Permit Number: EPR/FP3232KG Operator: Dwr Cymru Cyfyngedig

Facility: Cardiff CHP Facility Form Number: Air1 / 31/01/2020

Reporting of emissions to air for the period from 01/01/2019 to 31/12/2019

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	364.19 mg/m^3	BS EN 14792	06/11/2019 12:45 – 13:45	2%
A1	Carbon Monoxide	1100 mg/m^3	Hourly average	1028.53 mg/m^3	BS EN 15058	06/11/2019 12:45 – 13:45	2%
A1	Sulphur Dioxide	340 mg/m3	Hourly average	130.13 mg/m^3	BS EN 14791	06/11/2019 11:42 – 12:42	13.45%
A2	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	500 mg/m^3	Hourly average	440.75 mg/m^3	BS EN 14792	06/11/2019 16:10 – 17:10	2%
A2	Carbon Monoxide	1100 mg/m^3	Hourly average	864.28 mg/m^3	BS EN 15058	06/11/2019 16:10 – 17:10	2%
A2	Sulphur Dioxide	340 mg/m3	Hourly average	184.65 mg/m^3	BS EN 14791	06/11/2019 15:10 – 16:10	13.48%
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	500 mg/m^3	Hourly average	479.65 mg/m^3	BS EN 14792	06/11/2019 14:35 – 15:35	2%
A3	Carbon Monoxide	1100 mg/m^3	Hourly average	826.54 mg/m^3	BS EN 15058	06/11/2019 14:35 – 15:35	2%
A3	Sulphur Dioxide	340 mg/m3	Hourly average	127.90 mg/m^3	BS EN 14791	06/11/2019 13:30 – 14:30	13.46%

[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 A Dixon Date 03/08/2020

(Authorised to sign as representative of Operator)

Permit Number: EPR/FP3232KG
Facility: Cardiff CHP Facility

Operator: Dwr Cymru Cyfyngedig
Form Number: Performance1 / DD/MM/YY

Reporting of other performance indicators for the period 01/01/2019 to 31/12/2019

Parameter	Units
Fuel input to installation (biogas)	8,376,553 m3
Fuel input to installation (Natural Gas)	1,470,936 m3 or 985 Tonnes
CHP engine efficiency	41.4%
Hours of operation for engines and hours that engines operated in CHP mode	CHP #1 6344 Hours all CHP mode CHP #2 5242Hours all CHP mode CHP #3 3611 Hours all CHP mode
Hours run on biogas (boiler)	2700 Hours
Hours run on Natural gas (boiler)	23580 Hours
Power output - heat	23,857 MWh
Power output- electricity	22,178 MWh
Energy Efficiency	66.1 %
Water usage	112,124 m^3
Water generated	-
Operational hours of waste gas burner	5.6%
Biogas burnt by waste gas burner	451,802 m^3

Operator's comments:
The engines have been running fairly consistently throughout 2019, which means most of the biogas have been used in the CHPs instead of being used in the boilers. The results from the gas emissions testing are similar to the values obtained in previous years, which is good from an environmental perspective and also to make sure the assets are performing well. We had water leaks on the CHP containers which lead to some reactive maintenance and loss generation, but the risks have been clearly mitigated.
In order to continue improving from an environmental perspective, Welsh Water is looking into replacing the current siloxane removal system so that we can minimise the amount of flare gas in Cardiff WwTW.
According to the new regulations that will be soon in place, MCPD and standard generators, Cardiff WwTW will not needed further work until, at least, 2024. Even then, the current results of the gas emissions testing show that the CHPs and boilers will be compliant if their good performance continuous as in 2019.

Signed A Dixon ..... Date 03/08/2020
(Authorised to sign as representative of Operator)