

Permit Number: EPR/FP3232KG

Operator:

Dwr Cymru Cyfyngedig

Facility:

Cardiff CHP Facility

Form Number:

Air1 / 31/01/2019

**Reporting of emissions to air for the period from 01/01/2018 to 31/12/2018**

| Emission Point | Substance / Parameter                                                     | Emission Limit Value   | Reference Period | Result <sup>(1)</sup>    | Test Method <sup>(2)</sup> | Sample Date and Times <sup>(3)</sup> | Uncertainty <sup>(4)</sup> |
|----------------|---------------------------------------------------------------------------|------------------------|------------------|--------------------------|----------------------------|--------------------------------------|----------------------------|
| A1             | Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | 500 mg/m <sup>3</sup>  | Hourly average   | 253.37 mg/m <sup>3</sup> | BS EN 14792                | 26/09/2018 14:20 – 15:20             | 2%                         |
| A1             | Carbon Monoxide                                                           | 1100 mg/m <sup>3</sup> | Hourly average   | 893.14 mg/m <sup>3</sup> | BS EN 15058                | 26/09/2018 14:20 – 15:20             | 2%                         |
| A1             | Sulphur Dioxide                                                           | 340 mg/m <sup>3</sup>  | Hourly average   | 104.07 mg/m <sup>3</sup> | BS EN 14791                | 26/09/2018 14:18 – 15:21             | 13%                        |
| A2             | Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | 500 mg/m <sup>3</sup>  | Hourly average   | 475.2 mg/m <sup>3</sup>  | BS EN 14792                | 10/01/2019 12:26 – 13:35             | 3%                         |
| A2             | Carbon Monoxide                                                           | 1100 mg/m <sup>3</sup> | Hourly average   | 757.77 mg/m <sup>3</sup> | BS EN 15058                | 10/01/2019 12:26 – 13:35             | 3%                         |
| A2             | Sulphur Dioxide                                                           | 340 mg/m <sup>3</sup>  | Hourly average   | 101.83 mg/m <sup>3</sup> | BS EN 14791                | 10/01/2019 12:25 – 13:35             | 13%                        |
| A3             | Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | 500 mg/m <sup>3</sup>  | Hourly average   | 435.34 mg/m <sup>3</sup> | BS EN 14792                | 26/09/2018 12:15 – 13:15             | 3%                         |
| A3             | Carbon Monoxide                                                           | 1100 mg/m <sup>3</sup> | Hourly average   | 740.71 mg/m <sup>3</sup> | BS EN 15058                | 26/09/2018 12:15 – 13:15             | 3%                         |
| A3             | Sulphur Dioxide                                                           | 340 mg/m <sup>3</sup>  | Hourly average   | 96.07 mg/m <sup>3</sup>  | BS EN 14791                | 26/09/2018 12:15 – 13:17             | 13%                        |

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed

(Authorised to sign as representative of Operator)

ANDREW DIXON  
ENERGY OPS MANAGER

Date 31/01/2019

18/10/2019

Permit Number: EPR/FP3232KG

Operator:

Dwr Cymru Cyfyngedig

Facility: Cardiff CHP Facility

Form Number: Performance1 / DD/MM/YY

# Reporting of other performance indicators for the period 01/01/2018 to 31/12/2018

| Parameter                                                                  | Units                                                                                              |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Fuel input to installation (biogas)                                        | 7,775,464 m <sup>3</sup>                                                                           |
| Fuel input to installation (Natural Gas)                                   | 1,541,345 m <sup>3</sup> or 1032 Tonnes                                                            |
| CHP engine efficiency                                                      | 41.0 %                                                                                             |
| Hours of operation for engines and hours that engines operated in CHP mode | CHP #1 4822 Hours all CHP mode<br>CHP #2 5137 Hours all CHP mode<br>CHP #3 4964 Hours all CHP mode |
| Hours run on biogas (boiler)                                               | 119 Hours                                                                                          |
| Hours run on Natural gas (boiler)                                          | 8,571 Hours                                                                                        |
| Power output - heat                                                        | 22,562.67 MWh                                                                                      |
| Power output- electricity                                                  | 20,939.07 MWh                                                                                      |
| Energy Efficiency                                                          | 65.9%                                                                                              |
| Water usage                                                                | 45,011 m <sup>3</sup>                                                                              |
| Water generated                                                            | -                                                                                                  |
| Operational hours of waste gas burner                                      | 425 h                                                                                              |
| Biogas burnt by waste gas burner                                           | 377,764 m <sup>3</sup>                                                                             |

## Operator's comments :

The gas emissions testing was carried out in September 2018 for engines #1 and #3 but engine #2 had to wait as a major rebuild was needed. Due to several issues the testing of the CHP #2 was postponed until the 10<sup>th</sup> January. This was reported with a Part A notification.

In 2018 DCWMW was allowed to run the three CHP engines at the same time. This fact, together with having less reactive issues on the CHPs led to a better usage of the biogas produced. As a proof of the better usage of the biogas, we have flared less than 50% of the gas flared on 2017.

In addition to this, new insulation has been installed around the CHP exhausts, which is expected to reduce slightly the natural gas consumption.

Signed .....



(Authorised to sign as representative of Operator)

ANDREW DIXON

ENERGY OPS MANAGER

Date 31/03/2019

18/10/19