

Compliance Assessment Report CAR_NRW0046172

Permit being assessed: BB3891CG.

For: Cog Moors Wastewater Treatment Works, **held by:** DWR CYMRU CYFYNGEDIG

At: Green Lane, Dinas Powys, CF64 2TR.

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: Keith Harris, AD Performance Manager, on 06/02/2025.

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	C3 Minor	3.1.2
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor	3.2.1

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

Total non-compliances recorded	Total non-compliance score
2	8

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)	Please provide the findings from the site inspection carried out by OSIL by the 14th March.	14/03/2025
IR3A(2)	Ensure measures mentioned in the Part B notification are followed to reduce the likelihood occurring again.	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.

You are non-compliant with your permit.

We are currently considering taking enforcement action against you for the non-compliance recorded above. We will contact you in due course.

4. Details of our assessment

Dŵr Cymru Welsh Water Cog Moors Wastewater Treatment Works

Permit Reference – BB3891CG

Schedule 5 Notification of Odour Control Unit Emission Breach

Throughout the year Dŵr Cymru Welsh Water (DCWW) submitted three Schedule 5 notifications to Natural Resources Wales (NRW). These Schedule 5 notifications related to the Odour Control Unit (OCU) on site. The site had similar issues with the units in 2023 but had contacted a supplier to provide better results. This had passed in the first round of testing (May 5th), however the second round of testing OCU 7 started to incur issues. The following are the Schedule 5 relating.

Schedule 5 Notification received 13th December 2024:

OCU C (A7) – From DCWW – *“We have recently had odour analysis completed for site and just reviewed the results with our contractor OSIL (Odour Services International Limited). OCU C had slightly adverse results being reported following recent testing for the outlet on this system. The 3 recorded sample results showing 2,048 ou/m³, 2,182 ou/m³ and 2,186 ou/m³ therefore above the 1000 ou/m³ asset standard at the outlet. The Inlet Works, OCU-A and OCU B were all within compliance with the asset standard requirement of 1,000 ou/m³ at the OCU outlets therefore these OCU’s are performing as expected.”*

Additional comments *“As discussed following the previous failure the unit was completely overhauled and new carbon media installed in April 2024 and additional service and inspection undertaken in June with all remedial work identified completed so this most recent failure is very disappointing. Following a call today with our contractor OSIL (Odour Services International Limited), we have arranged for them to attend site next Thursday to do a detailed assessment of the unit. They recommend carrying out a full odour speciation screen to detect compounds that are present which we will be doing and we are going to arrange for sludge imports to be present during sampling so they see worst case scenario and when the peak odour loads are going through the system. We will report their findings and recommendations following the site visit.”*

As OCU 7 results have exceeded the permitted levels (1000ou/m³) a breach of permit condition 3.1.2 *The limits given in Schedule 3 shall not be exceeded* has occurred. As a result a **Category 3 non-compliance** will be scored against the permit condition.

Action – Please provide the findings from the site inspection carried out by OSIL by the 14th

March.

Schedule 5 Notification Part A received 19h June 2024, Part B received 25th October 2025: This was relating to Biogas release from one of the digesters. Approximately 813m³ of biogas had been released from Digester A which had a composition of approximately 60% methane, 40% Carbon Dioxide and up to 50ppm of (0.005%) hydrogen Sulphide. The events duration was 30mins. The operator reduced the digester feed rate and activated the anti-foaming dosing to prevent foam overtopping. The operator stated in the Part A *“Investigations are ongoing but a likely sudden increase in organic loading rate caused a digester foam surge which entered the foam mitigation system. The foam mitigation system is designed to release biogas when the pressures are elevated to protect the structural integrity of the digester. This controlled release of biogas protects site personnel and the environment from a catastrophic failure of the digester.”*

Within the Part B the following actions and measures have been put in place to reduce the likelihood of the event occurring again:

Actions taken:

- Immediately stopped feed - This will reduce gas production to limit gas release volume. It will also very quickly reduce foam levels in the headspace of the digester.
- Replenished foam box water seal - This stops the gas release. The water seal is a physical barrier securing the gas seal as a safety feature.
- Instigated anti-foam dosing - The dosing is a foam suppressant, this very quickly reduces foam levels in the headspace of the digester.

Preventive measures:

- Daily monitoring of feed rates and foam levels - This identifies the sludge fed vs gas production and gives an early indicator of the lack of utilization of available substrate.
- Permanent installation of potable water to the foam suppression system.

A temporary overland hose was used at the time to provide water to the foam suppression system, this was replaced with underground pipework to improve resilience of the asset.

As a result of the biogas release a **Category 3 non-compliance** will be scored against the following permit condition:

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

Action – Ensure measures mentioned in the Part B notification are followed to reduce the likelihood occurring again.

Air Emissions

The operator submitted the annual returns on the 31st January 2025. Emission points A1, A2, A3 and

A4 were all below the permitted limits. However, the NO₂ limits were approaching the limits.

A9 (Flare) was also tested as the operational time exceeded the 10% threshold.

Emission Point	Parameter	Limit	Result
A1	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	190mg/m ³	188.54mg/m ³
	Sulphur Dioxide	40mg/m ³	6.01mg/m ³
	Carbon Monoxide	-	308.64mg/m ³
A2	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	190mg/m ³	189.22mg/m ³
	Sulphur Dioxide	40mg/m ³	8.11mg/m ³
	Carbon Monoxide	-	301.90mg/m ³
A3 (when operating on natural gas)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	100mg/m ³	97.70mg/m ³
	Carbon Monoxide	-	4.76mg/m ³
A3 (when operating on biogas)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	200mg/m ³	53.28mg/m ³
	Sulphur Dioxide	100mg/m ³	14.05mg/m ³
	Carbon Monoxide	-	6.05mg/m ³
A4 (when operating on natural gas)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	100mg/m ³	98.81mg/m ³
	Carbon Monoxide	-	1.46mg/m ³
A4 (when operating on biogas gas)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	200mg/m ³	60.41mg/m ³
	Sulphur Dioxide	100mg/m ³	12.15mg/m ³
	Carbon Monoxide	-	1.29mg/m ³
A6	Odour	1000 OU _E /Nm ³	407.3mg/m ³
A7	Odour	1000 OU _E /Nm ³	2138.6mg/m ³
A8	Odour	1000 OU _E /Nm ³	377.6mg/m ³
A9	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	-	80.61mg/m ³
	Carbon Monoxide	-	441.97mg/m ³
	Total Volatile Organic Compounds (VOCs) (as Carbon)	-	

Water usage

Water usage on site was 13,075m³/year. This has increased from 9,515m³ in 2023.

Energy 1

The total energy usage on site in 2023 was 20,513.772MWh being made up of 13,109.601MWh Electrical use and 7,404.171MWh of Natural Gas usage.

Performance 1

Parameter	Result
Biogas produced by anaerobic digestion process (m3)	4,341,598
Total amount of waste treated (tonnes)	12,215
Energy efficiency (MWh/m3 biogas)	0.002
Electrical energy drawn from the grid (MWh)	5,989
Electrical energy exported to the grid (MWh)	0
Generation of residues (tonnes)	6,261
Generation of wastewater (m3)	48,605,020
Total raw material used (tonnes)	12,215
Amount of biogas combusted in the Medium Combustion Plant (m3 /day)	11,862
Amount of biogas sent to the emergency flare (m3)	716,492
Operational time of waste gas burner (emergency flare) (% of operational time)	15%

Operator comments from the reporting forms: “2024 saw another year of having to operate the site valorisation within the confines of the National Grid imposed electricity export limitation of 0kW. Outside of boiler-imposed shutdowns an engine has been available for most of the year and whenever possible the biogas has once again been utilised in the boilers to raise steam for site treatment processes. Unfortunately, this limitation did necessitate us flaring excess biogas beyond the de-minimis threshold, so this was emissions tested along with the rest of the medium combustion plant. The engines and boilers continue to operate within emission limit values highlighted in the permit. One of the boilers went off biogas during the test due to site demand dropping but was operating comfortably within emission limit values whilst it was on. The flare was tested and readings obtained against no limits for NOx & CO however a test for SO2 was mistakenly taken instead of TVOC.”

Waste Returns

All waste returns were received and 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 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.