

Compliance Assessment Report CAR_NRW0042993

Permit being assessed: PP3139GB.

For: Hafod Quarry Landfill Site, **held by:** Enovert North Limited

At: Hafod Quarry Landfill Bangor Road, Johnstown, Wrexham, LL14 6ET.

Type of assessment: Site Inspection,

Reason: Routine.

On: 30/11/2023 between 10:00 and 15:00.

Parts of permit assessed: Landfill gas emissions .

NRW Lead Officer: Jamie Blythin, accompanied by Stuart Ross.

Report sent to: Ian Craven , Regional Manager, on 19/01/2024.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR2K - Operations - Landfill gas management (only applicable to landfill)	C2 Significant	2.9.1
IR2K - Operations - Landfill gas management (only applicable to landfill)	Action only (X)	
IR2K - Operations - Landfill gas management (only applicable to landfill)	Action only (X)	
IR4C - Information - Notification	C3 Minor	4.3.1
IR3C - Emissions and monitoring - Odour	C3 Minor	3.3.1

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

Total non-compliances recorded	Total non-compliance score
3	39

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
IR2K	Action 1 - Refer to R36 Statutory Notice dated 21/12/23 for actions.	31/01/2024
IR2K	Action 3 - Provide NRW with the results of your investigation	29/02/2024

Criteria	Action needed	Complete by
	into the origin of the gas contained in the southern perimeter wells.	
IR2K	Action 4 - Label perimeter boreholes along the southern boundary and provide photographic evidence to NRW that this has been completed.	29/02/2024
IR4C	Action 5 - Review notification procedures to ensure the notification requirements of the permit are met.	29/02/2024
IR3C	Action 2- Refer to R36 Statutory Notice dated 21/12/23 for actions.	31/01/2024

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

This Compliance Assessment Report follows a site inspection at Hafod Landfill site 30/11/23 and summarises the findings of a methane emissions survey completed using a calibrated Gazomat Inspectra TDL unit. The purpose of the inspection was to assess fugitive landfill gas emissions and visually inspect landfill gas collection and control infrastructure.

1. Overview

Since October 2023, Natural Resources Wales (NRW) have received a large number of incident reports from the local community reporting odour from the landfill site. NRW Officers have attended a number of incidents and substantiated an offsite landfill gas odour.

Waste tipping operations have concluded in Cell 5a and this will now be progressively capped and restored. Waste tipping operations are now being carried out in Cell 5b (refer CAR_NRW0042868 for further information).

Prior to the site inspection, the Operator completed a fugitive methane emissions survey 15/11/23 using a Flame Ionisation Detector (FID). The results of the survey were sent to NRW on 24/11/23.

Methane readings between 0-1000+ parts per million (ppm) were detected around Cell 5a and boreholes at the southern perimeter.

The Operator has recently completed a number of actions to reduce the potential for odour

and increase landfill gas utilization.

These include;

- The installation of 6 new gas wells on Cell 5a (completed 27/10/23).
- The extension of the 180mm gas collection main and connecting lines to the 6 new gas wells (completed 02/11/23).
- Temporary capping placed on the top of Cell 5a with 300-500mm layer of clay- approximately 4000 m² covered.
- Partial temporary capping (clay) placed on the western flank of Cell 5a.
- Soils placed against lower section of the northern flank of Cell 5a.
- Installation of two horizontal leachate drains on the northern flank of Cell 5a and connection of two pin wells from these trenches to collect any gas produced.
- Pneumatic pumps installed and operational in gas wells HF00131 and HF00134 (located in Cell 5a).

2. Inspection Findings

Cell 5a

This inspection followed a cold night, some frost was evident on surfaces at the site. At the time of the survey, the weather was dry with a slight breeze, generally blowing from a northerly direction. The temperature was 2 degrees Celsius on arrival. A background methane reading of 1.8ppm was recorded at the site office carpark, upwind of the landfill at this time.

Immediately before attending site, NRW officers completed offsite olfactory monitoring at the following locations: New Hall Road, Ruabon, Vauxhall Industrial Estate, Heol Estate, Bangor Road and Linley Avenue. Landfill gas odours were detected along New Hall Road but not at any of the other locations.

On arrival the operator reported that both landfill gas engines were operating as normal, with no flaring. No issues were reported with the landfill gas collection system. The landfill gas compound was visited and operating as described. Incoming gas pressure was steady (no pulsing) with flow recorded at approximately 930 m³/hr.

On site, and accompanied by the Head of Landfill Gas and the Regional Manager, NRW Officers detected strong and persistent landfill gas odours across the width of the northern flank of Cell 5a. High readings of methane were detected - up to 2500ppm from the landfill surface. In one area, landfill gas could be heard issuing from the surface of the flank with a strong landfill gas odour with methane measured at 30 - 57%v/v. On top of cell 5a, adjacent to the eastern sidewall and New Hall Road, bubbles were observed rising in pools of standing water.

The slope angle of the northern flank of Cell 5a was very steep and there were areas where waste was visible, indicating inadequate temporary capping. Leachate was also observed weeping out of the flank in some areas indicating the presence of perched leachate.

On the western flank of Cell 5a, strong landfill gas odours were again detected by Officers, with methane readings ranging between 400-12,000ppm at the surface. There was a significant amount of waste visible on this flank, again, highlighting inadequate temporary capping.

A very strong landfill gas odour was detected near leachate well LC4. The Gazomat recorded a value of 3-9%v/v near the base of this well and a value of 2000 ppm in the air immediately down wind of the well.

Officers walked on top of Cell 5a and recorded the following methane values at the base of the following wells:

HF00W132-700ppm, HF00W133-30ppm, HF00134-1-2PPM (background), HF00W135-10ppm, HF00W136- 20ppm ,HF00W130 (8000ppm at base of well, peak 4.4%v/v gas detected on the ground approximately 1m from well), HF00W129-6, 400ppm, HF00W075-30ppm and HF00W131-57ppm.

The 6 new gas wells in Cell 5a were not fitted with air pumps to remove liquid. The sound of pulsing condensate/similar could be heard at gas wells HF00134, HF00W135 and HF00W129. This was discussed with the Head of Landfill Gas. There were no apparent condensate blockages in the connecting pipework, the sound /pulsing may originate from liquid within the well indicating it is flooded/partially flooded.

The operator confirmed that the wells had been dipped and contain liquid. Following the site inspection, the operator provided NRW with dip data for the 6 new wells in cell 5a, as measured on 30/11/23:

HF00131 dip to liquid 17.15m dip to Base 30.40m
HF00132 dip to liquid 23.2m dip to base 30.85m
HF00133 dip to liquid 14.4m dip to base 25.30m
HF00134 dip to liquid 12.1m dip to base 27.5m
HF00135 dip to liquid 10.9m dip to base 19.05m
HF00136 dip to liquid 5.1m dip to base 9.05m

The dip data shows that all wells contain liquid, some have lost a significant proportion of their available slotted section, thereby hindering landfill gas collection.

Leachate well LC05 recorded a value of 12,000 ppm using the Gazomat.

Officers surveyed the bottom of phase 5 and recorded values between 2.2-6000ppm.

Permit condition 2.9.1 requires that *'The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to: (a) collect landfill gas; and (b) control the migration of landfill gas'*.

NRW considers that the operator has failed to take appropriate measures to collect landfill gas, in particular due to inadequate temporary capping of cell 5a and the absence of gas well dewatering in the newly installed gas wells.

This a breach of permit condition 2.9.1 (IR2K-Landfill gas management) and a non-compliance score of C2 has been applied based on the potential environmental impact.

Action 1 - Refer to the Regulation 36 Statutory Notice dated 21/12/23 for required actions.

NRW officers substantiated landfill gas odours along New Hall Road immediately before attending site and consider that the operator has failed to take appropriate measures to prevent/ minimise odours for the reasons discussed above.

Permit condition 3.3.1 requires that *'Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.'*

This is a breach of permit condition 3.3.1 (IR3C-Odour) and attracts a non-compliance score of C3. This score has been applied based on actual impact as perceived by NRW Officers at the time of the offsite inspection.

Action 2- Refer to the Regulation 36 Statutory Notice dated 21/12/23 for required actions.

Other Landfill Cells

The perimeter boreholes along the southern boundary were not labelled. The first borehole- BHGB1- recorded a peak value of 10.6%v/v gas. The second borehole- BHGB2- recorded a peak value of 2-3%v/v gas. The Operator contends that the gas in these wells is mine gas and they have completed investigations into this, including isotope analysis (as stated in annual report 2022).

Action 3 - Provide NRW with the results of your investigation into the origin of the gas contained in the southern perimeter wells.

Action 4 - Label perimeter boreholes along the southern boundary and provide photographic evidence to NRW that this has been completed.

The walkover encompassed areas of Cell 4 (western area of site) and only very low / background levels of methane were detected.

Strong landfill gas odours were detected around gas well HH00W072 (370ppm methane) and Knockout pot 10 (90%v/v methane, 38,000ppm).

Notifications

Permit Condition 4.3.1 requires

(a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately— (i) inform Natural Resources Wales, (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and (iii) take the measures necessary to prevent further possible incidents or accidents;

(b) in the event of a breach of any permit condition the operator must immediately— (i) inform Natural Resources Wales, and (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

Despite numerous opportunities to do so, at no point prior to NRW carrying out the site inspection on 30/11/23 did Enoverst notify NRW as to the extent of the fugitive landfill gas emissions (and associated odour) from Cell 5a and the lack of appropriate measures to collect and control landfill gas as required by the permit. These issues had the potential to cause a significant offsite odour impact.

The submission of the FID survey report does not amount to a notification under this condition.

NRW considers this to be a breach of permit condition 4.3.1 (IR4C-Notification) and a non-compliance score of C3 has been applied.

Action 5 - Review notification procedures to ensure the notification requirements of the permit are met.

Permit compliance

NRW acknowledges that the Operator has started implementing measures to address landfill gas emissions and offsite odours. However, during this site inspection permit breaches were identified and NRW considers that elevated fugitive emissions from Cell 5a are leading to an offsite amenity impact.

Following the site inspection, the operator provided NRW with an Action Plan on 04/12/23 to address the issues identified within this report. An updated Action Plan was submitted to NRW on 18/12/23.

NRW has reviewed this Action Plan and served a Regulation 36 Statutory Notice on the Operator which requires them to complete specified actions to remedy the permit contraventions.

N.B An audit of the Environmental Management System will be completed by NRW in due course to identify root causes behind the non compliance identified in this report.

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.