

Compliance Assessment Report CAR_NRW0046195

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: 31/12/2024.

Parts of permit assessed: Annual returns.

NRW Lead Officer: Lewis Evans.

Report sent to: Siobhan O'Leary-Johns, Organic Waste Specialist, on 10/02/2025.

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	Assessed (A)	
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
0	0

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?

No action required.

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 (WWOE)

Permit Reference: **EPR-AB3093CA**

The purpose of this compliance assessment report (CAR) is to assess the annual returns, quarterly waster returns that WWOE submitted to Natural Resources Wales (NRW) in the 2024 year.

Waste Returns were submitted within the time period specified in the permit and annual reports were also submitted.

Air Emissions

The following table shows the air emission testing that was carried out on the 5th and 6th of September 2024.

Emission Point	Parameter	Limit Value	Result
A2	Particulate Matter PM ₁₀	No Limit	2.02
A2	Total VOC's	1000mg/m ³	745.75 mg/m ³
A2	Carbon Monoxide	1400 mg/m ³	714.04 mg/m ³
A2	Sulphur Dioxide	350 mg/m ³	182.21 mg/m ³
A2	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	481.81 mg/m ³
A5	Carbon monoxide	50 mg/m ³	N/A – in operation LT 10% of the year
A5	Total VOC's	10 mg/m ³	N/A – in operation LT 10% of the year
A5	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	N/A – in operation LT 10% of the year

All recorded values were within permit limits. There was no requirement to test the flare as it ran for less than 10% (9.9%) of the year.

Water Usage

Water usage across 2024 was 13,010m³, this was an increase from 9,072m³ in 2023. The reason for the increased water usage was down to the additional water being used in the odour control unit on site.

Performance Reporting

Parameter	Units
Power Output – Electricity	9,568.4 MWh
Energy Efficiency	40.15% MWh/m ³ Biogas
Electrical Energy – Exported to DCWW/Cardiff East	8,379.2 MWh
Electrical Energy – Drawn from the grid	180.0 MWh
Operational running time of the flare	869 Hours (9.9%)
Amount of biogas combusted in the CHP unit per day	11,131 m ³ /day – daily average through CHP
Biogas generated	4,855,935 m ³
Total waste treated	23,831.62 tonnes
Solid digestate	523.6 tonnes
Liquid digestate	21,531.61 tonnes

Additional comments from the operator are as follows:

Operator's comments :

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

Energy Efficiency calculated as follows:

Electricity generated: 9,568.4 MWh

Total biogas/fuel input: 4,855,935 m³

Average CH₄ percentage in biogas: 56%

CH₄ energy yield kWh/m³ = 10.5 kWh/m³ (Common standard)

Total biogas/fuel input; $4,855,935 \times 0.56 \times 10.5 = 28,552,898 \text{ kWh} = 28,553 \text{ MWh}$

Energy efficiency = Electricity generated / Total fuel input = $9,568.4 / 23,831.62 = 40.15\%$

Biogas combusted in CHP = $4,855,935 - (869 \times 900) = 4,073,835 \text{ m}^3$

Reporting requirements

In line with permit condition 4.2.2(a), WWOE have submitted a report of the performance of the activities over the year 2024.

Welsh Water Organic Energy Cardiff has experienced a difficult eighth year of operations. The main issue being caused by the reliability of the CHP engine. This has led to more flaring than we would have preferred but still within the 10% permit limit. The food waste deliveries from the local authorities have been consistent throughout the year. The changes to collections that they have made has increased their segregation.

A standby boiler has been installed on site to supplement the CHP during major services / failure, this has not been commissioned yet and is included in the permit variation submitted during the year.

The site has had contingency events during the year due to the issues caused by the CHP and the subsequent reduced ability to pasteurise due to lack of heat from the CHP.

In terms of liquid digestate the facility production is in line with process parameters. The site has a well-developed good working relationship with the liquid digestate contractors, and this has resulted in sufficient off-site storage capacity being planned and developed for the winter non spreading months.

Reject material volumes are in line with expected and permitted amounts, but the site management team are continuing to look to reduce these volumes and improve efficiencies.

Waste Returns

Waste returns have been submitted to NRW on time and have been accepted. Waste codes noted within the spreadsheet are compliant with those in the permit.

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 only relating to the activity assessment
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 – Emissions to water, air or 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.

What do I do if I disagree with the report or have a complaint?

If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 to 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at 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.