

**EPR/AB3093CA – Tremorfa Anaerobic Digestion Facility****Non-technical summary**

Tremorfa Anaerobic digestion facility is located to the east of Cardiff city centre. The site predominantly receives and treats local food waste kerbside collections from two local authorities. The sites maximum throughput is 35,000 tonnes per year. The biogas produced and resultant energy from the combined heat and power plant (CHP) supplies the site and Dwr Cymru/Welsh water (DCWW) Cardiff treatment works, which is adjacent to the site.

The site has been operational since 2016 and recently has undergone a Best Available Technique reference document (BREF) permit review.

Welsh Water Organic Energy Limited (WWOEL) are applying for a normal variation for the following changes -

1. **Addition of a Biogas boiler** – the boiler will be used as a backup when the CHP engines cannot be used, either due to being offline for servicing/maintenance or breakdown.
2. **Update and correct the emission points location and identification to sewer**
3. **Updated site plan**
4. **Addition of EWC Code**

**1. Biogas Boiler**

The main scope of the variation is for the operation of a biogas boiler.

The Boiler was transferred from DCWW Fivefords WwTW site where it was in use for several years to heat incoming sludge to the digesters. The boiler has moved to the Tremofa site and in position but has not been operational.

The Biogas boiler will be used as a standby when the CHP is not operational, due to servicing, maintenance or in fault. When the CHP is not operational, the boiler will be used to maintain the temperature via a supply of hot water, to the fermenters and pasteurisation process which is essential to maintain the AD process and achieve PAS110 compliance.

To assess the potential emissions impact of the operation of the biogas boiler, we have engaged specialist consultants. Initially the consultants carried out an H1 assessment and subsequently air dispersion modelling.

In summary, emissions of Nitrogen (NO<sub>x</sub>), Nitrogen dioxide (NO<sub>2</sub>), Sulphur dioxide (SO<sub>2</sub>) and carbon monoxide (CO) were assessed. Detailed air quality modelling using ADMS dispersion model was undertaken to predict the impacts associated with the potential emissions from the biogas boiler.

It is predicted the biogas boiler will be operational for less than 500 hours a year and will be used in isolation. The CHP and the site flare will not be in operation when the boiler is in use. When considering the restrictive use of the boiler, the final conclusions from the dispersion modelling and assessment indicate the potential emissions from the biogas boiler will not have a detrimental impact on local air quality, human health, sensitive ecological sites or on AQMAs assessed.

Full details of the air dispersion modelling are presented within the **Air dispersion modelling report of releases from a boiler at Welsh Water Organic Energy Tremorfa Cardiff** (WWDC01.02/ADM June 2022) which has been submitted with the variation application.

The operation of the Biogas Boiler will be included within the site management system, which is Iso 14001 accredited. Procedures and work instructions will be in place for operation, maintenance, monitoring, and reporting.

The Site plan has been updated to include the addition of the new air emission point (A6, Biogas Boiler). Monitoring requirements to be agreed with Natural Resources Wales (NRW).

NACE code for the biogas boiler 3821 – Treatment and disposal of Non-Hazardous Waste

Details of the biogas boiler specifications –

Predicted average Thermal input (95% efficient) - 1.2 MWth

	Plant Output kW	Biogas Flowrate m <sup>3</sup> /hr		
Boiler	2200	378.95	Plant Efficiency	95%
			Biogas GCV kWh/m <sup>3</sup>	6.1111468

The sites DSEAR risk assessment was carried out in November 2020 by consultants. The Biogas boiler was included. As advised by the consultants - We will review the risk assessment when the requested changes permitted.

Please see additional documents submitted with the application –

- AB3093CA Tremorfa AD Facility – summary of emissions from site
- AB3093CA\_Tremofa AD Facility\_ Site Layout Plan
- DSEAR Risk Assessment Results – WWOE Cardiff Anaerobic Digestion plant normal operation

## 2. Update and correct the emission points location and identification to sewer.

The current table S3.2 point source emissions to sewer and monitoring requirements, in the permit is incorrect. It was agreed during the permit BREF review that the table would be updated during the permit variation, and we would provide the correct details of emission points to surface water and sewer.

We have referenced the emission points to sewer as S1 and S2 (please see site layout plan and addition document AB3093CA Tremorfa AD Facility Summary of emissions from site) -

- **S1 – emission point to surface water sewer** – the clean surface water from the sites bunded area is diverted to a rainwater storage tank, any overflow from the bunded area discharges to DCWW surface water sewer.
- **S2 – emission point to foul sewer** – washdown/cleaning water from the food reception hall and spent water from the odour control (biofilter) unit is utilised within the ‘front end’ process, any overflow is discharged to DCWW foul sewer under a trade effluent consent.

We request that table S3.2 point source emissions to sewer and monitoring requirements is updated in the permit to reflect the correct locations and description of emissions.

### 3. Updated site plan

As requested during the BREF permit review, the site layout plan has been updated.

The revised plan includes the location of the biogas boiler and references the additional point source emission to air – referenced – A6.

Also corrected and updated are the point source emissions to surface water sewer and foul sewer, referenced S1 and S2.

The revised site plan is submitted with the variation application – document reference - AB3093CA\_Tremorfa AD Facility\_- Site Layout Plan.pdf.

### 4. Addition of EWC code

Also requesting for an additional EWC code within this variation to be included in the Table of permitted list of wastes: -

#### **Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting & Fishing, Food preparation & Processing**

02 02 04	Sludges from onsite effluent
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A spreadsheet of the existing EWC codes permitted, and the requested code above is included in the permit application (Tremorfa FWP EWC list).