Viridor Transforming waste™

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

# Permit: EPR/LP3030XA
# Cardiff Energy Recovery Facility

## Environmental Monitoring Report
## Q1 2020

## 1 January – 31 March 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<br>Environmental Report<br>Q1 1 January – 31 March 2020 |
| Report Date: | 28 April 2020 |
| Version: | 1 |

**Report Generated By**

| | |
|---|---|
| Name: | Gwyn Jones |
| 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 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 Q1 of 2020 (1 January – 31 March 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 2,019 hours (92.6%) of the quarter and
Line 2 was in operation for 2,184 hours (100%) of the quarter.
(JFM 2020 = 91 days)

## 2.3 Schedule Notices Issued

| | |
|---|---|
| Part C notification reported on | Telephone call to NRW ICC on<br>Saturday 8 February 2020, followed up by e-mail on Monday 10 February 2020 |
| Date of event | Started 8 February 2020 at 13:30H |
| Details | Abatement plant failed – Blockage in urea nozzle<br>½ hour exceedance from 13:30H to 13:59H<br>Recorded 407.32mg/m3<br>ELV = 400mg/m3 |

## 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 | 208.6*** | 184.6 | 194.3 | 184.6 | BS EN 15267-3 | |
| | 400 mg/m$^3$ | ½ hourly mean | 407.3*** | | 313.6 | | | |
| Particulate Matter | 10 mg/m$^3$ | Daily mean | 0.6 | 0.5 | 0.5 | 0.4 | | |
| | 30 mg/m$^3$ | ½ hourly mean | 0.9 | | 0.9 | | | |
| Total Organic Carbon (TOC) | 10 mg/m$^3$ | Daily mean | 1.6 | 0.2 | 0.5 | 0.2 | | |
| | 20 mg/m$^3$ | ½ hourly mean | 5.4 | | 4.8 | | | |
| Hydrogen chloride | 10 mg/m$^3$ | Daily mean | 9.6 | 8.0 | 9.8 | 8.3 | | |
| | 60 mg/m$^3$ | ½ hourly mean | 22.1 | | 22.7 | | | |
| Sulphur dioxide | 50 mg/m$^3$ | Daily mean | 40.9 | 26.8 | 30.2 | 13.6 | | |
| | 200 mg/m$^3$ | ½ hourly mean | 80.4 | | 56.7 | | | |
| Carbon monoxide | 50 mg/m$^3$ | Daily mean | 46.8 | 7.1 | 28.0 | 7.0 | | |
| | 100 mg/m$^3$ | ½ hourly mean* | | | | | | |
| Ammonia | No limit set | Daily mean | 4.1 | 4.1 | 2.7 | 1.5 | | |
| | | | | | | | | |

*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 208.6mg/m3 and 407.3 mg/m3 occurred during the Schedule 5 PART C event. For event that took place on 8 February 2020.

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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 18_02_2020<br>Reported to Viridor 24_02_2020 | Received at lab 18_02_2020<br>Reported to Viridor 24_02_2020 | | |
| Total Organic Carbon | 3% | 1.3% | 1.3% | | |
| | | **Composite** | | | |
| | | Received at lab 11_03_2020<br>Reported to Viridor 23_03_2020 | | Received at lab 07_02_2020<br>Metals reported 11_02_2020<br>D+F reported 17_02_2020 | Received at lab 07_02_2020<br>Metals reported 11_02_2020<br>D+F reported 17_02_2020 |
| Antimony (mg/kg) | --- | 192 | | 811 | 686 |
| Cadmium (mg/kg) | --- | 11.4 | | 236 | 205 |
| Thallium (mg/kg) | --- | <0.10 | | 0.8 | 0.6 |
| Mercury (mg/kg) | --- | <0.5 | | 5.19 | 4.44 |

| | | | | |
|---|---|---|---|---|
| Lead (mg/kg) | --- | 467.5 | 1856 | 1224 |
| Chromium (mg/kg) | --- | 131 | 38.1 | 36.5 |
| Copper (mg/kg) | --- | 2216.3 | 608 | 449 |
| Manganese (mg/kg) | --- | 874 | 358 | 372 |
| Nickel (mg/kg) | --- | 86.5 | 16.1 | 14.3 |
| Arsenic (mg/kg) | --- | 24.1 | 68.6 | 55.0 |
| Cobalt (mg/kg) | --- | 41.1 | 5.0 | 4.3 |
| Vanadium (mg/kg) | --- | 47.4 | <10 | <10 |
| Zinc (mg/kg) | --- | 2383.7 | 13920 | 10490 |
| Dioxins / Furans (WHO 2005 TEQ) (ng/kg) | --- | Dioxins Lower = 0.26124<br>Upper = 0.79064<br><br>Furans Lower =1.20638<br>Upper = 1.23113 | Dioxins = 146.571<br><br>Furans = 242.128 | Dioxins = 123.098<br><br>Furans = 204.833 |
| PCB (WHO 2005 TEQ) (ng/kg) | --- | Lower = 0.00102<br>Upper = 0.7335 | 4.01843 | 3.83097 |