

Permit Number: EPR/AB3093CA Operator: WW Organic Energy (Cardiff) Ltd
 Facility: Tremorfa Anaerobic Digestion Facility Form Number: Performance1 – 31/12/20

Reporting of other performance indicators for the period 01/01/2020 to 31/12/2020

Parameter	Units
Power Output – Electricity	MWh 9426.6
Energy Efficiency	MWh/m ³ Biogas 35.65%
Electrical Energy – Exported to DCWW/Cardiff East	MWh 8145.3
Electrical Energy – Drawn from the grid	MWh 175.3
Operational running time of the flare	Hours 359 (4.1%)
Amount of biogas combusted in the CHP unit per day	10979 m ³ /day – daily average through CHP
Biogas generated	4341391 m ³
Total waste treated	222665 tonnes
Solid digestate	430.38 tonnes
Liquid digestate	26625.12 tonnes

Operator's comments :
 Eletrical Energy is exported to DCWW/Cardiff east WwTW – none is exported to the grid

Energy Efficiency calculated as follows –
 Electricity generated: 9426.6 MWh
 Total biogas/fuel input: 4341391 m³
 Average CH₄ percentage in biogas: 58%
 CH₄ energy yield kWh/m³ = 10.5 kWh/m³ (Common standard)
 Total biogas/fuel input; 4,341,391 x 0.58 x 10.5 = 26661925.9 kWh = 26,439 MWh
Energy efficiency = Electricity generated / Total fuel input = 9426.6 / 26439 =
35.65%

Signed**Mark Esposito**.....
 (Authorised to sign as representative of Operator)

Date.....26/01/21.....

Permit Number: EPR/AB3093CA

Operator: WW Organic Energy (Cardiff) Ltd

Facility: Tremorfa Anaerobic
Digestion Facility

Form Number: WaterUsage1 – 31/12/20

Reporting of Water Usage for the year 2020

Water Source	Usage (m³/year)	Specific Usage (m³/unit output)
Mains water	16455 m ³	
TOTAL WATER USAGE		

Operator's comments :

Signed ...**Mark Esposito**.....
(Authorised to sign as representative of Operator)

Date.....26/01/21.....

Permit Number: EPR/AB3093CA

Operator: WW Organic Energy (Cardiff) Ltd

Facility: Tremorfa Anaerobic
Digestion Facility

Form Number: Air1 – 31/12/20

Reporting of emissions to air for the period from 01/01/2020 to 31/31/2020

Emission Point	Substance / Parameter	Emission		Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]
		Limit Value	Reference Period				
A2	Particulate Matter PM ₁₀	No Limit	1 hour period	1.29	BS EN 13284-1:2017 & MID	30/10/20 12:30 – 13:30	49%
A2	Total VOC's	1000mg/m ³	1 hour period	543.50	BS EN 16911-1:2013 & MID	30/10/20 12:30 – 13:30	3%
A2	Carbon monoxide	1400 mg/m ³	1 hour period	616.65	BS EN 14792: 2017	30/10/20 12:30 – 13:30	3%
A2	Sulphur dioxide	350 mg/m ³	1 hour period	231.82	BS EN 14791: 2017	30/10/20 12:30 – 13:30	13%
A2	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	1 hour period	490.68	BS EN 14792: 2017	30/10/20 12:30 – 13:30	2%
A5	Carbon monoxide	50 mg/m ³	1 hour period	N/A – in operation LT 10% of the year	BS EN 15058: 2017	30/10/20 12:30 – 13:30	
A5	Total VOC's	10 mg/m ³	1 hour period	N/A – in operation LT 10% of the year	BS EN 16911-1:2013 & MID	30/10/20 12:30 – 13:30	
A5	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	1 hour period	N/A – in operation LT 10% of the year	BS EN 14792: 2017	30/10/20 12:30 – 13:30	

- [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 Natural Resources Wales 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 ...**Mark Esposito**.....
(Authorised to sign as representative of Operator)

Date.....26/01/21.....