

Compliance Assessment Report CAR_NRW0050561

Permit being assessed: FP3232KG.

For: Cardiff East Wastewater Treatment Works CHP Facility, **held by:** Dwr Cymru Cyfyngedig

At: Dwr Cymru Welsh Water, Tide Fields Road, Rover Way, Cardiff, Cardiff, CF24 2RX.

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	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

Dŵr Cymru Welsh Water Cardiff East CHP

Permit Reference – FP3232KG

Annual Returns

The operator submitted the full suite of annual returns on 28 January 2026, ahead of the permit deadline of 31 January, in accordance with Permit Condition 4.2.2. Monitoring data for emission points A1 and A3 showed that all reported pollutants—Oxides of Nitrogen (NO_x), Carbon Monoxide (CO), and Sulphur Dioxide (SO₂)—were comfortably within the emission limit values prescribed in Schedule 3 Table S3.1 of the permit.

Air Emissions

At A2, Carbon Monoxide was reported at 1131.31 mg/m³, slightly above the permitted limit of 1100 mg/m³ (hourly mean) set out in the permit's emission limits for CHP Engine 2. However, the test carried an associated 3% uncertainty, as stated in the operator's monitoring submission, meaning the true value could fall within the acceptable range once measurement uncertainty is applied. As such, the limit is not considered breached, though the result sits extremely close to the upper allowable threshold. This has therefore been classified as an advisory finding, and continued attention to engine tuning and monitoring performance is recommended to maintain a suitable compliance buffer.

The operator did not carry out emissions monitoring at Emission Point A7 (emergency flare), reflecting that the flare did not operate for more than 10% of the plant's total operational time during 2025. This approach is fully consistent with the permit, which only requires annual flare monitoring when utilisation exceeds the 10% threshold, as specified in Table S3.1 Note 2

Emission Point	Parameter	Limit	Result	
A1	NO _x	500 mg/m ³	422.25 mg/m ³	
	CO	1100 mg/m ³	1098.29 mg/m ³	
	SO _x	340mg/m ³	101.75 mg/m ³	
A2	NO _x	500 mg/m ³	373.34 mg/m ³	
	CO	1100 mg/m ³	1131.31 mg/m ³	Advisory – within uncertainty
	SO _x	340mg/m ³	19.15 mg/m ³	
A3	No _x	500 mg/m ³	337.31 mg/m ³	
	CO	1100 mg/m ³	732.38 mg/m ³	
	SO _x	340mg/m ³	15.94 mg/m ³	

Water Usage

Water consumption at the Cardiff East CHP facility decreased during the 2025 reporting year. The site recorded a total usage of 18,905.46 m³, representing a reduction from 21,242.27 m³ in 2024. This equates to an annual decrease of approximately 11%, indicating a positive downward trend in overall water demand. While the permit does not set specific quantitative limits for water usage, this reduction is nonetheless favourable in the context of resource efficiency and aligns with the permit's broader expectations under Permit Condition 1.3, which requires operators to use raw materials and water efficiently.

This improvement may reflect operational optimisation, better process control, or reduced reliance on mains water during certain stages of plant operation. Continued monitoring will help confirm whether this level of reduced demand is sustained in future years, and whether further efficiency opportunities exist.

Energy 1

Total energy consumption at the Cardiff East CHP facility for the 2025 reporting year was 63,666 MWh, comprising 44,345.66 MWh of electricity and 10,663.069 MWh of natural gas, as reported through the annual Energy Usage form 1. This represents a modest reduction from the 64,413 MWh recorded in 2024, indicating a year-on-year decrease in overall site energy demand.

Although the variation is relatively small (approximately 1.2%), the downward trend is positive and broadly consistent with the permit's expectations under Condition 1.2, which requires operators to take appropriate measures to ensure energy is used efficiently. The reduction may reflect improvements in CHP performance, operational efficiencies associated with the fully commissioned biogas clean up system, or reduced reliance on supplementary natural gas during certain operational periods.

Electricity consumption continues to form the majority share of the site's energy profile, while natural gas usage remains comparatively low in absolute terms for an installation of this scale. This aligns with the operator's commentary noting improved engine performance and operational stability following previous periods of maintenance and equipment optimisation.

Continued monitoring of energy trends will help determine whether this reduction is the beginning of a sustained efficiency pattern or primarily the result of operational variability in 2025. As part of the next four-year efficiency review cycle under the permit, there may be scope to explore further reductions through ongoing optimisation of CHP operating regimes, improvements in biogas availability and quality, or enhanced integration of process controls.

Parameter	Units
Power Output – heat	12,015 MWh
Power output – electricity	11,372 MWh
Energy Efficiency	0.004 MWh/ m ³ biogas
Electrical energy exported to the grid	1,948.7 MWh
Electrical energy drawn from the grid	19,311.66 MWh
Water usage	18,905.46m ³
Water generated	0 m ³ /MWh
Energy usage	32,994 MWh
Generation of residues	8,541 tonnes
Generation of wastewater	115,395,513 m ³
Operational time of waste gas burner	4.94 % of operational time
Total raw material used	17,611 tonnes

Waste Returns

During the 2025 reporting year, the facility received a total of 20,537.69 tonnes of waste classified under EWC 19 08 05 (sludges from urban wastewater treatment). This input quantity represents the volume of feedstock entering the anaerobic digestion process and aligns with the permit's authorised waste types listed under Schedule 2 Table S2.2, which permits the reception of wastes within the 19 08 waste group. The reported tonnage for 2025 remains well within the installation's permitted annual throughput limit of 160,000 tonnes, indicating continued compliance with the site's regulated capacity. In the same period, the operator reported 40,193.94 tonnes of waste being removed from site. This figure reflects the combined quantity of digestate, residues, screenings, and any other treated outputs or by-products exported from the installation.

Overall, the waste movements recorded for 2025 demonstrate that the site has operated within its authorised waste types and throughput limits. Continued accurate tracking of received and removed materials remains important to maintain compliance with Schedule 2 requirements and to support future performance reporting under Schedule 4.

Operators Comments

2025 was the 1st year of the new biogas clean up plant being fully operational. This saw the CHP engines cope well with limited site throughput in the early stages of the year. However, the sustained period of unfiltered fuel in 2024 did prematurely age some of the gensets which did necessitate some rebuilds being required when site throughput increased in the summer. With all gensets returned to service and a carbon media change on the new inlet filtration system the engines handled the vast majority of biogas the site produced through the autumn and winter periods. Further improvements around the site SCADA control system have also benefitted site fuel usage and reflect the considerable investment that has gone into Cardiff WWTW. Engines 1 & 3 continue to operate within permitted emission limit values, 2 tested outside these at the time of test which was communicated via schedule 5 part B submission which details it being within test uncertainty %. The flare was not tested due to not reaching the de-minimis threshold.

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

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

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.