

Compliance Assessment Report CAR_NRW0045973

Permit being assessed: VP3935AT.

For: Tir John Landfill, **held by:** Enovert South Ltd

At: Wern Fawr Road, Off Fabian Way, Port Tenant, SWANSEA, West Glamorgan, SA1 8LN.

Type of assessment: Report/Data Review,

Reason: Routine.

On: 30/12/2024.

Parts of permit assessed: Q3 Monitoring return.

NRW Lead Officer: Daniel Packer.

Report sent to: Lance Jones, Area Operations Manager, on 16/01/2025.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3A(1) - Installations - Emissions and monitoring - Emissions to water	C3 Minor	3.1.2 and 3.1.5
IR3A(1) - Installations - Emissions and monitoring - Emissions to water	C3 Minor	3.1.2 and 3.1.5
IR2I - Installations - Operations - Leachate levels (only applicable to landfill)	C2 Significant	3.1.2 and 3.1.5 and TableS3.5
IR4B - Installations - Information - Reporting	C3 Minor	4.2

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

Total non-compliances recorded	Total non-compliance score
4	43

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(1)	Continue to review and monitor SW2 and SW4 to identify why the Ammoniacal-N (mg/l) level is high. Identify remedial action required to reduce this to within permitted levels.	16/02/2025

Criteria	Action needed	Complete by
IR3A(1)	Provide update regards application submission timeframe to vary the permit.	16/02/2025
IR2I	Provide update regarding solution progress for blockage clearance. Please clarify where there are blockages and submit a CQA plan for redrilling the well.	16/03/2025
IR4B	Ensure all data is submitted in the time frames specified. Operator to clarify inconsistencies with the data submitted.	16/02/2025

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

This Compliance Assessment Report (CAR) is an assessment of the 2024 Q3 reporting submission required by the permit of the operator, Enovert Limited - Tir John Landfill.

The Q3 monitoring returns has been submitted to NRW inside the reporting window as required by condition 4.2.3 of the permit. This represents a compliance with the environmental permit under permit condition 4.2.

Surface Water

From a review of the information submitted, surface water monitoring was undertaken, and the results were non-compliant with the stipulated emission limit required under permit condition 3 - Emissions and monitoring. Ammoniacal-N levels recorded above the permitted limit of 0.5 mg/l with sample point 2 (SW2) recording 2.5 mg/l on 23/07/2024, 2.3 mg/l on 28/08/2024 and 3.3 mg/l on 24/09/2024. Sample point 4 (SW4) also recorded above permitted levels, with recordings of 27 mg/l on 23/07/2024, 14 mg/l on 28/08/2024 and 22 mg/l on 24/09/2024.

A category 3 (C3) non-compliance score has been applied against permit condition 3.1.2 and 3.1.5 Table S3.5 for the quarter for SW2 and SW4.

The operator stated, *"I have reviewed the previous site EMR's and the 2018 HRA. In practical terms Enovert would argue that the seasonally elevated Ammoniacal-N values seen at SW2 and SW4 can be monitored but cannot be managed, as all evidence seems to point to the levels being of natural origin."*

Elevated Ammoniacal-N values do not coincide with raised chloride or other leachate-related trace substances that would indicate contamination from landfill leachate. Furthermore, they tend to occur seasonally when the bog water levels are lower than surface level (the bog surface being dry) and the surface water ditch effectively stagnates

due to lack of precipitation or flow. In this environment, the plant organic degradation in bog and ditch deleteriously affects the static water quality.

Whilst we recognise that these levels are in our permit until we effect a variation, it is difficult to appreciate how, given the significant body of reported data over a 15 year period and the lack of any observed environmental impact, we should be scored for NRW's more recent perceived impact on the environment, people or property."

Whilst the above is acknowledged, until such time as an application is made to vary the permit and the variation is determined/approved the current limits apply. Note there is no guarantee that an application to vary the permit will result it in being granted.

ACTION. – Continue to review and monitor SW2 and SW4 to identify why the Ammoniacal-N (mg/l) level is high. Identify remedial action required to reduce this to within permitted levels.

Ground Water

From a review of the information submitted, ground water monitoring was undertaken. GDW18 shows elevated levels of Ammoniacal-N (mg/l) with a reported reading of 19 mg/l. This is significantly over the permitted level of 5 mg/l. This represents a non-compliance with the stipulated emission limit required under permit condition 3 - Emissions and monitoring.

A category 3 (C3) non-compliance score has been applied against permit condition 3.1.2 and 3.1.5 Table S3.5 for the quarter for GDW18.

The operator stated, "*Our consultants are currently collating data for the forthcoming HRA review, which is recognised as being an important driver in establishing data requirements and compliance limit setting for the permit variation. We are collecting some more samples for analysis before the review can be drafted. We expect the review to be complete in Q1 2025 and we are also reviewing what else may be required such a perimeter gas review, and updated leachate management plan. The variation application will follow this work, later in 2025.*"

Whilst the above is acknowledged, until such time as an application is made to vary the permit and the variation is determined/approved the current limits apply. Note there is no guarantee that an application to vary the permit will result it in being granted.

ACTION - Provide update regards application submission timeframe to vary the permit.

The Cis-1,2-Dichloroethene levels, is being reported as all showing <3 ug/l. However, the limit set within the permit is 1 ug/l. Until such time as an application is made to vary the permit the current limits apply.

The Tributyl Phosphate (ug/l) levels, is being reported as all showing <0.1 ug/l. However, the limit set within the permit is 0.02 ug/l. Until such time as an application is made to vary the permit the current limits apply.

The operator stated, *“Our consultants are currently collating data for the forthcoming HRA review, which is recognised as being an important driver in establishing data requirements and compliance limit setting for the permit variation. We are collecting some more samples for analysis before the review can be drafted.*

We expect the review to be complete in Q1 2025 and we are also reviewing what else may be required such a perimeter gas review, and updated leachate management plan. The variation application will follow this work, later in 2025.”

ACTION - Provide update regarding application submission timeframe to vary the permit.

Ortho Phosphate levels recorded above the permitted limit of 0.05 mg/l across several wells. This represents a non-compliance with the stipulated emission limit required under permit condition 3 - Emissions and monitoring.

Sample point	Date	Limit	Result
GDW05.	24/09/2024,	0.05,	0.37 mg/l
GDW06.	24/09/2024,	0.05,	0.076 mg/l
GDW07.	24/09/2024,	0.05,	0.83 mg/l
GDW14.	24/09/2024,	0.05,	0.15 mg/l

A category 3 (C3) non-compliance score has been applied against permit condition 3.1.2 and 3.1.5 Table S3.5 for the quarter for these results.

Several wells are also showing above permitted levels at the same result. Ortho Phosphate is being reported as showing <0.062. However, the limit set within the permit is 0.05 (mg/l).

Sample point	Date	Limit	Result
GDW4,	24/09/2024,	<0.062,	0.05
GDW8,	24/09/2024,	<0.062,	0.05
GDW9,	24/09/2024,	<0.062,	0.05
GDW10,	24/09/2024,	<0.062,	0.05
GDW11,	24/09/2024,	<0.062,	0.05
GDW12,	24/09/2024,	<0.062,	0.05
GDW15,	24/09/2024,	<0.062,	0.05
GDW16,	24/09/2024,	<0.062,	0.05
GDW17,	24/09/2024,	<0.062,	0.05

The operator stated. *“We switched to a new accredited laboratory in January 2021 and the permit limits set for Orthophosphate are lower than the laboratory can reach using accredited analytical methods, therefore many of the results are less than the limit of detection.*

Historical breaches of Orthophosphate have primarily occurred in the boreholes on the Northern perimeter of the Tir-John site. These are thought to be from non-landfill sources. We are planning to review the limits set on orthophosphate in the next permit variation application.”

The operator also stated. *“Our consultants are currently collating data for the forthcoming HRA review, which is recognised as being an important driver in establishing data requirements and compliance limit setting for the permit variation. We are collecting some more samples for analysis before the review can be drafted.*

We expect the review to be complete in Q1 2025 and we are also reviewing what else may be required such a perimeter gas review, and updated leachate management plan. The variation application will follow this work, later in 2025.”

Whilst the above is acknowledged, until such time as an application is made to vary the permit and the variation is determined/approved the current limits apply.

ACTION - Provide update regards application submission timeframe to vary the permit.

Emissions to Air

From a review of the information submitted, engine gas, compound and flaring monitoring was undertaken, and the results for Nox (mg/m³), CO (mg/m³) were compliant with the stipulated emission limit required by permit condition 3 Emissions and monitoring.

Leachate

Leachate Quality

From a review of the information submitted, Leachate Quality monitoring was undertaken, with the following sample point data missing: LEW7, LEW8, LEW10, LEW11, LEW13, LEW14a, LEW15 and LEW17. Additionally, there appears to be inconsistencies with the data submitted. LEW6, LEW16 and LEW22 have leachate head levels recorded, but the comments for Leachate Quality state they are dry, and the leachate quality data is missing.

This represents a non-compliance to fulfil the monitoring and reporting requirement required under permit condition 3 - Emissions and monitoring. And under permit condition 4.2 – reporting.

A C3 score has been applied for this quarter against permit conditions 3.5.1 and 4.2.3.

ACTION – Ensure all data is submitted. Operator to clarify inconsistencies with the data submitted.

Leachate Level

From a review of the information submitted, Leachate level monitoring was undertaken, and the results were non-compliant with the stipulated emission limit required under permit condition 3 - Emissions and monitoring, on the following sample points: LEW07, LEW09b, LEW13a, LEW15a, LEW16, LEW20, LEW21, LEW22, LEW23, LEW24, LEW25, LEW26, LEW28, LEW29, LEW31 and LEW32.

A C2 score has been applied for this quarter against permit conditions 3.1.2 and 3.1.5 and TableS3.5. Please note the score has been escalated due to the ongoing non-compliance and scale of non compliance.

The operator has responded to previous CAR NRW0043075 dated 29/4/2024 referencing *"a substance recently recognised in the industry as 'Black Goo' or 'Flubber'".*

The precipitate appears to be a complex organic polymer which grows where frothing occurs in the leachate. Within the monitoring boreholes this can occur where landfill gas bubbles through the leachate standing in the borehole.

Physically the precipitate has a slimy sticky consistency but can harden in air to form a latex sponge like material that is extremely elastic. Where this hardening occurs in boreholes it forms a thickening crust just above the highest historical level of leachate, even though subsequent levels may fall away, the 'Flubber' causing the blockage remains stuck at that level and can prevent further dip measurement.

Trials with hypochlorite as we have had limited success at Tir John so far as the hypochlorite needs to reach and interact with the 'flubber' which given the borehole depths (can be in excess of 20m) and lateral distortions, have possibly not been dosed with precision.

In the meantime, we are fitting the boreholes with much smaller diameter (32mm and 63mm) 'Dip Tubes' with which to punch through the 'flubber' blockages and allow (via a perforated end section) access for a dip tape to measure the leachate dips. This work will be completed by the end of April 2024.

Gas extraction efforts in Cells 15 and 16 have increased to maximise power generation for the newly installed gas engine in the last 12 months and this should have a positive impact, increasing negative pressure in the cells and reducing foaming in the boreholes."

The operator also stated on 8.11.24, *"We are still working through the difficulties caused by the 'flubber' which you have observed on site. We have been successful in fitting separate dip tubes through the 'flubber' blockage in some cases, but we have experienced a mismatch in different equipment ability to slide down the narrower gauges. This is being investigated to see if we can get a useable standard to allow all users access.*

It seems that there is very little research available in the public domain on these landfill by-products, however some interesting articles have gone further in identifying (on the particular sites cited in the articles) the culprit binding agent as Sodium Polyacrylate, the absorbent material found in continence products.

With this possibility in mind, we will be conducting some laboratory testing with some compounds thought to be effective in degrading or dissolving the polyacrylate.

In the meantime, we will endeavour to ensure we achieve regular and accurate dip measurements.”

Whilst the above is acknowledged, the current permitted limits apply.

ACTION – Provide update regarding solution progress for blockage clearance. Please clarify where there are blockages and submit a CQA plan for redrilling the well.

Schedule 5 notification Q3

Leachate Levels

The operator submitted to NRW on 28 August 2024 a Schedule 5 notification in line with the environmental permit for leachate levels recorded above the permitted limit. A consolidated C2 score has been applied for the quarter.

Leachate levels were exceeded at the following locations:

Sample Point	Date	Leachate Head (m)	Comment
LEW07	31/07/2024	7.02	
LEW09b	31/07/2024	14.82	
LEW13a	31/07/2024	1.40	
LEW15a	31/07/2024	14.11	
LEW16	31/07/2024	5.61	
LEW21	31/07/2024	3.33	
LEW22	31/07/2024	3.00	
LEW23	31/07/2024	3.72	
LEW24	31/07/2024	3.67	
LEW25	31/07/2024	5.09	
LEW26	31/07/2024	1.60	
LEW28	31/07/2024	4.24	
LEW29	31/07/2024	6.56	
LEW31	31/07/2024	5.45	
LEW32	31/07/2024	3.10	

You have stated *“The elevated levels in some wells are due to the pumps failing due to the well conditions and a solution has been under discussion within Enovert and with NRW. Initial dosing with bleach failed to break up the blockage, we are now looking into other options into helping to breakdown this unknown substance utilising alternative chemicals or methods. The substance has been sampled for laboratory analysis.”*

Whilst the above is acknowledged, the current permitted limits apply. Failure to maintain leachate levels (during the Q3 monitoring period) in accordance with the limits set in the permit are a breach of conditions 2.8.1 and 3.1.2 of your permit.

Following a review of recent Schedule 5 notifications, there are consistent exceedances of the permitted leachate levels in several wells across the site. From the notifications provided, it is unclear which monitoring locations are blocked, which represent actual exceedances of the leachate limit, and also in which wells the pumps have failed.

Please clarify where there are blockages and submit a CQA plan for redrilling the well.

The operator submitted to NRW on 24 September 2024 a Schedule 5 notification in line with the environmental permit for leachate levels recorded above the permitted limit. A consolidated C2 score has been applied for the quarter.

Leachate levels were exceeded at the following locations:

Sample Point	Date	Leachate Head (m)	Comment
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LEW07	28/08/2024	6.99	
LEW13a	28/08/2024	1.18	
LEW15a	28/08/2024	14.47	
LEW16	28/08/2024	5.51	
LEW20	28/08/2024	1.79	
LEW21	28/08/2024	3.22	
LEW23	28/08/2024	3.66	
LEW24	28/08/2024	3.62	
LEW25	28/08/2024	5.46	
LEW26	28/08/2024	2.18	
LEW28	28/08/2024	4.37	
LEW29	28/08/2024	6.49	
LEW31	28/08/2024	5.42	
LEW32	28/08/2024	3.02	

You have stated “*The elevated levels in some wells are due to the pumps failing due to the well conditions and a solution has been under discussion within Enovert and with NRW. Initial dosing with bleach failed to break up the blockage, we are now looking into other*

options into helping to breakdown this unknown substance utilising alternative chemicals or methods. The substance has been sampled for laboratory analysis.”

Whilst the above is acknowledged, the current permitted limits apply. Failure to maintain leachate levels (during the Q3 monitoring period) in accordance with the limits set in the permit are a breach of conditions 2.8.1 and 3.1.2 of your permit.

Following a review of recent Schedule 5 notifications, there are consistent exceedances of the permitted leachate levels in several wells across the site. From the notifications provided, it is unclear which monitoring locations are blocked, which represent actual exceedances of the leachate limit, and also in which wells the pumps have failed.

Please clarify where there are blockages and submit a CQA plan for redrilling the well.

Reporting

Actions identified in previous CAR_NRW0044966 VP3935AT were not received within the stipulated time period. This represents a non-compliance with reporting requirements outlined by permit condition 4.2 Reporting.

A category 3 (C3) non-compliance score has been applied against permit condition 4.2 for the quarter.

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.