

## Compliance Assessment Report CAR\_NRW0050649

**Permit being assessed:** AB3093CA.

**For:** Tremorfa Anaerobic Digestion Facility, **held by:** Welsh Water Organic Energy (Cardiff) Limited

**At:** Tide Fields Road, Tremorfa, Cardiff, CF24 5SB.

**Type of assessment:** Report/Data Review,

**Reason:** Routine.

**On:** 31/12/2025.

**Parts of permit assessed:** Annual Returns.

**NRW Lead Officer:** Lewis Evans.

**Report sent to:** Site Manager, Site Manager, on 23/02/2026.

### 1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor	3.1.2
IR4B - Installations - Information - Reporting	Assessed (A)	

Result types are explained in more detail in the 'Important Information' section below.

Total non-compliances recorded	Total non-compliance score
1	4

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

### 2. What action is required?

Criteria	Action needed	Complete by
IR3A(2)	Action: Ensure louvres on the flare stack are correctly adjusted to the correct amount of oxygen levels enter the stack.	Already completed

Compliance criteria codes are listed in the 'Important information' section below.

### 3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

**At this time, we do not intend to take any further action.**

This statement does not stop us from taking additional enforcement action if further relevant information comes to light or offences continue.

**4. Details of our assessment****Welsh Water Organic Energy****Permit Reference – AB3093CA****Annual Returns****Air Emissions**

The operator submitted the full suite of annual returns on the 30<sup>th</sup> of January 2026, ahead of the permit deadline of 31 January, in accordance with Permit Condition 4.2.2. Monitoring data for emission point A2 (CHP engine) showed that all reported pollutants: Particulate Matter (PM<sub>10</sub>), Total VOCs, Carbon Monoxide (CO), Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) were compliant with the emission limit values set out in Schedule 3 Table S3.1 of the permit.

However, the auxiliary flare (A5) which was also tested, and all monitored substances were within the relevant limits for CO and NO<sub>x</sub>, but failed on the Total VOC's with a result of 13.31mg/m<sup>3</sup>.

Emission Point	Parameter	Limit (mg/m <sup>3</sup> )	Result (mg/m <sup>3</sup> )
A2	PM10	No limit	3.71
	Total VOCs	1000	689.76
	CO	1400	673.46
	SO2	350	49.73
	NOx	500	485.16
A5	CO	50	35.65
<b>A5</b>	<b>Total VOCs</b>	<b>10</b>	<b>13.31</b>
A5	NOx	150	82.49

**Non-Compliance**

Permit condition 3.1.2 states that “*the limits given in Schedule 3 shall not be exceeded.*” Under Schedule 3 Table S3.1, Emission Point A5 (auxiliary flare) is assigned an emission limit value (ELV) of 10 mg/m<sup>3</sup> for Total VOCs, expressed as an hourly average.

The monitoring data submitted for the reporting period recorded a Total VOC concentration of 13.31 mg/m<sup>3</sup>, which is above the permitted limit of 10 mg/m<sup>3</sup>. Even when taking into account the reported measurement uncertainty (13%), the value remains above the ELV and therefore signifies an exceedance. As a result, the installation has not complied with the requirements of permit condition 3.1.2.

**A Category 3 non-compliance will be scored against permit condition 3.1.2.** The exceedance does not indicate a significant environmental impact but does represent a failure to meet the required emission performance standards and therefore a score has been made.

The operator has now taken steps to increase the oxygen levels so more is allowed to enter the stack and reduce the value of TOC's.

**Action:** Ensure louvres on the flare stack are correctly adjusted to the correct amount of oxygen levels enter the stack.

### **Water Usage**

Mains water usage for the site in 2025 was reported as 13,604 m<sup>3</sup>, representing a slight increase compared with the 13,010 m<sup>3</sup> recorded in 2024. The year-on-year rise is modest and remains consistent with normal operational variation for a facility of this type. As the site's water consumption is primarily associated with domestic and welfare activities rather than process-related use, this level of usage does not present any compliance concerns under the permit. Water usage is required to be reported annually under Schedule 4, Table S4.3, and the figures submitted for 2025 are considered complete and compliant, with no further action required beyond continued routine monitoring and reporting.

### **Performance Reporting**

Power Output – Electricity	9,604.3 MWh
Energy Efficiency	Biogas 35.22% MWh/m <sup>3</sup>
Electrical Energy – Exported to DCWW/Cardiff East	8,405.6 MWh
Electrical Energy – Drawn from the grid	241.3 MWh
Operational running time of the flare	1,225 Hours (13.98%)
Amount of biogas combusted in the CHP unit per day	11,447 m <sup>3</sup> /day – daily average through CHP
Biogas generated	5,280,678 m <sup>3</sup>
Total waste treated	27,267.33 tonnes
Solid digestate	552.8 tonnes
Liquid digestate	22,300.34 tonnes

The operator submitted the required performance data in accordance with Table S4.3 of the permit. The information provided for the 2025 reporting year confirms that the site generated 9,604.3 MWh of electricity, reflecting the total electrical output produced by the combined heat and power (CHP) unit from biogas utilisation. Based on the operator's calculations, this equates to an energy efficiency of 35.22%.

Of the electricity generated, 8,405.6 MWh was exported to DCWW/Cardiff East WwTW, demonstrating continued energy recovery and effective integration with the wider wastewater treatment network. A further 241.3 MWh of electricity was drawn from the grid, indicating that the site relies only minimally on external power sources.

The emergency flare recorded 1,225 hours of operation, representing 13.98% of total operational time. Although flare usage is expected to remain as low as reasonably practicable, this level of utilisation reflects the operational needs of the CHP unit throughout the year and remains within the reporting expectations set by the permit.

Biogas performance indicators show that an average of 11,447 m<sup>3</sup>/day of biogas was combusted in the CHP unit, supporting consistent power generation. Total biogas production for the year was 5,280,678 m<sup>3</sup>, aligning with the reported volumes of waste treated.

In terms of material throughput, the installation processed 27,267.33 tonnes of feedstock during the year. Outputs from the digestion process consisted of 552.8 tonnes of solid digestate and 22,300.34 tonnes of liquid digestate, which are typical for the site's operating profile and consistent with expected conversion rates for food-waste-derived feedstocks.

All parameters submitted were reviewed and found to be complete, accurate, and compliant with the

reporting requirements of the permit. No issues or data gaps were identified.

**Operators Comments:**

Electrical Energy is exported to DCWW/Cardiff east WwTW – none is exported to the grid

Energy Efficiency calculated as follows –

Electricity generated: 9,604.3 MWh

Total biogas/fuel input: 5,280,678 m<sup>3</sup>

Average CH4 percentage in biogas: 59%

CH4 energy yield kWh/m<sup>3</sup> = 10.5 kWh/m<sup>3</sup> (Common standard)

Total biogas/fuel input; 5,280,678 x 0.59 x 10.5 = 32,713,800 kWh = 32,714 MWh

Energy efficiency = Electricity generated / Total fuel input = 9,604.3 / 27,267.33 = 35.22%

Biogas combusted in CHP = 5,280,678-(1,225\*900)=4,178,178m<sup>3</sup>

**Waste Returns**

The operator submitted all required waste return information to Natural Resources Wales within the permitted reporting deadlines, in accordance with Permit Condition 4.2.5, which requires quarterly and annual reporting of waste accepted and removed from site. The submission was received on time and has been reviewed and accepted with no issues identified.

The waste codes listed within the operator's return correspond correctly with those authorised under Schedule 2, Table S2.2 of the permit, confirming that all wastes handled during the reporting period fall within the permitted categories. No unauthorised waste types were recorded, and all reported tonnages compliant.

Overall, the waste returns for the reporting year are considered compliant.

**END.**

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

## Important information

### Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

### Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action required for the permit condition assessed to avoid non-compliance. No non-compliance scored at this time
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

**How we use assessment scores**

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

**If your assessment result in Section 1 is suspended, what does this mean?**

In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

**Full list of Industry compliance criteria (used in section 1 and 2):****1. Management**

- IR1A – General management
- IR1B – Finance (only applicable to Landfill)
- IR1C – Energy efficiency
- IR1D - Efficient use of raw materials
- IR1E - Avoidance, recovery and disposal of wastes produced by the activities
- IR1F - Multiple operator installations

**2. Operations**

- IR2A – Permitted activities
- IR2B – The site
- IR2C – Operating techniques
- IR2D – Technical requirements
- IR2E – Improvement programme
- IR2F – Pre-operational conditions
- IR2G – Landfill engineering (only applicable to Landfill)
- IR2H – Waste acceptance (only applicable to Landfill)
- IR2I – Leachate levels (only applicable to Landfill)
- IR2J – Closure and aftercare (only applicable to Landfill)
- IR2K – Landfill gas management (only applicable to Landfill)

**3. Emission and Monitoring**

- IR3A(1) – Emissions to water
- IR3A(2) – Emissions to air
- IR3A(3) – Emissions to land
- IR3B – Emissions of substances not controlled by emission limits
- IR3C – Odour
- IR3D – Noise and vibration
- IR3E – Monitoring
- IR3F – Pests
- IR3G – Air quality management plans
- IR3H – Monitoring for the purposes of the Industrial Emissions Directive (this heading includes Large Combustion Plants)
- IR3I – Fire

**4. Information**

- IR4A – Records
- IR4B – Reporting
- IR4C – Notification

### Enforcement response

Any non-compliance with a permit condition is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

### Data protection notice

You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law
- assessing customer service satisfaction and improving our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

### Disclosure of information – this report will be available to view on-line

If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within twenty working days to let you know if we agree to your request.

### Disputing the Content of this Compliance Assessment Report Form

If you disagree with the content of this Compliance Assessment Report form, you should submit your concerns, in writing, to the regulating officer who issued it within **15 working days** of its issue. This will be treated as a **Stage 1 review**.

If you are not satisfied with the outcome of the stage 1 review, you may request a **Stage 2 appeal**. This request must be submitted **within 21 working days** of receiving the response from the stage 1 review.

Further details on our review and appeal process are available at: [Natural Resources Wales / Appeal a regulatory decision from Natural Resources Wales](#)

### Concerns Not Related to the Content of this Compliance Assessment Report Form

If your concerns do not relate to the content of the Compliance Assessment Report form, you should first attempt to resolve the issue with the regulating officer or their line manager.

If the issue remains unresolved, please contact our **Customer Contact Team**:

- **Telephone:** 0300 065 3000 (Monday to Friday, 09:00–17:00)
- **Email:** [enquiries@naturalresourceswales.gov.uk](mailto:enquiries@naturalresourceswales.gov.uk)

They will provide details on how to escalate your concerns through our **Complaints and Commendations procedure**.

If you are dissatisfied with our response, you may contact the **Public Services Ombudsman for Wales**:

- **Telephone:** 0300 790 0203
- **Email:** [ask@ombudsman.wales](mailto:ask@ombudsman.wales)

### **Welsh Language Standards**

We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.