

Permit Number: EPR/YP3331HQ

Operator: Northumbrian Water Limited

Facility: Howdon Biogas Combustion Installation

Form Number: Air1

Reporting of emissions to air for the period from 09/2020 to 09/2021 Envirocare ISO17025 Accreditation No: 2522

Emission Point	Substance/Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date And Times ^[3]	Uncertainty ^[4]
A1 Biogas Engine 1	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	472 mg/m³	BS EN 14792	10/06/2021 12:25-16:25	13.7
A1 Biogas Engine 1	Carbon monoxide	1400 mg/m ³	Hourly average	788 mg/m³	BS EN 15058	10/06/2021 12:25-16:25	36.8
A1 Biogas Engine 1	Total VOCs	1000 mg/m ³	Hourly average	856 mg/m³	BS EN 12619	10/06/2021 12:25-16:25	14.7
A2 Biogas Engine 2	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	410 mg/m³	BS EN 14792	09/06/2021 08:20-12:20	13.4
A2 Biogas Engine 2	Carbon monoxide	1400 mg/m ³	Hourly average	614 mg/m³	BS EN 15058	09/06/2021 08:20-12:20	36.2
A2 Biogas Engine 2	Total VOCs	1000 mg/m ³	Hourly average	572 mg/m³	BS EN 12619	09/06/2021 08:20-12:20	12.0
A3 Biogas Engine 3	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	406 mg/m³	BS EN 14792	10/06/2021 16:40-20:40	13.4
A3 Biogas Engine 3	Carbon monoxide	1400 mg/m ³	Hourly average	645 mg/m³	BS EN 15058	10/06/2021 16:40-20:40	36.3
A3 Biogas Engine 3	Total VOCs	1000 mg/m ³	Hourly average	659 mg/m³	BS EN 12619	10/06/2021 16:40-20:40	12.7
A4 Composite Boiler 1	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limit set	Hourly average	143 mg/m³	BS EN 14792	08/06/2021 09:25-13:25	7.8
A4 Composite Boiler 1	Carbon monoxide	No limit set	Hourly average	3.1 mg/m³	BS EN 15058	08/06/2021 09:25-13:25	5.1

Emission Point	Substance/Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date And Times ^[3]	Uncertainty ^[4]
A4 Composite Boiler 1	Total VOCs	No limit set	Hourly average	8.3 mg/m³	BS EN 12619	08/06/2021 09:25-13:25	1.2
A5 Composite Boiler 2	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limit set	Hourly average	108 mg/m³	BS EN 14792	10/06/2021 08:15-12:15	7.7
A5 Composite Boiler 2	Carbon monoxide	No limit set	Hourly average	0.06 mg/m³	BS EN 15058	10/06/2021 08:15-12:15	5.1
A5 Composite Boiler 2	Total VOCs	No limit set	Hourly average	3.8 mg/m³	BS EN 12619	10/06/2021 08:15-12:15	1.2
A6 Composite Boiler 3	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limit set	Hourly average	58.2 mg/m³	BS EN 14792	10/06/2021 15:50-19:49	7.6
A6 Composite Boiler 3	Carbon monoxide	No limit set	Hourly average	2.8 mg/m³	BS EN 15058	10/06/2021 15:50-19:49	5.1
A6 Composite Boiler 3	Total VOCs	No limit set	Hourly average	3.5 mg/m³	BS EN 12619	10/06/2021 15:50-19:49	1.2

(a) At sites with low total VOC concentrations (up to 20mg/m³)

(b) At sites with low to moderate total VOC concentrations (>20 mg/m³)

[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. Method as stated or as otherwise indicated by MCERTS and Environment Agency M2 monitoring guidance.

[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 a result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed



Date: 29/09/2021

Permit Number: EPR/YP3331HQ **Operator:** Northumbrian Water Limited

Facility: Howdon Biogas Combustion Installation **Form Number:** Performance1 / 02/12/11

Reporting of other performance indicators for the period from 09/2020 to 09/2021

Parameter	Units
CHP engine efficiency (each engine)	No.1 34% No.2 36% No.3 36%
CHP engine operation on biogas	No.1 0 hours No.2 1 439 hours No.3 458 hours
CHP engine operation on natural gas	No.1 5 515 hours No.2 5 583 hours No.3 5 519 hours
Steam Boiler operation on biogas	** hours
Biogas burnt by steam boilers	438 077 m ³
Steam Boiler operation on natural gas	** hours
Steam Boiler operation on gas oil	0 hours
Hours of operation of Flare Stack	<10%
Biogas burnt by flare	<10%
Hydrogen sulphide concentrations in biogas feed above 150ppm	N/A

**** Total no. of hours for biogas and natural gas combined: No.1 = 2 550 hours No.2 = 1 736 hours No.3 = 4 681 hours**

Total Biogas used in boiler: No.1 = 158 703 m³ No.2 = 101 388 m³ No.3 = 177 986 m³

Natural Gas used in boiler: No.1 = 394 889 m³ No.2 = 269 657 m³ No.3 = 461 257 m³