Permit Number: EPR/FP3232KG Operator: Dwr Cymru Cyfyngedig

Facility: Cardiff CHP Facility Form Number: Air1 / 23/03/2018

Reporting of emissions to air for the period from 01/01/2017 to 31/12/2017

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A1	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	500 mg/m^3	Hourly average	391.86 mg/m^3	BS EN 14792	04/10/2017 14:09 – 15:09	3%
A1	Carbon Monoxide	1100 mg/m^3	Hourly average	806.02 mg/m^3	BS EN 15058	04/10/2017 14:09 – 15:09	2%
A1	Sulphur Dioxide	340 mg/m3	Hourly average	114.97 mg/m^3	BS EN 14791	04/10/2017 13:50 - 14:52	14%
A2	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	500 mg/m^3	Hourly average	453.10 mg/m^3	BS EN 14792	04/10/2017 16:15 – 17:15	3%
A2	Carbon Monoxide	1100 mg/m^3	Hourly average	710.38 mg/m^3	BS EN 15058	04/10/2017 16:15 – 17:15	2%
A2	Sulphur Dioxide	340 mg/m3	Hourly average	109.14 mg/m^3	BS EN 14791	04/10/2017 16:10 – 17:12	14%
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	500 mg/m^3	Hourly average	402.68 mg/m^3	BS EN 14792	04/10/2017 12:15 – 13:15	2%
A3	Carbon Monoxide	1100 mg/m^3	Hourly average	987.80 mg/m^3	BS EN 15058	04/10/2017 12:15 – 13:15	2%
A3	Sulphur Dioxide	340 mg/m3	Hourly average	99.26 mg/m^3	BS EN 14791	04/10/2017 11:50 – 12:52	14%

[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)

Date 23/03/2018

ANDREW DIXON

ENERGY OPS MANAGER

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 01/01/2017 to 31/12/2017

Parameter	Units
Fuel input to installation (biogas)	9,791,650 m3
Fuel input to installation (Natural Gas)	1,443,205.16 m3 or 966 Tonnes
CHP engine efficiency	31.8%
Hours of operation for engines and hours that engines operated in CHP mode	CHP #1 5059 Hours all CHP mode CHP #2 5496 Hours all CHP mode CHP #3 3376 Hours all CHP mode
Hours run on biogas (boiler)	228 Hours
Hours run on Natural gas (boiler)	8,472 Hours
Power output - heat	22,562.67 MWh
Power output- electricity	19,314.72 MWh
Energy Efficiency	56.12%
Water usage	45,011 m^3
Water generated	-
Operational hours of waste gas burner	751 h
Biogas burnt by waste gas burner	840,151 m^3

Operator's comments :
During 2017 DCWW experienced some challenges with the High Voltage alternators on CHPs #1 and #2. This corresponded with a Part A notification for operation of the Waste gas Burner. DCWW since determined the root cause as a 'lug' and design improvements were made and the CHP engines have operated well for the remainder of the year.

Signed ..... Date 23/03/2018

(Authorised to sign as representative of Operator)

ANDREW DIXON

ENERGY OPS MANAGER