0	0.0	3.3	0.8		

*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 of samples collected on 2 November 2018.

Table 3: Residue Quality

Residue quality					
Parameter	**Limit**	**Normal Operation**			
		Bottom ash		**APC Residues (02/11/2018)**	
		Line 1	**Line 2**	**Line 1**	**Line 2**
		Quarter 4	Quarter 4		
Total Organic Carbon	3%	2.3	2.3		
		Composite (03/12/18)			
Quarter		Quarter 4		Quarter 4	Quarter 4
Antimony (mg/kg)	---	152		591	544
Cadmium (mg/kg)	---	10.3		215	243
Thallium (mg/kg)	---	<0.1		0.7	0.7
Mercury (mg/kg)	---	<0.5		5.19	7.0
Lead (mg/kg)	---	364.6		1384	1232
Chromium (mg/kg)	---	131		24.0	24.3
Copper (mg/kg)	---	1618.7		458	450
Manganese (mg/kg)	---	1193		394	408
Nickel (mg/kg)	---	68.1		9.0	11.0
Arsenic (mg/kg)	---	16.7		47.6	47.9
Cobalt (mg/kg)	---	47.7		3.2	3.6

Vanadium (mg/kg)	---	61.1	<10	<10
Zinc (mg/kg)	---	2380.7	10,160	11,280
Dioxins / Furans (WHO 2005 TEQ) (ng/kg)	---	Dioxin lower=0.844 Upper=4.02 Furan lower=1.52 Upper=2.12	Dioxin Upper=109.03 Furan Upper=153.73	Dioxin Upper=165.87 Furan Upper=224.16
PCB (WHO 2005 TEQ) (ng/kg)	---	0.40	4.28	4.81