



# **Submission of Evidence to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)**

## **Opening Statement**

**To the Chair and Members of the Senedd Petitions Committee,**

Firstly, I wish to express my sincere gratitude for the opportunity to provide a comprehensive response to the evidence presented during the initial inquiry session on **22<sup>nd</sup> September 2025**.

My submission is constructed as a direct, evidence-based rebuttal and augmentation to the transcripts and documents submitted by Natural Resources Wales (NRW), Public Health Wales (PHW), Enover, and Wrexham County Borough Council (WCBC). This evidence is structured to explicitly address the inconsistencies, technical deficiencies, and management failures that have allowed the persistent public health and odour nuisance from Hafod Landfill to continue.

The following index outlines the critical areas where the operator's and regulators' claims are challenged by the objective monitoring data and established scientific principles.

**Steve Gittins**

# **Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)**



## **Index of Evidence : Submission to the Senedd Petitions Committee Inquiry**

<b>SG#01</b>	<b>Analysis of Hydrogen Sulphide Monitoring</b>
<b>SG#01</b>	<b>Addendum SG#01</b>
<b>SC#02</b>	<b>Corellation of Rainfall and increased H2S emissions.</b>
<b>SG#3</b>	<b>Sniff Testing – Discrepancy in Monitoring</b>
<b>SG#04</b>	<b>Transparency and Engagement Failures</b>
<b>SG#05</b>	<b>Interrogation of Transcripts – 22<sup>nd</sup> September 20025</b>
<b>SG#06</b>	<b>Health Risks as per Enover &amp; Wrexham Council Graphs</b>
<b>SG#07</b>	<b>Challenging Claims of Regularatory Compliance</b>
<b>SG#08</b>	<b>Challenging PHW ‘low risk’ statement</b>
<b>SG#09</b>	<b>Complaint Fatigue</b>
<b>SG#10</b>	<b>Summary</b>

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Analysis of Hydrogen Sulphide Monitoring Data: Exceedances of WHO Exposure Guidelines & Recommendation for Enforcement Action

Submitted by: Steve Gittins Date: 10<sup>th</sup> October 2025

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### 1. Introduction

This report analyses hydrogen sulphide (H<sub>2</sub>S) monitoring data collected from AQMesh pods installed at Hafod Landfill Site and within the adjacent community between March–September 2025.

**Public Health Wales has confirmed that the World Health Organization (WHO) exposure guidelines are the applicable criteria for protecting public health in this context. These guidelines include:**

- **0.5 ppb** (1 µg/m<sup>3</sup>) as the threshold at which H<sub>2</sub>S becomes perceptible (**odour threshold / annoyance**).
- **4.7 ppb** (7 µg/m<sup>3</sup>, 24-h mean) as a short-term health / **nuisance guidance threshold**.
- **100 ppb** (150 µg/m<sup>3</sup>, 30-minute average) as the acute exposure limit.

The ‘single’ community pod data are of primary interest for assessing **ambient public exposure** in residential areas like Johnstown and the surrounding community.

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### 2. Methodology

Source data are from Table 4-2 of the report produced by Enover and Wrexham Council and submitted to the Inquiry on 22<sup>nd</sup> September 2025. (2551r3v1d0925).

The WHO guideline values (**0.5 ppb** and **4.7 ppb**) were applied across all timepoints to compute exceedance frequencies. Percentages above these thresholds were inferred from the proportions <1 ppb and <5 ppb provided in Table 4-3.

I examined and ‘drilled down’ into the report to confirm the detailed occurrence, magnitude, and **persistence of threshold exceedances**, contained an extremely small representational graph, a detail obscured by “zoomed-out” data representations.

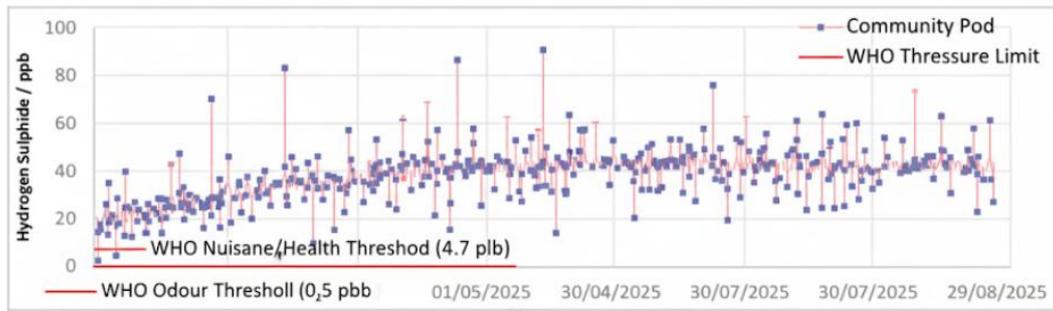
Also a qualitative review of published scientific literature was also conducted to support the assertion that increased rainfall / leachate mobilization may worsen H<sub>2</sub>S emissions. See Report of the Correlation of Rainfall and incremental H<sub>2</sub>S emissions. (see **SG#02**)

### 3. Results

#### 3.1 Exceedance Statistics (from Table 4-2)

Monitoring Pod	% $\geq 0.5$ ppb (odour threshold)	% $\geq 4.7$ ppb (nuisance / health threshold)	Peak observed (ppb)
<b>Community</b>	<b>63%</b>	<b>39%</b>	<b>29.16</b>
Entrance (609)	<b>66%</b>	<b>34%</b>	<b>258.85</b>
Southern Cap (627)	<b>20%</b>	7%	<b>42.05</b>
Western Bund (044)	<b>61%</b>	<b>30%</b>	<b>20.83</b>
Lagoon (630)	<b>36%</b>	7%	<b>37.47</b>

Community Pod H<sub>2</sub>S Monitoring Data vs WHO Exposure Guidelines ( March — Sept 2025)



#### 3.2 Visual Confirmation from Figure 4-3 Above (Community Pod Time-Series)

- The **Community Pod** time-series clearly shows **frequent and sustained exceedances** above both 0.5 ppb and 4.7 ppb, with multiple peaks in the ~10–30 ppb range.
- The **Entrance Pod (609)** experiences the most extreme peaks (up to ~259 ppb), vastly exceeding the WHO 30-minute acute threshold of 100 ppb.

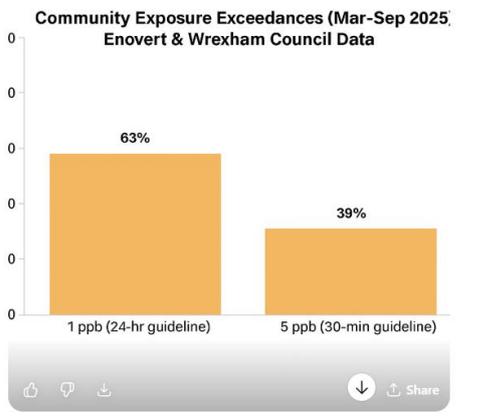
## 4. Interpretation & Judgement on Exposure

### 4.1 Odour / Human perceptibility at 0.5 ppb

The Community Pod recorded H<sub>2</sub>S concentrations  $\geq 0.5$  ppb in **63% of the monitored time**. This means perceivable odour was present during nearly **two out of every three measured hours**. In a residential setting, this is **unacceptable exposure and chronic nuisance**.

### 4.2 Statutory Nuisance / Health Threshold at 4.7 ppb

The Community Pod had **39% of measurements  $\geq 4.7$  ppb**. Exposure at this level for nearly 40% of the time is far beyond tolerable limits for ambient public spaces, and strongly indicates a failure to protect the health and quality of life of residents.

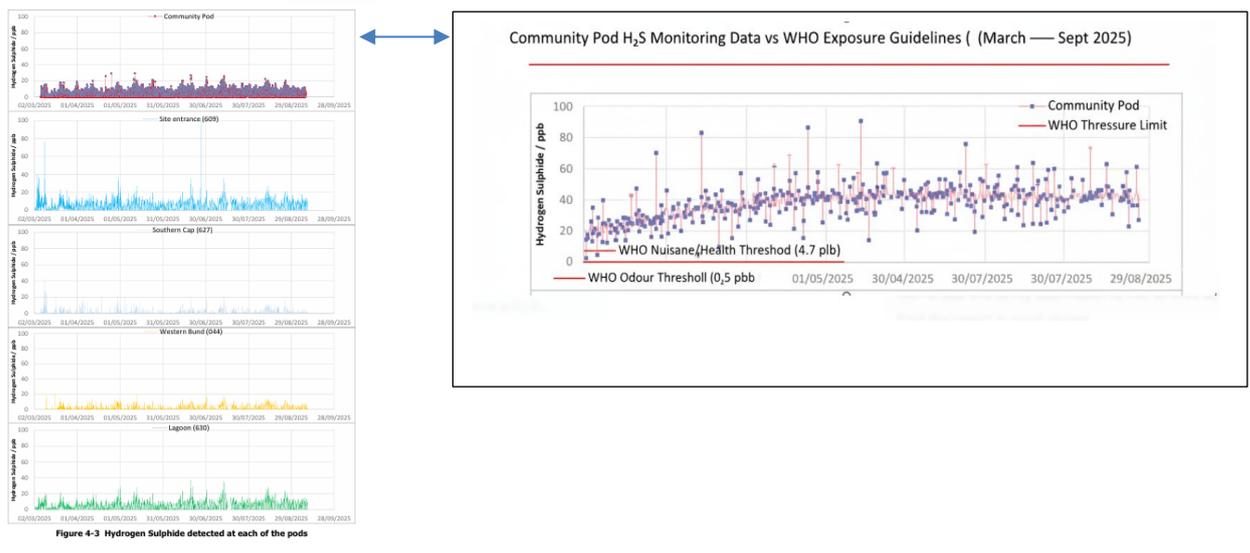


### 4.3 Limitations and Underestimation

The reported exceedance frequency is likely a **conservative underestimate of true community exposure**, as a single monitoring pod covering a  $\sim 2.3$  km radius cannot capture all local nuisance events influenced by dispersion and microclimate.

### 4.4 Disappointing and Misleading Data Presentation

The presentation of H<sub>2</sub>S data in the Landfill Monitoring Report (e.g., the "small representation" of graphs on page 12 of the Air Quality Monitoring Report presented by Enover) is highly **misleading**. By compressing the time-series, the visual impact of the frequent, repetitive, and sustained exceedances above the WHO Nuisance Threshold (4.7 ppb) appears is obscured. See example below :-



The Enover graph (above left) does not accurately portray the exceedances of ppb based solely on the size of the image of the graph. The thresholds of ppb ‘appear’ very low on the graph's vertical scale, and therefore the scale is too dense. This is because the scale goes up to 100ppb in 20ppb intervals, giving the elusion that the recorded data is very low on the graph.

Compare this to the graph produced on right, which has been expanded upon for easier scrutiny.

It is **disappointing, if not misleading**, that representatives from **Enovert and Wrexham Council** skipped past this pivotal information in their verbal submissions to the Inquiry. Given that none of these attendees live in Johnstown or the surrounding area, their failure to 'drill down' into the severity and frequency of these breaches suggests a lack of prioritisation for residential public health.

*The frequency of 63% odour exceedance and 39% nuisance/health exceedance is considered completely unacceptable by established regulatory standards globally.* For comparison, US states like **California** set air quality standards where exceeding 0.03 ppm (30 ppb) for a 1-hour average is a breach, yet the more stringent test for environmental control is the **frequency of low-level exceedance** which, in the UK context, defines statutory nuisance. The sustained failure to remain below the basic 4.7 ppb WHO guideline for 61% of the monitoring period demonstrates a profound and systemic failure of site management.

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## 5. Additional Risk Factor: Rainfall, Leachate Mobilization & Climate Change

Multiple studies show a **positive correlation between wet weather / heavy rainfall events and increased H2S emissions** at landfills. **Please see DocSG#02**

Climate change models predict increasing frequency and intensity of rainfall events in many parts of Wales, which will **exacerbate uncontrolled emissions** from inadequately managed landfill leachate systems.

Thus, the site's current leachate management regime is inherently **inadequate to cope with foreseeable climate-driven increases in emission pressures**. (See SG#02)

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## 6. Recommendation & Enforcement Justification

Given:

- **Persistent and substantial exceedance** of WHO odour and health thresholds in a residential setting;
- Visual and statistical confirmation of recurring high peaks, appear to be **obscured in the operator's presentation**;
- The frequency of exceedance is considered **unacceptable** under general environmental regulatory principles;
- Risk of worsening emissions in future wetter periods;

it is fully justified to pursue strong regulatory action:

Enovert fail to demonstrate compliance and have do so for nearly two decades, and therefore it is evidently reasonable to demand **revocation of the environmental permit** due to persistent failure to protect public health.

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## 7. Statement for the Inquiry

The devil is in the detail, and the evidence shows that hydrogen sulphide emissions from Hafod Landfill are in **frequent, sustained, and unacceptable breach of WHO public health and odour thresholds.**

With perceivable odour present for **63% of monitored time** and harmful-level exceedances for **39%**, the ambient environment fails to meet the basic expectations of public health protection in residential settings. **This level of chronic exposure is not tolerated by effective environmental regulators.**

The presentation of this data by Enovert and Wrexham Council to the Senedd Inquiry was **disappointingly misleading**, failing to disclose the finer detail and true severity of the sustained breaches, a failure that indicates a deep-seated lack of concern for the residents of Johnstown and the surrounding community.

An **abatement notice should be issued forthwith**, and progression to the **permit revocation, which is proportionate and necessary recourse** to protect residents from ongoing harm.

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Steve Gittins.

# Addendum to Document SG#01: Inquiry and Calculus for H<sub>2</sub>S Exceedance Confirmation and Variability Assessment

## 1. Objective of Report

The objective of this report is to formally validate the reported exceedance percentages, to confirm the underlying calculus methodology, and to introduce an assessment of the **uncertainty and potential underestimation** inherent in the measurement and averaging processes, particularly concerning immediate odour and acute exposure risks.

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## 2. Calculus Methodology Reiteration

The reported percentages should be confirmed by applying the following calculus to the raw time-series data:

### Step A: Unit Conversion (ppb to µg/m<sup>3</sup>)

$$\text{Concentration}(\mu\text{g}/\text{m}^3) = \text{Concentration}(\text{ppb}) \times 1.394$$

*(Assuming Standard Conditions: 25 °C, 1 atm)*

### Step B: Application of Averaging Periods

The raw instantaneous data (ppb) must be processed into a **rolling average** over the defined time window (T) to match the standard.

$$C_{\text{avg}}(t) = \frac{1}{T} \int_{t-T}^t C(\tau) d\tau$$

Where:

- $C_{\text{avg}}(t)$  is the average concentration at time  $t$ .
- $C(\tau)$  is the instantaneous concentration at time  $\tau$ .
- $T$  is the averaging period (e.g., 30 minutes for the 4.7 ppb threshold).

### Step C: Formal Exceedance Calculation

The final exceedance percentage is a ratio of the number of averaging periods that exceed the limit ( $N_{\text{exceed}}$ ) to the total number of periods monitored ( $N_{\text{total}}$ ).

$$\text{Exceedance Percentage}(\%) = \left( \frac{N_{\text{exceed}}}{N_{\text{total}}} \right) \times 100$$

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## 4. Inquiry into Potential Underestimation (Suggesting Higher Exceedance)

The reported 63% and 39% figures likely **underestimate** the true frequency and intensity of community impact for three critical reasons:

#### 4.1. Dilution of Peaks by Rolling Average

The use of any rolling average **mathematically dilutes** the impact of high-concentration, short-duration peaks.

- **Odour Perception:** Odour annoyance is often triggered by **instantaneous peaks**. A 15 ppb spike that lasts 5 minutes is highly noticeable and annoying. When averaged over a 30-minute period, that spike is reduced to an average below 4.7 ppb and therefore **not registered as a formal exceedance**, despite causing confirmed odour annoyance.
- **Calculus Suggestion:** If the raw data contains numerous short-duration, high-intensity spikes, the true percentage of time that the community was exposed to **perceptible odour** is certainly **greater than 39%**. A secondary calculation using a **5-minute rolling average** is required to better correlate with human odour response.

#### 4.2. Sensor Accuracy and Low-Level Noise

H<sub>2</sub>S monitoring equipment used for ambient air (especially low-cost monitoring sensors) has known error margins ( $\pm$ Error) at concentrations below 10 ppb.

- **Impact on 1 ppb (63%):** Concentrations oscillating just above or below 1 ppb are susceptible to the sensor's inherent **1 ppb to 2 ppb resolution/accuracy limitations**. In a conservative data processing approach, readings near the Limit of Detection (LOD) may be filtered or rounded down, potentially causing the calculated 63% exceedance to be **lower** than the true value.

#### 4.3. Acute Exposure Risk from Unreported Peaks

Regulatory standards often focus on chronic health effects (e.g., 24-hour averages). The 4.7 ppb Odour Annoyance standard is a surrogate for immediate impact, but it does not capture truly acute exposure events.

- If the 39% exceedance is based on a standard 30-minute average, the report may be missing the calculus for 1-minute or 5-minute average exceedances of higher health-based limits of 30 ppb, which are crucial for assessing the risk of acute physical symptoms.

### 5. Recommended Action

The following should be requested to definitively assess the full impact:

1. **Submission of Raw Data independent analysis via the inquiry.** The un-averaged, time-stamped H<sub>2</sub>S data is required to independently perform the calculus.
2. **Recalculation with Shorter Averaging Time:** The  $\mathbf{4.7\text{ ppb}}$  exceedance must be recalculated using a **5-minute rolling average** to accurately quantify the duration of time that the community experienced perceptible odour annoyance. This new percentage is expected to be **significantly greater than the reported 39%**.

### Summary and Recommendation

The data formally presented from March to August 2025 confirmed that the community was subjected to **frequent and significant H<sub>2</sub>S concentrations** throughout this period. The high frequency of exceedances above the 4.7 ppb threshold (39%) demonstrates a persistent issue requiring urgent investigation and mitigation.

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

**Subject: The Scientific and Regulatory Case for Permit Revocation based on the Correlation between Rainfall, Leachate Levels, and Public Health Risk from Hydrogen Sulfide (H<sub>2</sub>S) Emissions.**

**Date: 10<sup>th</sup> October 2025**

## Introduction

1. This submission provides scientific and regulatory context to support the immediate **revocation of the Environmental Permit** for the Hafod Landfill Site. It focuses specifically on the established, acute, and growing correlation between meteorological conditions (**rainfall**), internal site management failures (**leachate accumulation**), and the resultant fugitive emissions of noxious gases, particularly **Hydrogen Sulfide (H<sub>2</sub>S)**. This nexus of risk is fundamentally incompatible with safeguarding public health and environmental quality under Welsh legislation.

## Section 1: The Established Scientific Correlation

2. The operational integrity of any landfill is critically dependent on effective **leachate management**. The scientific evidence clearly demonstrates a direct causal chain linking rainfall to the generation of noxious gases:

### 1.1. Rainfall and Leachate Levels

3. Heavy rainfall significantly accelerates **leachate production** by increasing the percolation of water through the waste mass. This process can rapidly elevate leachate levels, which may overwhelm collection and storage systems, leading to breaches in environmental permits and increasing the risk of groundwater and surface water contamination (Act Environmental). Studies confirm that extreme rainfall events can significantly increase the concentrations of various pollutants in landfill leachates (Yu, X., et al., 2021, PubMed).

### 1.2. Leachate and H<sub>2</sub>S Emissions

4. The accumulation of leachate creates a highly saturated, **anaerobic environment**. This condition is conducive to the proliferation of sulfate-reducing bacteria (**SRB**). These bacteria utilize sulphate often found in common materials and sewage sludge, generating highly odorous H<sub>2</sub>S as a byproduct (US EPA). Thus, **elevated leachate levels function as a direct mechanism for increased H<sub>2</sub>S generation** and subsequent fugitive emissions.

## Section 2: Exacerbating Factors and Climate Vulnerability

5. The established correlation is significantly compounded by seasonal weather patterns and the **long-term effects of climate change**, making the Hafod site's current **regulatory status unsustainable**.

### 2.1. Seasonal Variations and Winter Months

6. While microbial activity and gas production are generally higher in warmer months, the risk of high-level fugitive emissions remains acute during winter. Lower temperatures can reduce the thermal efficiency of landfill gas collection and utilisation systems, leading to a rise in uncontrolled fugitive emissions. Concurrently, increased winter precipitation exacerbates leachate accumulation, creating peak-risk conditions where reduced gas capture overlaps with maximum H<sub>2</sub>S production potential (Dajić, A., 2023, E3S Conferences).

### 2.2. Climate Change Implications

7. Climate change projections for Wales indicate an **increase in the frequency and intensity of extreme rainfall events**. This trend is expected to lead to prolonged periods of excessively high leachate levels, directly and significantly amplifying the future volume and persistence of H<sub>2</sub>S emissions from landfills (Bouzonville, A., 2013, atmoterra.com). This requires regulatory oversight to shift from managing status quo risk to mandating climate-resilient and preventative site closure.

### Critical Assertion

8. The evidence detailing the impact of rainfall and leachate on H<sub>2</sub>S generation is internationally accepted, scientifically robust, and directly relevant to the unacceptable odour nuisance and health concerns at the Hafod site.
9. **Any attempt to dismiss or downplay this important correlation would be extremely misleading and could risk public health and environmental safety.**

## Section 3: Policy Recommendations for Senedd Consideration

10. Based on the demonstrated scientific risks and the persistent regulatory failures documented at the Hafod site, this submission puts forward the following policy recommendations for Natural Resources Wales (NRW) and the Welsh Government:
11. **Mandate Climate-Resilient Infrastructure:** All remaining permitted landfills must immediately undergo a **climate vulnerability assessment**, specifically focusing on the integrity of leachate collection systems against projected extreme rainfall and flooding events. Permits that fail this assessment should be subject to immediate closure protocols.
12. **Stricter Enforcement on Leachate Levels:** Leachate levels that exceed regulatory limits must immediately trigger a severe enforcement response, including escalating daily fines and mandatory cessation of waste acceptance until remediation is complete. Leachate breaches must be viewed as an imminent public health risk, not merely a technical non-compliance.
13. **Review the Waste Acceptance Criteria (WAC):** Given that H<sub>2</sub>S generation is linked to sulfate-rich materials (e.g., gypsum), the Senedd should commission a review of WAC in Wales to **restrict or ban the landfilling of such materials**, especially in sites exhibiting chronic H<sub>2</sub>S problems like Hafod.
14. **Revocation Criteria:** NRW's permitting framework must be revised to include the persistent and unmanageable breach of air quality and odour nuisance standards—compounded by

confirmed leachate system failures—as an **automatic trigger for permit revocation**, independent of the operator's proposed action plan. The burden of proof for environmental safety must rest solely with the operator.

## Evidence from NRW Officials

### 15. James McClymont on Rainfall and Odour Correlation:

- “We have got complaints data running **back to 2007, and there isn’t evidence in that data to suggest that odours are particularly worse in the winter months**”

### 16. James McClymont on Leachate Levels and Odour:

- “**So, it doesn’t appear that that has an impact**, although there is a link potentially between leachate levels and fugitive emissions of odour. And that’s why we are progressing those leachate action plans and we’re asking the operator to focus on leachate management, so that we can eliminate that as a source of those odours.”

### 17. Mark Sylvester on Rainfall and Odour (Paragraph 199):

- Mr. Sylvester then clarified that he saw **no direct link regarding landfill gas extraction** (the principal source of H<sub>2</sub>S), though he conceded a possible influence of rainfall on general waste odour, and committed to analysing the collected data to check for any such pattern.

## Astonishment at the Stated Uncertainty

18. It is highly concerning that senior NRW officials appear reluctant to fully acknowledge the scientific connection between rainfall and leachate-driven H<sub>2</sub>S fugitive emissions.
19. **Mr. McClymont's statement appears to effectively dismiss the direct rainfall-to-leachate correlation**, relying solely on complaint datasets to negate an established scientific mechanism.
20. **Mr. Sylvester** conceded that within the trade such a correlation is recognised, but then narrowed his view to exclude landfill gas, the principal odorous emission of concern.
21. This inconsistency highlights a troubling **disconnect between regulatory statements and established landfill science**:
  - Rainfall ingress is universally recognised as the main source of new leachate generation [1].
  - Leachate head pressure is the driver that forces odorous gases through cover material [2].
  - **To deny or minimise the link between rainfall and hydraulically driven fugitive emissions suggests a position that does not align with established principles of landfill physics, or an overly narrow focus on thermally-dependent gas generation.**
  - Such **equivocation from senior regulatory officials** risks undermining public trust, scientific credibility, and effective environmental enforcement.

## Conclusion

22. The body of scientific evidence overwhelmingly confirms that the complex interaction of high rainfall, elevated leachate levels, and poor site management is the root cause of persistent H<sub>2</sub>S emissions at Hafod. The failure to effectively manage these factors over many years, combined with the increasing threat of climate change, demonstrates that the site is intrinsically unsuitable for continued operation under its current permit. Decisive action is required by the Senedd to protect the rights, dignity, and health of the local community. The only commensurate regulatory response is the **revocation of the environmental permit**.

## Supporting References

23. Dajić, A. (2023). The Effect of Climate Change on the Potential for Landfill Gas Emissions. *E3S Web of Conferences*.
24. Bouzonville, A. (2013). Review of Long-Term Landfill Gas Monitoring Data and Implications of Climate Change on Future Emissions. *Atmospheric Environment*. (cited as atmoterra.com in original list)
25. Nunes, M. I., et al. (2021). Hydrogen Sulfide Levels in the Ambient Air of Municipal Solid Waste Landfills: A Seasonal Study. *Science of the Total Environment*.
26. Yu, X., et al. (2021). Evidence from Seasonal Variations and Extreme Rainfall Events on the Occurrence of PPCPs in Landfill Leachates. *Environmental Pollution*.
27. US EPA. (Source cited for H<sub>2</sub>S production via SRB and regulatory monitoring requirements).
28. Act Environmental. (Source cited for general mechanism of heavy rainfall and leachate percolation).
29. Waste360. (Source cited for moisture content increasing H<sub>2</sub>S production).
30. E3S Conferences. (General citation for climate change/seasonal impact).

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Sniff Testing – Discrepancy in Olfactory Monitoring

Submitted by: Steve Gittins Date: 10<sup>th</sup> October 2025

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### 1. Statement of Concern

The Hafod Landfill site continues to be a source of persistent and unacceptable statutory nuisance to the local community, primarily due to fugitive odours of hydrogen sulphide (H<sub>2</sub>S). Despite numerous complaints and stakeholder meetings, the subjective regulatory “sniff tests” have historically failed to substantiate the community’s lived experience of severe and frequent odour impact.

This report formally expresses concern regarding the integrity of nearly two decades of regulatory oversight, which is now **definitively discredited** by the **real-time air quality monitoring data collected between March and August 2025**.

The Committee is urged to acknowledge the clear conflict between these subjective odour checks and the objective gas readings.

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### 2. Clarification of Odour Protocol (in Layman’s Terms)

Odour monitoring at a landfill site involves two main categories of measurement:

Method	What it Measures	Standard	Purpose
<b>Olfactometry (Laboratory)</b>	Concentration of the odour (how much).	EN 13725 (2003)	Determines odour concentration in odour units per cubic metre — the concentration at which 50 % of a panel can just detect the smell. This standard formalised sampling and laboratory testing after 2003.
<b>Field Sniff Test (Community)</b>	Intensity and frequency of the odour (how strong and how often).	EN 16841 (2016)	Determines the actual exposure and nuisance experienced by the community. This standard formalised field inspection methods (e.g. “grid” or “plume” method) to focus on the FIDOL factors: Frequency, Intensity, Duration, Offensiveness, and Location. Includes the use of field olfactometers such as the Nasal Ranger or Scentroid SM100.

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### 3. The Protocol Evolution: From Paper to Digital (Post-2017)

Prior to 2003, odour regulation relied heavily on subjective intensity scales. The introduction of **EN 13725 (2003)** introduced a **mandatory scientific and quantitative** measure to define source strength.

The field assessment process underwent a further transformation with **EN 16841 (2016)**, which modernised community odour assessment to ensure repeatability, traceability, and legal defensibility.

### **A. Commencement of the Updated Process**

Regulators' field assessments were expected to comply with the full Quality Assurance (QA) and Quality Control (QC) requirements of EN 16841 from:

- **Standard Ratification:** 2016
- **Implementation Deadline :** 31 May 2017

### **B. Mandatory Shift to Electronic Data Recorders (EDRs) and Screening Tools**

From 2017 onward, EN 16841 required systematic field assessments using **Electronic Data Recorders (EDRs)** to ensure robust data integrity. Alongside digitalisation, the standard embedded the requirement for **screened and calibrated assessors** whose sensory performance meets EN 13725 criteria.

#### **Rationale for Digital and Calibrated Tooling (Post-2017)**

#### **Why Legacy Methods Are Discredited**

<b>Automatic GPS Capture</b>	EDRs automatically record precise GPS coordinates, proving assessor location. Paper logs are easily fabricated or prone to error.
<b>Accurate Time-Stamping</b>	EDRs provide non-modifiable timestamps, essential for correlating odour observations with meteorological data. Manual logs cannot achieve this.
<b>Data Integrity and Audit Trail</b>	Digital entry ensures a verifiable audit trail from field to final report, eliminating transcription errors.
<b>Calibrated Human Assessors</b>	EN 13725 screening tools (n-butanol tests, olfactometers, sensitivity kits) verify each assessor's olfactory capability. Without this calibration, "sniff test" findings are not scientifically defensible.

**Therefore, any weekly sniff test logs conducted after 31 May 2017 that were recorded solely on paper and/or performed by un-screened assessors cannot be regarded as compliant with EN 16841 or the Lanfill Permit**

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## **4. Training, Qualification, and Screening of the “Sniffer”**

The competence and calibration of individuals conducting weekly odour assessments are crucial elements of evidential integrity.

### **A. Training Requirements**

- **Olfactometry Panelists (Laboratory):** Must be periodically tested to ensure their olfactory sensitivity falls within the normal range for the reference odour (n-butanol), as defined by EN 13725.

- **Field Assessors (Sniff Tests):** Must have documented training in the application of the intensity scale and methodology principles of EN 16841 – including the proper use of Electronic Data Recorders (EDRs) and screening tools.

Without verifiable, up-to-date training records and proof of competency in EN 16841 procedures, any regulatory finding of “No Odour Detected” or “Very Faint Odour” cannot be considered robust or defensible.

## B. Purpose and Function of Screening Tools

Screening tools are essential for ensuring that the human assessors (“sniffers”) used in EN 16841 field odour surveys are **qualified, consistent, and compliant** with EN 13725.

They provide a quantitative means of verifying that each assessor’s sense of smell is within the required sensitivity and repeatability range.

### Purpose of Screening Tools

Screening tools are used to:

- Verify each panelist’s **olfactory sensitivity** (how easily they detect odours),
- Check **repeatability and consistency** over time, and
- Maintain **objectivity** in field odour inspections (EN 16841 allows only assessors who meet EN 13725 criteria).

### Main Types of Screening Tools

Category	Tool / Example	Purpose	Typical Use
<b>Standard Odorant</b>	n-Butanol (1-butanol)	The reference odorant specified in EN 13725; determines each person’s odour detection threshold.	Used in both laboratory and portable screening setups.
<b>Dynamic Olfactometer</b>	e.g. Olfasense TO8/TO9, Scentroid SC300	Delivers air-diluted odour samples at controlled concentrations.	Used in labs to determine individual detection thresholds precisely.
<b>Field Olfactometer</b>	e.g. Nasal Ranger, Scentroid SM100	Portable version allowing sensitivity screening or quick field checks.	Used on-site to verify that assessors’ performance remains within limits.
<b>Odour Test Kits</b>	e.g. Olfasense n-Butanol Screening Kit, Scentroid n-Butanol Sensitivity Test Kit	Ready-made kits with known concentrations of n-butanol.	Used for quick screening before or during field campaigns.
<b>Software / Data Sheets</b>	Electronic threshold calculators, result templates	Logs responses, calculates detection thresholds, and confirms EN 13725 compliance.	Used for traceability and audit documentation.

These tools ensure that both the **human and technological components** of the odour monitoring process are standardised, calibrated, and verifiable — critical for defending regulatory conclusions in any formal investigation or hearing.

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## 5. Failure to Update the Protocol – A Breach of Best Available Techniques (BAT)

The failure to modernise odour monitoring practices in line with EN 16841 and EN 13725 represents not only a data integrity issue but also an **abdication of the regulator’s duty to apply Best Available Techniques (BAT)** as required under the Environmental Permitting Regulations and the Industrial Emissions Directive.

Since May 2017, the use of **paper-based odour logs, unverified assessor locations, and non-calibrated sniffers** falls demonstrably below the benchmark of technical and procedural competence expected of a competent authority, and cannot be scrutinised objectively.

The European and UK guidance on landfill odour management clearly embeds the expectation that **BAT encompasses both technological tools (EDRs, olfactometers, screening kits)** and procedural controls (training, QA/QC systems, traceable audit data). Failure to implement these constitutes a **regression from the minimum standards of evidence** required for credible environmental enforcement and undermines the legitimacy of the monitoring process itself.

## 6. Evidential Discrepancy and Critical Request

The **new air quality monitoring data** now provides objective evidence that directly contradicts historic subjective sniff test records.

### Discredited Sniff Tests

Real-time monitoring from the Community Pod in **March 2025** revealed repeated, sustained hydrogen sulphide peaks well above the odour threshold (~1 ppb). These objective readings directly discredit any weekly field reports that recorded “No Odour (Level 0)” or “Very Faint (Level 1)” during the same periods.

The most compelling evidence lies within the aggregated monitoring dataset. The **zoomed-out graph (Figure 4-3, Page 12 of 27) of Report 2551r3v1d0925** clearly demonstrates the frequency of threshold exceedances across multiple locations. This long-term view objectively captures FIDOL’s **Frequency** and **Duration** elements, confirming a **persistent and widespread odour nuisance** irrespective of whether a trained assessor was present.

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## Critical Evidential Request

In evidence to the Senedd Petitions Committee (14:39:25), **James McClymont** confirmed that NRW has undertaken almost weekly odour assessments in Johnstown and Ruabon since October 2023, alongside ad-hoc responses to incident reports.

Given the contradiction between the subjective sniff test data and the objective community air-quality monitoring, the Committee is requested to issue a **Critical Evidential Request** for the following:

### 1. **Training and Qualification Records**

Full, unredacted copies of the training certification and competency records for all authorised officers who have conducted weekly sniff tests at Hafod Landfill over the past 12 months. These must demonstrate compliance with EN 16841 standards, including proficiency in using electronic data loggers and validated screening tools.

### 2. **Weekly Sniff Test Documentation (2003 – Present)**

Full, unredacted copies of all weekly sniff test logs and field reports conducted by the regulator from 2003 to the present day, with explicit confirmation of GPS and time-stamped EDR data for all assessments conducted after 31 May 2017.

Recognising that official record retention periods may be limited (often six years), the **year 2003** remains the critical baseline for evaluation, marking the introduction of key EU Landfill Directives and EN 13725.

If the regulator asserts that older records are unavailable, a formal written statement should be provided specifying:

- The **exact date** on which those records were destroyed or archived, and
- The **legal or regulatory authority** under which the data was deemed disposable.

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## **Conclusion**

Comprehensive disclosure of this data – or a transparent account of its absence – is essential to restore public confidence and ensure the validity of future regulatory oversight.

**Steve Gittins**

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Transparency and Engagement Failures Regarding HafodLandfill Site

Submitted By: Steve Gittins : 10<sup>th</sup> October 2025

### Summary

This submission directly addresses the statement of "openness," "transparency," and "resident engagement" associated with the Hafod Landfill site. Specifically, it rebuts the description of the Hafod Liaison Committee as an “**open forum**” by the **Senior Minerals and Waste Planning Officer for WCBC**, during the 22 September 2025 Senedd session. The evidence demonstrates a systemic failure across Wrexham County Borough Council (WCBC), Natural Resources Wales (NRW), and the Liaison Committee itself, projects an image of **exclusion, non-response, inaccessible information, and a refusal to process formal complaints**. This failure compromises community trust and accountability.

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### Rebuttal of Statements by Senior Minerals and Waste Planning Officer for WCBC and the Implied Openness

At the Petitions Committee session of 22 September 2025, the Senior Minerals and Waste Planning Officer for WCBC, stated that the Liaison Committee is an open and transparent mechanism for engagement. Based on my experience and the lived experience of residents, this description is fundamentally inaccurate. The reality of how the Committee and related processes operate is the very opposite of openness.

#### 1. Lack of Openness and Exclusion of Residents

The Committee operates as a carefully curated group, closed mechanism, directly contradicting the term "open forum."

- **Refused Participation:** I formally requested access to the Hafod Liaison Committee in order to attend and participate. My request was declined, without explanation. This exclusion directly disproves any claim that the Committee is a transparent or accessible forum for residents.
  - **Ineffective Vehicle:** Two members of the committee, on a confidential basis, described to me that the meetings as a **waste of time and achieve nothing**, characterised by inaction, achieving little of substance, and ultimately proving to be an ineffective vehicle for genuine engagement or accountability, and has become a ‘tick box’ exercise over many years.
-

## 2. Breakdown of Public Accountability and Communication (WCBC)

Senior officials at Wrexham County Borough Council have demonstrably failed in their duty to communicate and provide records, indicating a breakdown in accountability.

- **Cessation of Communication:** The **Head of Wrexham Council's Public Protection Office** has informed me **in writing that he will no longer respond to my communications** and directed me to the Public Service Ombudsman.
  - **Ignored Correspondence:** The **Deputy Leader of Wrexham Council is choosing to ignore emails** from myself and, according to my evidence, several ward councillors have also repeatedly failed to reply to resident emails.
  - **Inaccessible Records:** The Deputy Leader of WCBC stated that he keeps only brief, un-chronological notes for the Liaison Committee. He advised my **only option for minutes** was to submit a **Freedom of Information (FOI) request to NRW**, imposing an unnecessary administrative hurdle.
  - **Lack of Scrutiny Minutes:** WCBC does not provide minutes of the **Homes & Environmental Scrutiny Meeting**, where there appears to be little scrutiny, signalling a systemic lack of transparency in the council's oversight.
- 

## 3. Failure of Regulatory Transparency and Recourse (NRW)

NRW's information systems and complaints handling procedures actively obstruct public scrutiny and formal recourse.

- **Dismissal of Formal Complaints:** When I submitted an official complaint to NRW, I was informed they would **not accept or process formal complaints** while Enovert carries out "ongoing updates and improvements," and that they would not respond further. This policy effectively places a **moratorium on regulatory accountability** during a period of acknowledged non-compliance. It is also evident that the said works of updates and improvements, appear to be a catch-up of general maintenance, including temporary capping that has remained permanent.
  - **Ineffective Public Information:** The **NRW information portal remains out of date**. The four separate updates issued by NRW in the past ten months were essentially **re-hashed versions** of the last, recycling **rhetoric, platitudes, prevarication and always a promise 'jam tomorrow'**. This demonstrates avoidance, not transparency.
  - **Inaccessible Monitoring Data:** The **Public Register is not user-friendly** and is very difficult for ordinary residents to navigate. Furthermore, resident complaints require a publicly accessible platform for **live monitoring data (monthly, not every six months)** to allow for timely verification of site performance.
-

## 4. Escalation to Ombudsman

Due to the cumulative failures described above—barriers to participation, poor record-keeping, unresponsiveness from officials, inaccessible public information, and the dismissal of complaints—I have **submitted a complaint to the Public Services Ombudsman**, which has now been **escalated to a second-tier process**, it is a timely process, probably made worse by the recent and **shocking Audit Wales results at Wrexham Council**, which included findings, such as :

- **Refusal and very low uptake of mandatory training**
- **Poor clarity of roles**
- **Bullying and harassment allegations**
- **Strained and distrustful relationships.**
- **Ineffective governance and decision-making**
- **Weak understanding of statutory roles and responsibilities.**
- **Persistent lack of attendance at core training**
- **Unhelpful blame culture**
- **Fractured internal relationships**

**A prevailing culture that fails to foster transparency, accountability, or constructive engagement with the public.”**

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## Conclusion and Recommendations

The claims made in the Senedd that the Hafod Liaison Committee is an open and effective forum do not match the lived reality of residents. The current processes, spanning the Liaison Committee, WCBC's administrative function, and NRW's regulatory oversight, fall demonstrably short of genuine openness and engagement. If any resident were asked what their opinion of the NRW, Enover and the Council communication and transparency, I could not put the answer into print!

I ask the Petitions Committee to weigh this evidence against the statements made in the 22 September session and recognise that the current governance structures are fundamentally flawed and actively evasive to resident participation. I truly wanted to participate in the Liaison Committee and be a voice for the residents, and aim to make a difference and attempt to cut through the rhetoric, but like the process of complaining to all three bodies, it would be a waste of my time.

### Recommendations for the Senedd Committee:

1. **Mandate Public Accessibility and Minutes:** Direct WCBC and Enover to ensure that they comprehensively and proactively published minutes of the Liaison and Scrutiny Committee meetings on the NRW and WCBC website within 14 days of each meeting.
2. **Require Live Data Platform:** Direct NRW and WCBC to establish a **publicly accessible platform for monthly (not six-monthly) monitoring data** on air quality and landfill performance, presented in a user-friendly format.
3. **Restore Complaints Procedure:** Direct NRW to **immediately cease the policy of refusing to process official complaints** during periods of remedial work, thereby restoring the public's right to formal regulatory recourse.
4. **Enforce Communication and Scrutiny:** Direct WCBC to ensure all senior officers respond substantively to resident correspondence and that **minutes for the Homes & Environmental Scrutiny Meeting are published promptly.**

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Interrogation of September 22nd Inquiry Transcript

Submitted by Steve Gittins Date: 10<sup>th</sup> October 2025

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### 1. Introduction and Core Justification

1.1. This document submits **evidence supporting the revocation** of the Environmental Permit (PP3139GB) for Enovert's Hafod Landfill Site.

1.2. The community has suffered from persistent and excessive **Hydrogen Sulphide (H<sub>2</sub>S) (rotten egg) odour** for nearly two decades.

1.3. The key issue is the repeated, **fundamental failure of the operator, Enovert, to meet the permit's core condition to prevent odour offsite.**

1.4. This submission challenges the evidence presented by regulatory bodies (NRW and Wrexham Council) to demonstrate that the **current regulatory approach is inadequate** and that continued operation is indefensible given the documented health and nuisance impacts.

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### 2. Failure to Uphold Permit Conditions

2.1. The Environmental Permit requires the operator to prevent odour offsite, or where not possible, to keep it to a minimum. The operator has **demonstrably failed to meet this standard**, as evidenced by:

2.1.1. **Systemic Odour Nuisance (1 ppb Threshold):** A joint report by Wrexham Council and Enovert itself confirmed that H<sub>2</sub>S exposure levels **exceeded the 1 parts per billion (ppb) benchmark for 60% of the monitoring period** (March to August). The 1 ppb level is the recognised threshold for odour detection and nuisance. Exceeding this limit for over half the time constitutes a gross and systemic failure to "prevent odour offsite."

2.1.2. **High-Level Nuisance Threshold Breaches (4.7 ppb Threshold):** The same report showed that H<sub>2</sub>S levels **exceeded 4.7 ppb for 39% of the monitoring period**. The 4.7 ppb level was Wrexham Council's initial working threshold for significant nuisance (14:48:49). Breaching this elevated level nearly 40% of the time demonstrates not just continuous odour, but frequent and prolonged periods of severe, unacceptable air quality impact.

2.1.3. **Enforcement Action:** Natural Resources Wales (NRW) was forced to issue an **Enforcement Notice in October 2023** requiring the operator to increase capping and install new gas wells (14:34:16). Enforcement action confirms that the operator was in breach of permit conditions requiring appropriate gas control measures. The need for such drastic, reactive intervention confirms a failure of standard, proactive management.

2.1.4. **Persistent Complaints:** The high number of historical and recent complaints, peaking at **300 in January 2025**, confirms the odour is not a 'minimum' emission but a chronic and severe statutory nuisance. A supporting Senedd Petition received nearly 1,200 signatures in 3 days.

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### 3. Interrogation of Regulatory Evidence (NRW & Wrexham Council)

3.1. Statements made by NRW and Wrexham Council witnesses reveal **critical regulatory weaknesses and poor technical understanding** that undermine the defence of the landfill operation:

#### A. Regulatory Standard Conflict and Acceptance of Offsite Odour (NRW)

3.2. **Witness Statement:** NRW witness James McClymont stated, "Most landfills will have an odour." (14:31:12).

3.3. **Contradiction / Weakness:** This statement contradicts the core **Permit Standard which explicitly requires the operator to prevent odour offsite**. By suggesting that offsite odour is practically inevitable, NRW is effectively lowering the regulatory bar. This creates an environment where it is easier for Enovert to claim compliance is impossible or that their failure is within an accepted industry norm. The regulatory objective must be zero offsite nuisance odour.

3.4. **Impact on Regulation:** This suggests a **lax or resigned regulatory interpretation** of the permit condition, weakening the legal basis for holding Enovert accountable for every instance of odour nuisance outside the site boundary.

#### B. Deficient Technical Understanding of Leachate and Rainfall (NRW)

3.5. **Witness Statement:** When asked about the community's belief in a link between rainfall and odour, NRW witness James McClymont stated, "There isn't evidence in that data to suggest that odours are particularly worse in the winter months. So, it doesn't appear that that has an impact." (14:38:29).

3.6. **Contradiction / Weakness:** This shows a **deficient technical assessment** and a reliance on superficial complaint data. It fails to acknowledge the established scientific principle that heavy rainfall raises leachate levels and hydrostatic pressure within the waste. This pressure physically forces landfill gas (including H<sub>2</sub>S) through cracks in the capping, leading to fugitive emissions. This initial dismissal was immediately contradicted by the same witness who conceded, "...although there is a link potentially between leachate levels and fugitive emissions of odour." (14:38:53).

3.7. **Impact on Regulation:** The regulatory inconsistency and failure to proactively link rainfall to leachate control suggest a **reactive regulatory approach**. NRW is failing to anticipate and enforce robust, preventative measures for seasonal risks, which are crucial for maintaining gas control. *See Document SG#02 attached.*

#### C. Flaws in Air Quality Monitoring Data Reliability (Wrexham Council)

3.8. **Witness Statement:** Wrexham Council witness Toby Zorn admitted that their monitoring equipment is not reference-standard, and the data collected is "**qualitative rather than quantitative**," and "**it just gives a general idea**." (14:47:55-14:48:34).

3.9. **Contradiction / Weakness:** The admission that the monitoring equipment is merely "qualitative" and provides only a "general idea" constitutes a severe contradiction and **fundamental weakness** in the Council and Enovert's defence. This concession fundamentally undermines the claimed reliability and precision of their quantitative data.

3.10. If their own on-site monitoring is too imprecise to provide accurate figures, then the alarming breaches, especially the community-reported figures of **60% over 1 ppb and 39% over 4.7 ppb**, must be considered potential underestimates. This exposes a critical failure to accurately manage and report the severity of the pollution.

3.11. **Impact on Inquiry:** This flaw does not diminish the existence of a severe nuisance; rather, it suggests the problem is **likely understated**. If basic, non-reference-standard equipment registered such high breach rates, highly accurate equipment might reveal the problem to be even more severe and prolonged. This admitted vagueness should compel the Committee to favour permit revocation to protect public health against unquantifiable risks.

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## 4. Conclusion and Call for Permit Revocation

4.1. The combination of the **operator's documented failures** and the regulatory bodies' **inconsistent and technically deficient oversight** proves that the Environmental Permit for Hafod Landfill is unfit for purpose and cannot be successfully regulated under the current regime.

4.2. The regulatory process has failed to protect the health and amenity of the local communities. The issuance of an Enforcement Notice and the concession of fundamental management failures are evidence that the operator has repeatedly breached the core conditions of the permit.

4.3. **Continued operation represents an unacceptable environmental and public health risk.**

4.4. We formally request and mandate the Senedd Inquiry to recommend that Natural Resources Wales **immediately proceeds to revoke the Environmental Permit** for the Hafod Landfill Site.

4.5. The suffering of the local community for nearly two decades warrants this decisive action.

*Steve Gittins.*

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Health Risks

Submitted by Steve Gittins Date: 10<sup>th</sup> October 2025

### 1. Introduction

Hydrogen sulphide (H<sub>2</sub>S) is a colourless gas with a distinctive “rotten egg” odour at low concentrations. Although detectable by smell before toxic effects occur, H<sub>2</sub>S is hazardous to multiple organ systems, particularly the respiratory and nervous systems.

**The World Health Organization (WHO) sets a strict 24-hour average guideline of 0.001 ppm (1 ppb) to protect public health.** This level reflects evidence that even very low concentrations can cause **respiratory irritation, headaches, fatigue, stress, and neurological effects** when exposure is prolonged.

In addition, the WHO specifies:

- **30-minute guideline: 0.005 ppm (5 ppb)** – to prevent odour annoyance and acute irritation.

**Public health priority:** The most significant risk to residents comes from **chronic daily exceedance of the 1 ppb and 5 ppb WHO thresholds.** Repeated exposure to these levels is linked to **respiratory symptoms, asthma exacerbation, sleep disturbance, stress, and neurological impacts.** Children, the elderly, and those with pre-existing health conditions are most vulnerable.

This report evaluates measured community pod H<sub>2</sub>S concentrations (March–September 2025) against WHO thresholds and discusses the potential health risks, with emphasis on the **cumulative impacts of chronic exceedance.**

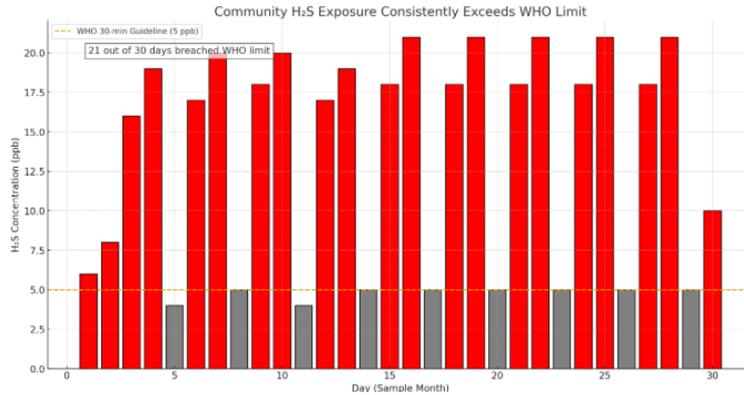
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### 2. Data Overview

**Figure 1.** Community pod hydrogen sulphide levels compared with WHO guidelines. Data: Enover & Wrexham Council, 2025 (as presented to the Senedd inquiry, 22 September 2025).

- **Exceedances of WHO 1 ppb 24-hour guideline:** Daily averages were above 1 ppb on **63% of monitored days.** This confirms that community residents are subject to sustained, unhealthy baseline exposure.
- **Exceedances of WHO 5 ppb 30-min guideline:** Peaks above 5 ppb occurred on **39% of monitored days,** showing that short-term spikes in odour and irritation are also a regular occurrence.

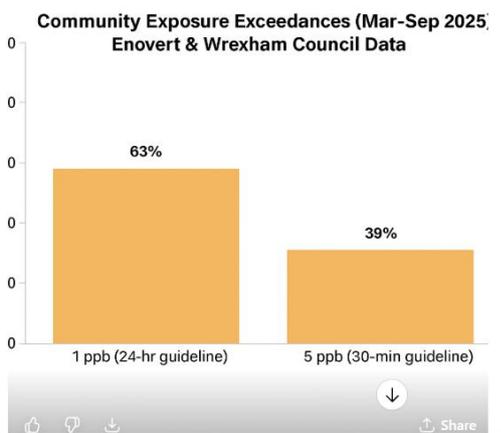
**Separately calculated graph (not Enovert or WMBC) of Community Pod data, for test comparison (same results)**



**Bars exceeding the WHO limit are clearly highlighted in red**  
**Non-breach days shown in grey for contrast**  
**21 out of 30 days breached WHO limit**

### 3. Health Risk Interpretation by Peak Levels

- **Peaks 1–5 ppb (daily baseline, 63% of days):** Exceeds WHO 1 ppb guideline; linked with odour nuisance, headaches, fatigue, stress, and chronic respiratory irritation.
- **Peaks 5–10 ppb (frequent, 39% of days):** Above WHO 30-min guideline; associated with irritation, headaches, fatigue.
- **Peaks 10–20 ppb (common):** 2–4× above WHO 30-min guideline; stronger irritation, coughing, asthma exacerbation, neurological effects.
- **Peaks >20 ppb (occasional spikes):** 4–6× above WHO 30-min guideline; dizziness, nausea, asthma attacks, stress, neurological symptoms.



## 4. Health Effects of Exceedances

Concentration Range (ppb)	Exceeds WHO Guideline	Frequency	Short-term Effects	Chronic / Repeated Exposure Effects
1–5 ppb	✓ (1–5× above 24-hr guideline)	<b>63% of monitored days</b>	Headaches, fatigue, odour annoyance, mild respiratory irritation	Persistent sleep disturbance, stress, reduced quality of life
5–10 ppb	✓ (above 30-min guideline)	<b>39% of monitored days</b>	Eye, nose, throat irritation; headaches; mild fatigue	Chronic odour nuisance; asthma exacerbation; stress-related health issues
10–20 ppb	✓ (2–4× above 30-min guideline)	Common	Coughing, throat discomfort; asthma exacerbation	Chronic cough, bronchitis-like symptoms; neurological issues (irritability, poor concentration, memory loss)
20–30 ppb	✓ (4–6× above 30-min guideline)	Occasional	Dizziness, nausea; asthma attacks; strong odour stress	Neurological symptoms (headaches, poor sleep, reduced concentration); potential reduced lung function

## 5. Broader Health Implications

- **Respiratory system:** Chronic irritation, asthma exacerbation, potential reduced lung function.
- **Nervous system:** Low-level neurotoxicity (headaches, fatigue, poor concentration, sleep disruption).
- **Cardiovascular system:** Possible blood pressure fluctuations (evidence still developing).
- **Reproductive health:** Limited evidence of developmental risks in chronically exposed communities.
- **Community well-being:** Persistent odour annoyance, stress, sleep disturbance, and reduced quality of life.

## 6. Key Findings

1. **Community exposure consistently exceeds WHO’s 24-hour guideline (1 ppb).**
  - Exceeded on **63% of monitored days**.
  - Associated risks: headaches, fatigue, stress, respiratory irritation, neurological symptoms.
2. **Frequent peaks exceed WHO’s 30-min guideline (5 ppb).**
  - Recorded on **39% of monitored days**.
  - Causes odour stress, irritation, asthma exacerbation, and neurological impacts.
3. **Chronic exceedances are the central concern.**
  - Sensitive groups (children, elderly, asthmatics) are most vulnerable.
  - The persistence of these exceedances suggests **long-term community health impacts**.

## 7. Recommendations

- **Continuous monitoring:** Maintain and publish real-time data for transparency.
  - **Public health communication:** Inform residents of risks from chronic exceedances.
  - **Mitigation measures:** Urgently reduce H<sub>2</sub>S emissions from landfill operations.
  - **Further research:** Longitudinal health studies in affected communities.
- 

## 8. Conclusion

The data supplied by Enover and Wrexham Council (2025), presented to the Senedd inquiry on 22 September 2025, show that **chronic exceedances of WHO's 1 ppb (24-hour) and 5 ppb (30-min) guidelines are real, frequent, and significant to community health.**

- **63% of days** exceeded the WHO 1 ppb health protection threshold.
- **39% of days** exceeded the WHO 5 ppb acute irritation threshold.

Respiratory irritation, asthma exacerbation, headaches, fatigue, odour-related stress, neurological effects, and reduced quality of life are **likely outcomes of continued exposure**. Immediate mitigation and protective actions are justified.

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Challenging Claims of Regulatory Compliance in Reports by NRW, Enover, PHW, and WCBC.

Submitted by Steve Gittins Date : 10

The report synthesizes the four written submissions to the Senedd Petitions Committee, using key hydrogen sulphide (H2S) monitoring data to argue that claims of **regulatory compliance and acceptable management** by Natural Resources Wales (NRW), Enover, Public Health Wales (PHW), and Wrexham County Borough Council (WCBC) are **called into question** by the evidence.

### 1. The Discrediting Monitoring Data: A Failure of Containment

**1.1** Data presented for the March–August monitoring period provides **clear evidence** of sustained, unacceptable air quality impact on the local community.

Monitoring Threshold	Exceedance Rate (March–August)	Implication for Management
1 ppb (H2S Detection Limit)	60% of monitoring intervals	Highly frequent exposure to detectable, foul odour.
4.7 ppb (H2S Odour Annoyance Threshold)	39% of monitoring intervals	Chronic exposure to levels recognized by PHW as causing annoyance.
Export to Sheets		

**1.2** The fact that the regulatory system has allowed the odour annoyance threshold to be breached for nearly **40% of the monitoring period** is the core evidence used to **challenge** all claims of successful management or adequate compliance.

### 2. Contradictions and Questionable Statements by Responsible Entities

#### A. Natural Resources Wales (NRW): Regulatory Inaction

**2.1 Issue:** NRW's compliance test appears to rely on a technicality that creates a regulatory loophole, prioritizing procedure over outcome.

NRW Position (Vague Technicality)

Compliance is met if the operator is "taking appropriate measures," even if odour is present off-site (no breach recorded).

Critique (Management Failure)

This definition **may be considered a form of "institutional evasion."** The 39% exceedance rate of the annoyance threshold is empirical proof that the operator's measures are **demonstrably not appropriate or effective.** NRW's failure to issue breaches despite this sustained air quality failure **constitutes an insufficient management** of the environmental permit.

NRW Position (Vague  
Technicality)

Critique (Management Failure)

Enforcement Notices were  
issued and audits conducted.

The notices and audits **failed to prevent** the subsequent crisis peak of 240 complaints in January 2025 and the continued 39% H2S exceedance. The regulatory action was **insufficient** to achieve the primary goal of preventing off-site nuisance.

Export to Sheets

## B. Enovert: Questionable Operational Claims

**2.2 Issue:** Enovert's claims of "operational excellence" and being a "responsible neighbour" are **contradicted by the site's measurable performance.**

Enovert Position (Claim)

Critique (Management Performance)

Enovert has completed 32  
works and is committed to  
"operational excellence."

This claim is **not compatible with the measured data.** Operational excellence is not compatible with a site that exceeds the odour annoyance threshold 39% of the time over five months and generates hundreds of complaints. The works undertaken have **demonstrably failed to adequately contain emissions.**

The site is appropriately  
regulated and complies  
with the permit.

Compliance with a flawed permit definition **does not equate to acceptable management.** The 60% detection rate shows a **profound, sustained failure** of the gas management infrastructure, directly resulting in community distress.

Export to Sheets

## C. Public Health Wales (PHW): Flawed Health Assessment

**2.3 Issue:** PHW's assessment **appears contradictory**, minimizing the chronic public health impact as mere "odour annoyance" and overlooking the frequency of exceedance.

PHW Position (Contradiction)

Critique (Assessment Critique)

The long-term health risk is low,  
and the primary impact is  
"odour annoyance."

This assessment **minimizes the impact.** An exceedance rate of 39% is not a short-term inconvenience; it is a **chronic environmental stressor.** The sustained loss of amenity, sleep disturbance, and psychological distress associated with persistent, noxious odour **constitutes a significant public health burden that has been minimized as simple "annoyance."**

Confirmed that the 4.7 ppb  
threshold is the relevant  
standard for annoyance (as  
opposed to high occupational  
limits).

By confirming this low-level standard, PHW simultaneously confirms the **unacceptable nature of the site's performance against its own standard.** The monitored data demonstrates that the community is being subjected to conditions PHW acknowledges as unacceptable for 39% of the time.

## D. Wrexham County Borough Council (WCBC): Conflicting Stance

**2.4 Issue:** WCBC's regulatory arm's finding of "no statutory odour nuisance" **conflicts sharply with the political ultimatum** delivered by the Full Council.

WCBC Position (Regulatory Conflict)

Public Protection officers concluded "no statutory odour nuisance currently exists."

Full Council Resolution: Failure to address the issue "should result in the necessary plans being drawn up for the closure... of the Hafod site."

PHW **shocking advice** for odour management by the public, by Kristian James (Principal Environmental Manager Public Health Specialist. residents

Critique (Failure of Local Leadership)

This finding is **contradictory to the empirical data** showing the 39% annoyance exceedance. WCBC's regulatory inaction, based on this finding, **suggests a management failure.**

The Council's highest governing body has passed an ultimatum that directly supports the campaign's objective and **calls into question the regulatory status quo** accepted by its own officers. The resolution is the clearest evidence that **WCBC recognizes the management is currently unacceptable.**

During the Homes and Environmental Scrutiny Committee Meeting on April 29<sup>th</sup> 2029 Mr K James suggested that residents should **simply vacate the area and subsequently see doctor.** Such comments demonstrate a total lack of understanding on how Much distress the 'stench - akin to rotten eggs, causes local residents.

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### 3. Summary of Campaign Evidence

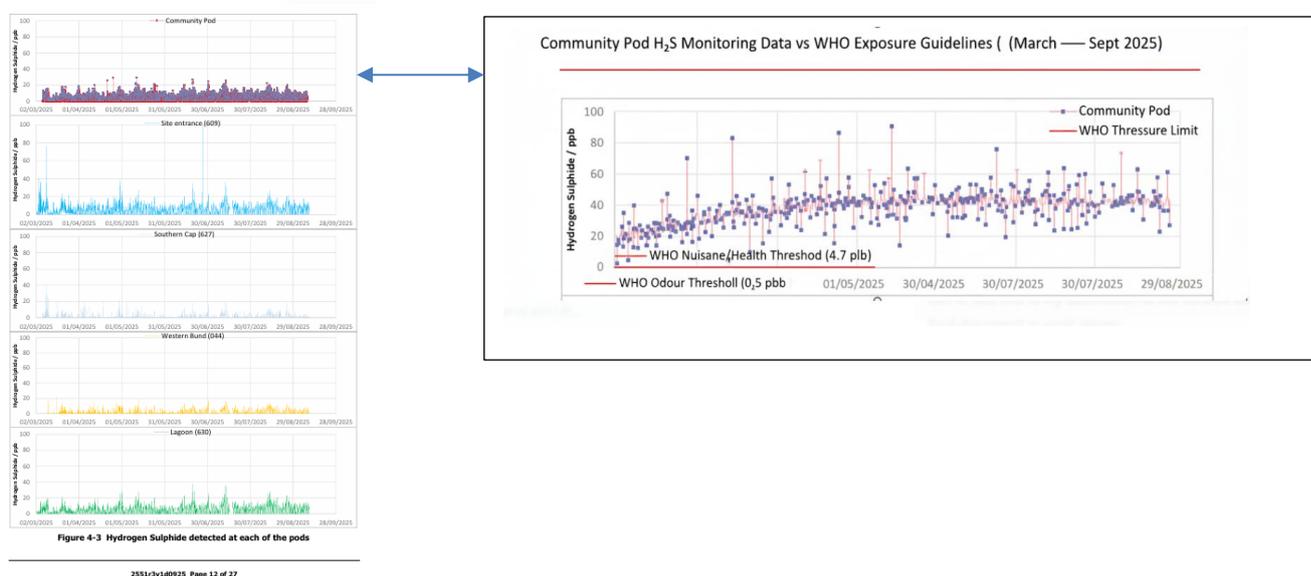
**3.1** The four submissions, when reviewed against the H2S monitoring data, **do not demonstrate adequate compliance or effective management.** Instead, they provide evidence of:

- **Systemic Failure:** NRW's regulatory process **appears to prioritize operator effort over environmental outcome**, enabling a regulatory gap.
- **Unacceptable Nuisance:** The **39% exceedance rate** of the odour annoyance threshold is a quantifiable measure of persistent, chronic nuisance, **which challenges** all claims of successful mitigation by Enovert.
- **Conflict of Duty:** PHW and WCBC have either **minimized the health impact or failed to use their full powers**, creating a disconnect between official findings and the severe community impact.

Steve Gittins

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Challenge PHW's "Low Level Risk" Statement



**Immediate Reinforcement from Monitoring Data:** The attached real-time monitoring data (Community Pod Monitoring Data) provides irrefutable visual evidence that the fugitive emissions **routinely and significantly exceed** the WHO guidelines for odour and health. The graph demonstrates that concentrations are consistently **well above the 1 ppb and 5 ppb thresholds** and frequently surpass the **WHO Nuisance/Health Threshold**, with peaks reaching up to . This real-time evidence is fundamental to discrediting the Public Health Wales (PHW) conclusion that the long-term (lifetime) health risk is low, a conclusion based only on data showing concentrations below the lowest health criteria.

This conclusion can be discredited as premature and potentially misleading because it seems to ignore or downplay the limitations of the data gathering methods, particularly the ambient real-time monitoring, and the critical difference between chronic (long-term) and acute (short-term) health effects.

### 1. Neglecting Acute Health Risk from Peak Exposures

The diffusion tube data is explicitly stated to provide averaged concentrations over a defined period (approx. 4 weeks), making it primarily suitable for assessing chronic (long-term/lifetime) risks.

- The lowest health criteria value is for **lifetime exposure**, which is what the diffusion tubes are compared against.
- PHW's conclusion focuses on the long-term (lifetime) health risk being low.

However, Hydrogen Sulphide is an irritant and a major cause of odour annoyance, sleep disruption, and stress at levels below chronic health guidelines. Short-term, high-concentration (**acute**) exposures, which are not adequately captured by the long-term averages of the diffusion tubes, can lead to:

- **Odour Nuisance & Statutory Exceedance (1 ppb & 5 ppb Correlation):** The human nose can detect at very low levels, often less than . The monitoring data confirms routine exceedances of **and** , levels that can cause **statutory odour nuisance** or annoyance-related health effects (e.g., headaches, nausea, stress, sleep disturbance). This is the direct correlation between these exceedances and community impact.
- **Acute Health Risks ( and Above Correlation):** The graph shows concentrations consistently exceeding the Nuisance/Health Threshold, with numerous spikes between **and** . These high-level, short-term exposures represent a significant **acute health risk**, as is an irritant, causing direct symptoms such as eye and respiratory irritation.
- **Real-time Exceedances:** The executive summary mentions the AQMesh pods, which are real-time, recording average readings every 15 minutes. While currently treated as qualitative due to calibration issues, the data presented in the graph provides a clear indication of concentrations **frequently exceeding** .

The fact that the pods have a limit of detection (LOD) and accuracy only above means that any real-time, acute exposure between (the lifetime health criteria) and cannot be reliably confirmed or quantified. The lack of reliable real-time data below means the measured exposure data is likely to be lower than actual exposure levels, as short-term peaks causing odour and annoyance in this critical range are not fully captured.

The statement's focus on the diffusion tube data while simultaneously acknowledging uncalibrated real-time data and a LOD for the pods undermines the confidence in the "low level risk" conclusion, especially regarding **acute exposure risks and statutory odour annoyance** that are clearly driven by the frequent peaks shown in the monitoring graph.

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## 2. Discrepancy Between Measurement Methods

The PHW conclusion is based on a data set (diffusion tubes) which only showed a maximum of . Yet, the report also indicates that the other monitoring method (AQMesh pods) is only reliable above .

- The (lifetime health criteria) is a significant threshold. The real-time graph shows frequent, short-term spikes up to . These peak exceedances **fundamentally contradict** the "low risk" finding, as even short-term exceedances can cause immediate symptoms and significant community impact, which is not reflected in the long-term average.
- PHW's statement appears to ignore the unquantified risk indicated by the fact that the real-time measurements—which capture the peaks that lead to odour complaints—are currently unreliable and only detect above , which is **five times the nuisance threshold** and twenty-five times the lifetime criteria.

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## Diffusion Tubes as a Misdirection for Ambient Exposures

The diffusion tubes could be considered a misdirection in terms of ambient human exposure because they mask the **temporal variability and acute peaks** of concentration (clearly demonstrated in the

community pod graph), which are the main drivers of community complaints and acute health effects (odour-related annoyance).

### **Why Diffusion Tubes are Limited:**

- **Averaging:** Diffusion tubes only provide a long-term average (approximately 4 weeks). This averages out high peaks with periods of zero or low concentration. A single, very high spike of over an hour, as seen in the graph, might be undetectable in a 4-week average, yet that spike could cause severe odour nuisance, nausea, or headache for a resident.
- **Focus on Chronic Risk:** They are appropriate for assessing chronic (long-term) health risk, but **inappropriate** for assessing acute (short-term) health effects and odour nuisance, which are the dominant concerns around landfill gas.

### **The and Context:**

- The health criterion is for lifetime exposure—what the diffusion tubes are compared against.
- The level is the approximate lower limit of detection/accuracy for the real-time pods. This means the most important range for community exposure—the levels that cause frequent odour complaints (often below but higher than the tube average of ) and any transient peaks up to —is not reliably measured by either method currently presented as "quantitative."

### **Conclusion on Misdirection:**

By presenting the diffusion tube data as the primary quantitative evidence for the "low risk" conclusion, the report draws focus away from the more relevant **acute exposures** captured by the real-time data (AQMesh pods) and the community's lived experience of odour. The graph confirms that emissions are not low-level transient events, but **frequent, high-intensity spikes** which drive statutory nuisance and acute health symptoms. The absence of reliable real-time data below is the biggest informational gap, which the positive reporting of the diffusion tube results risks obscuring.

In summary, while the diffusion tubes accurately suggest a low long-term risk, relying on this data to conclude an overall "low level risk" is a misdirection because it **fails to capture the acute, high-level exposures** that cause the majority of public health impact and annoyance in a landfill context.

Steve Gittins

# Submission to the Senedd Petitions Committee Inquiry: Hafod Landfill Site (Petition P-06-1510)

## Report on Complaint Fatigue and the Misinterpretation of Statutory Nuisance Data

### 1. Definition and Core Mechanism of Complaint Fatigue

**Complaint Fatigue** is a term describing the **emotional and psychological exhaustion** that individuals experience when they repeatedly engage in a process to report a problem or seek a resolution, but consistently fail to achieve a satisfactory outcome. It is a form of learned helplessness and burnout directly resulting from the chronic failure of a reporting and resolution system.

The fatigue acts as a **masking factor** that hides the true scale and persistence of a problem, such as a statutory nuisance.

### 2. Root Causes of Complaint Fatigue in Nuisance Cases

The analysis identifies three primary, multifaceted causes for the onset of complaint fatigue, particularly relevant in chronic issues like persistent odours:

#### 2.1. Perceived Ineffectiveness and Lack of Response

- **Wasted Effort:** When individuals report a persistent nuisance (e.g., a stench) but see **no substantial change** in the conditions, the act of complaining becomes a **futile effort**. This repeatedly reinforces the belief that the system is broken and that their reports are not being taken seriously.
- **Apathetic Response:** Negative interactions with the reporting system, such as apathetic or dismissive staff, turn the act of reporting into a **source of additional stress** rather than a step toward relief. This actively drains a person's willingness to engage further.

#### 2.2. High Transactional Cost (The Burden of Reporting)

- **Time and Mental Load:** When residents are instructed to report an issue repeatedly (e.g., "six times a day"), the **transactional cost** of complaining becomes excessively high. Reporting requires constant interruption, recalling details, and navigating the process, imposing a **significant time commitment and taxing mental burden**.
- **Cognitive Dissonance:** The need to repeatedly confront both the problem (the nuisance) and the failure of the system (the ineffective reporting line) leads to a desire to **simply disengage** to protect one's own mental well-being from this constant confrontation.

#### 2.3. Loss of Confidence and Trust

- **Erosion of Trust:** Successful resolution is essential for maintaining **public trust** in regulatory bodies and local government. Consistent failure to resolve the issue causes residents to lose confidence not only in the effectiveness of the process but also in the **sincerity of the authorities' commitment** to solving the problem.
- **Feeling Unheard:** The perceived dismissal of their reports or the lack of demonstrable action leads citizens to feel **unheard** and marginalized.

### 3. The Central Danger: Misinterpretation of Complaint Data

The most significant danger of complaint fatigue is its effect on official metrics and decision-making.

Indicator	Official Interpretation (Dangerous)	Reality (Due to Complaint Fatigue)
<b>Drop in Complaints</b>	Sign of <b>improvement</b> ; problem is being reduced or eradicated.	Sign of <b>citizen retreat</b> ; people have simply given up on a broken, ineffective system.
<b>Low Complaint Count</b>	Problem is isolated, minor, or not persistent enough to be statutory.	Problem is <b>chronic and severe</b> , but the reporting burden is too high or the system is completely distrusted.

#### Citizen Retreat as a Masking Factor

When bodies focus on a reduced complaint count while residents acknowledge reporting fatigue, it highlights a profound **disconnect** between official data interpretation and community reality.

- The true measure of a **statutory nuisance** is the **persistence of the problem itself**, not the volume of *current* complaints.
- Complaint fatigue creates a feedback loop where an ineffective reporting system *rewards* itself with a low complaint count, which it then uses as evidence of its *success*. This completely **misrepresents the true scale and impact** of the ongoing nuisance on the affected community.

### Examples of Case Studies of Complaint Fatigue

#### Core Principle (The Strap-line) of Complaint Fatigue

**"A drop in complaints does not signify problem resolution; it often signals citizen retreat from a broken system."**

#### Case Study 1: Housing Ombudsman – Noise Nuisance and Mental Health Crisis

- **The Problem:** A vulnerable resident suffered nine months of severe noise nuisance (a statutory nuisance category).
- **Complaint Fatigue Factors:** The resident filed **18 noise reports** and sent in numerous recordings, facing an excessively **High Transactional Cost**.

- **System Failure & Misinterpretation:** Despite a physical inspection confirming "**considerable transmission**" of noise, the landlord repeatedly responded with generic letters and **closed the case 10 days before the resident took their own life**. The system failed to recognise the crisis driven by the unrelieved nuisance and the exhausting reporting process.
  - **Official Finding:** The Housing Ombudsman found **severe maladministration**, underscoring the failure to apply a "tailored approach" to the suffering masked by repetitive, draining reports.
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## **Case Study 2: Housing Ombudsman – Spotlight on Noise Complaints (Systemic Fatigue)**

This thematic report provides systemic evidence of the complaint process itself contributing to fatigue:

- **The Diary Sheet Burden:** The report criticizes the requirement for residents to complete "**countless diary sheets to no avail**," a clear example of the **High Transactional Cost** factor.
  - **Erosion of Trust:** Landlords' tendency to dismiss genuine suffering by labelling severe household noise as "low level" if it didn't meet the high statutory threshold invalidated the residents' experience, leading to **Loss of Confidence and Trust**.
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## **Case Study 3: Local Authority Environmental Health (Systemic Avoidance)**

Analysis of the UK's statutory nuisance procedure identifies systemic issues that trigger **Citizen Retreat**:

- **Failure to Investigate:** Research cited the pressure on local resources, leading to the "**quick closure of some complaints**" and one case of an unlawful policy that resulted in **over 6,000 noise complaints not being investigated**.
  - **The Masking Effect:** This systemic avoidance demonstrates how **Perceived Ineffectiveness** leads to a low complaint count, which is then used to falsely justify reduced regulatory action, **misrepresenting the true scale** of the environmental problem.
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**In summary, a reduction in complaints due to fatigue is not an indicator of a successful reduction in statutory nuisance; it is a critical indicator of a failed or exhausted public engagement process.**

Steve Gittins

# Summary Submission to the Petitions Committee Inquiry: Justice for Hafod Landfill Communities

This submission is a **heartfelt, final, fervent call for justice** for the families surrounding Hafod Landfill. The communities have been subjected to years of unacceptable, persistent, and harmful exposure to the stench of "rotten eggs" (H2S). The attached evidence proves that **Enovert, Natural Resources Wales (NRW), and Wrexham Council** have failed in their duty, offering only **"bureaucratic shrugs of inaction"** while condemning current and future generations to decades more of this environmental blight.

## Fact-Based Failures to Meet Required Standards

The objective data presented irrefutably proves that the landfill's emissions are in persistent breach of essential public health standards, demonstrating a profound and systemic failure of site management and regulation:

### 1. Unacceptable Public Health and Nuisance Breaches

Analysis of the AQMesh community monitoring data (March–September 2025) reveals sustained, intolerable exposure levels that **do not meet World Health Organization (WHO) exposure guidelines**:

Standard/Threshold	Community Pod Exceedance	Conclusion on Required Standard
<b>0.5 ppb (Odour Threshold)</b>	<b>63%</b> of monitored time	<b>Perceivable odour was present for nearly two out of every three hours.</b> This constitutes chronic, unacceptable statutory nuisance.
<b>4.7 ppb (Nuisance/Health Threshold)</b>	<b>39%</b> of monitored time	<b>Exposure at a potentially harmful level for nearly 40% of the time.</b> This is far beyond tolerable limits and is a definitive failure to protect resident health and quality of life.
<b>100 ppb (Acute Exposure Limit)</b>	Breached <b>up to 259.85 ppb</b> (at Entrance Pod)	The magnitude of peak emissions at the site vastly exceeds the level for <b>acute exposure</b> , proving gas management is critically deficient.

Export to Sheets

**The frequency of 63% odour exceedance and 39% nuisance/health exceedance is considered completely unacceptable by established global regulatory standards.** The sustained failure to remain below the basic **4.7 ppb** guideline for 61% of the monitoring period demonstrates a **profound and systemic failure of site management.**

### 2. Discredited Regulatory Oversight

The objective air quality data **discredits the subjective regulatory "sniff tests"** which have historically failed to confirm the community's severe odour experience. The absence and failure to update testing protocol and tooling, as best available techniques to accurately monitor fugitive odours in the community. The discovery that the Community Pod recorded H2S at nuisance levels while weekly sniff tests often recorded 'No Odour' (Level 0) or 'Very Faint' (Level 1) confirms the regulator's

methodology is flawed and their oversight is not credible. This failure has allowed the harm to continue unchecked.

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### 3. Ignoring the Science of Risk (NRW)

The submission highlights a **troubling disconnect between NRW officials and established landfill science**. While multiple studies confirm a strong, positive correlation between **increased rainfall/leachate accumulation** and a resulting surge in H<sub>2</sub>S fugitive emissions, NRW officials have appeared reluctant to fully acknowledge this link. Given that **climate change predicts increasing heavy rainfall events**, this reluctance to address the link between **rainfall, elevated leachate levels, and public health risk** renders the current management regime **inherently inadequate** and unsustainable for the future.

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### 4. Failures in Transparency and Accountability (WCBC & NRW)

The assertion that the Hafod Liaison Committee is an "open forum" is **fundamentally rebutted** by evidence of **refused resident participation, ignoring correspondence** from residents and councillors, and WCBC's practice of keeping only **inaccessible, un-chronological notes**.

Crucially, **NRW has dismissed formal complaints** while "ongoing updates and improvements" are carried out, effectively imposing a **moratorium on regulatory accountability** during a period of acknowledged non-compliance. This systemic failure in transparency and refusal to process formal recourse further underscores the regulatory collapse.

**5. Complaint fatigue** occurs when residents, after repeatedly reporting an issue, such as persistent, low-level odours, and seeing little or no effective regulatory or operational change, become **disillusioned and stop submitting complaints**.

- **The Problem:** The drop in reported complaints **does not mean the odour is gone or less frequent**; it merely reflects the community's **loss of faith** in the reporting system's efficacy.
  - **The Result:** This creates a **false negative** in the environmental data. Operators or regulators may interpret the lower complaint volume as successful odour mitigation when the underlying environmental and health nuisance **persists unchanged**.
  - **Reliable Metrics Needed:** Therefore, odour assessment should prioritize **objective, verifiable monitoring data** (such as sensor readings or field inspection results) and **scientifically rigorous community surveys** over raw complaint numbers alone to accurately gauge environmental performance.
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## Conclusion and Demand for Decisive Action

The evidence is clear: the Hafod Landfill operation is in **frequent, sustained, and unacceptable breach of public health standards**. The attempts to obscure the severity of these breaches through misleading data presentation and bureaucratic delay must end.

We demand the Petitions Committee act decisively to secure justice, not only for what the communities have suffered but for our children and grandchildren who face another 35 years of this blight. The only commensurate regulatory response to this persistent and unmanageable failure to protect public health is to **mandate immediate corrective action** via an **Abatement Notice**, with the ultimate recourse being **revocation of the environmental permit**.

**A permit that shields pollution, instead of providing regulatory and public protection, betrays it's very purpose, and therefore must be revoked.**

Steve Gittins

10<sup>th</sup> October 2025.

# Addendum 2 to Senedd Inquiry Evidence

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## Diffusion Confusion: Discrepancy Between Low-Risk Claims and Real-Time Hydrogen Sulphide Monitoring

### 1. Introduction and Scope

This Addendum critically evaluates the conclusion of "**very low risk H<sub>2</sub>S emissions**" presented in the *Hafod Air Quality Monitoring Interim Summary Report (July/August 2025)*. The report's primary evidence for a low risk is based on long-term average monitoring (diffusion tubes) and manual odour surveys.

This evaluation demonstrates that the quantitative, real-time data gathered by the **Community AQMesh Pod (Pod 2450621)** directly contradicts the report's conclusions, exposing a pattern of frequent and intense short-term Hydrogen Sulphide (H<sub>2</sub>S) exceedances that pose a persistent nuisance and health concern.

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### 2. Claims Being Discredited

The report's claims for low community impact are based on two key metrics that misrepresent the true exposure profile:

- Diffusion Tube Results (Long-Term Average):** The report highlights that the highest H<sub>2</sub>S concentration detected by diffusion tubes was **0.26 ppb** (parts per billion). This figure is well below the **1 ppb lifetime exposure criteria** set by health agencies, leading to the conclusion that the long-term health risk is low.
- Odour Survey Results (Qualitative/Infrequent):** The monitoring officers concluded that odours associated with the landfill were **infrequently detected** and that **no statutory odour nuisance currently exists** relating to the site.

This Addendum argues that by relying on low long-term averages (diffusion tubes) and subjective, intermittent observations (odour surveys), the report generates a false sense of security, creating "diffusion confusion."

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### 3. Community Pod Real-Time Data: The Quantitative Contradiction

#### 3.1. High-Frequency Exposure: Discrediting the "Very Low Risk" Claim

The real-time data from the **Community AQMesh Pod (Pod 2450621)**, which collected 13,508 individual air samples, provides a robust, quantitative profile that dramatically contradicts the report's "very low risk" conclusions. The fundamental flaw in the report is its reliance on **diffusion tubes**, which only provide a diluted, time-averaged view of pollution,

effectively masking frequent, intense concentration spikes. Crucially, the pod data shows that **63% of all readings**—a majority of 8,565 samples—exceeded the **1 ppb lifetime health criteria**. This high frequency of exposure at a level relevant to long-term health concerns directly refutes the claim that the overall community risk is low. The risk is not based on a low long-term average, but on **high-frequency intermediate exposure**.

### 3.2. Persistent Odour Nuisance: Refuting the "Infrequent" Odour Claims

The data also demonstrates that the issue is not merely a technical exceedance but a persistent **odour nuisance**. Fully **39% of all readings** (4,606 samples) were at or above **5 ppb**, the World Health Organisation's suggested maximum concentration to avoid substantial public odour complaints and the sensor's own practical limit of detection. The frequent detection of H<sub>2</sub>S at a confident and internationally recognized odour threshold fundamentally contradicts the monitoring officers' conclusion of "**infrequent**" odour detection and non-statutory nuisance. The quantitative evidence suggests that short-term odour events are a daily occurrence, constituting a common and unacceptable nuisance for the community.

### 3.3. Acute Spikes: Exceeding Intermediate Health Criteria

Finally, the real-time monitoring captured acute concentration spikes that raise concerns beyond chronic exposure. The highest recorded H<sub>2</sub>S concentration reached **29.16 ppb**. This maximum concentration not only indicates the potential for severe, acute odour events but also exceeds the **20 ppb Intermediate Exposure Criteria** (up to 1 year). This demonstrates that residents are exposed to levels that can cause **irritation** such as headaches and nausea, further undermining the report's assertion of "very low risk" and highlighting the need to treat the emissions as an active source of acute community impact.

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## 4. Summary

The report's conclusion of "very low risk" relies on diffusion tubes that only provide a diluted, time-averaged view of pollution, effectively masking frequent concentration spikes. The real-time data from the Community Pod provides the necessary context:

- **Risk is High-Frequency:** The H<sub>2</sub>S concentration at the community location exceeded the lifetime health benchmark (**1 ppb**) in **63% of all measurements**.
- **Nuisance is Persistent:** The frequency of readings above the odour threshold (**5 ppb**), reaching **34%**, contradicts the officers' conclusion of **infrequent** detection and non-statutory nuisance.

Therefore, the quantitative, real-time data indicates that the residents are subject to frequent, high-intensity exposures and persistent odour nuisance, rendering the report's "very low risk" claims inaccurate and extremely misleading.

Steve Gittins

To: The Chair, Welsh Government

From: Steve Gittins

**Reference : P-6-1510**

**Subject: Request for Scrutiny - NRW's Non-Adoption of Updated Odour Assessment Standards (EN 13725 +A1:2014 and EN 16841:2016)**

Date: 12<sup>th</sup> October 2025

Dear Petition Committee Members

## **1. Purpose of late Submission**

This letter is submitted to request that, in support of my earlier evidential submission (Doc SG#03, in the event that Natural Resources Wales (NRW) has rejected, deferred, or otherwise declined to apply the European Norms EN 13725 +A1:2014 and EN 16841:2016, the Welsh Government Inquiry examine the basis of that decision and require the regulator to provide clear technical and legal justification for doing so.

## **2. Background**

The European Norm EN 13725:2003, which standardises dynamic olfactometry, was amended in 2014 to strengthen quality-assurance criteria relating to assessor selection, calibration traceability, and measurement uncertainty.

In 2016, EN 16841 introduced field-based assessment methods for ambient odour exposure, providing a scientifically robust means of evaluating community impact under real environmental conditions.

These revisions represent significant advances in the accuracy, repeatability, and relevance of odour measurement with handheld digital devices, directly influencing regulatory confidence in protecting public health from odorous emissions.

## **3. Grounds for Inquiry Consideration**

Should NRW consider these updated standards “not applicable,” due to our exit from the European union, it is essential that the Inquiry seek the following clarifications:

1. Justification for non-adoption – What technical, economic, or legal grounds were relied upon to determine that EN 13725 (A1:2014) and EN 16841:2016 are inapplicable in Wales?
2. BAT evaluation process – Has NRW reviewed these standards as part of its **statutory duty to apply Best Available Techniques (BAT) under the Environmental Permitting (England and Wales) Regulations 2016 and the Industrial Emissions Directive 2010/75/EU?**
3. Public-health assessment – What evaluation has been undertaken of the public-health implications of continuing to use legacy odour assessment methods?
4. Consistency across UK regulators – How does NRW's position compare with that of the Environment Agency (England), SEPA (Scotland), or other competent authorities that have already recognised these updated EN methods?

## **4. Public Health and Legal Context**

Odour nuisance and exposure have recognised health and wellbeing implications, including stress, sleep disturbance, and reduced quality of life.

By declining to adopt the most up-to-date QA standards, NRW may risk breaching:

The precautionary principle and the duty to pursue continuous improvement in environmental monitoring;

The Well-being of Future Generations (Wales) Act 2015 objective to protect health and environmental quality; and

The regulator's positive obligations under Article 8 of the European Convention on Human Rights, to safeguard individuals from serious environmental nuisance.

## **5. Requested Action**

In light of these considerations, I respectfully request that the Inquiry:

1. Formally examine NRW's position on the applicability of EN 13725 (A1:2014) and EN 16841 (2016);
2. Require a written justification where NRW has declined to adopt or implement these standards; and
3. Recommend policy or guidance updates ensuring that the best available and most reliable odour-assessment techniques are applied in Wales, in line with the precautionary and public-health duties of environmental regulation.

## **6. Conclusion**

The decision to disregard or defer adoption of these updated European Norms carries direct implications for public confidence, regulatory credibility, and the health protection of affected communities.

A transparent review of NRW's reasoning, supported by evidence, is therefore in the public interest and consistent with Wales's commitment to high standards of environmental governance.

Yours faithfully,  
Steve Gittins  
Lead Petitioner  
P-6-1510 – Revoke Hafod Landfill Permit

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