ANNUAL GAS MONITORING REPORT 2025

Review of landfill gas monitored at the Mobuoy Road waste site between 1st January and 31st December 2025

July 2026

Mobuoy Remediation Project Team

Mobuoy Remediation Project - Environmental Monitoring – Gas Monitoring 2025

Contents

Appendices

Appendix A – Maps of Surface Gas Monitoring Locations 2025

Appendix B – 2025 Ground Gas Monitoring Results

Appendix C – Surface Gas Monitoring Locations Waste Zones 1-3 (2023 FID Survey)

Appendix D – FID Survey Results 13th June 2023

Executive Summary

Reporting Period:	01/01/2025 – 31/12/2025
Report Date:	June 2026
Monitoring Status:	Gas monitoring completed quarterly, as per schedule.
Monitoring in Period:	A total of 4No. rounds of gas monitoring were scheduled and carried out at select locations on the site over the monitoring year – monitoring rounds were completed in February, March, October & November 2025.
Objectives of Ongoing Gas Monitoring:	1. Continued appraisal of gas risk at the Mobuoy site by assessing 2025 monitoring data against data used to inform the 2022 Gas Risk Assessment. 2. Determine requirement to update the 2022 Gas Risk Assessment. 3. Monitor for potential gas emissions from localised pockets of degradable waste across the wider site and other waste zones and determine whether any additional gas risk assessment is required. 4. Continue to build and maintain a comprehensive gas monitoring dataset to inform long-term landfill gas management measures and support the detailed design of the draft Remediation Strategy for the site.
Site Apportioning	Within this report, the site is subdivided into 5 zones: CIW North, CIW South, CSG North, CSG South & CSG Central. This is due to the large surface area of the site, the variation in ground gas conditions across it, and differences in the type and distribution of buried waste. Subdividing the site aids interpretation of gas monitoring results and provides a practical framework for comparing current monitoring data with the waste zones used in the Gas Risk Assessment.
Ground Gas Monitoring	
Key Findings:	Ground gas conditions across the site were generally consistent with historical trends during 2025. The main issues identified were isolated elevated methane and carbon dioxide concentrations at a limited number of boreholes, particularly within CIW North and at selected locations in other waste zones, including BH02, BH615S, BH616, BH624S, BH624D, BH632, BH618D and BH657. These locations will be kept under review; however, the results do not indicate a material change in the overall gas risk presented by the site.
Surface Gas Monitoring	
Key Findings:	The most recent surface gas survey was completed in 2023. The 2023 survey identified low. localised emissions of landfill gas, with no evidence of widespread surface gas issues across the site. Isolated methane detections were recorded during the February 2023 survey within CIW North (Waste Zones 1–3). The detections were mainly located around borehole headworks or areas of limited cover material thickness. No surface gas emissions were detected during the June 2023 NIEA update survey, although this may have been influenced by elevated atmospheric

	pressure conditions at the time of the survey. Overall, the available data indicate low surface gas risk to site users. Although no dedicated surface gas emission surveys were carried out in 2024 or 2025, NIEA continued to undertake weekly site inspections. During these inspections, no alarms were activated personal gas monitors worn by NIEA staff, indicating an ongoing low surface gas risk to site users. A further surface gas survey is planned for 2026 to supplement the existing evidence base.

Conclusion

The results of the 2025 monitoring programme indicate that landfill gas conditions across the site remain broadly consistent with historical trends. While elevated concentrations of methane and carbon dioxide were recorded at a number of discrete locations, including within CIW North and selected boreholes across other waste zones, these occurrences are localised and do not represent a widespread or sustained increase in gas generation or migration. In general, the observed concentrations remain within or close to established historical ranges for the site.

Ground gas monitoring data indicate that elevated gas concentrations are predominantly associated with known source areas, particularly within CIW North (Waste Zones 1–3), which is consistent with the higher proportion of biodegradable waste identified in this area. The spatial distribution of gas concentrations therefore aligns with the existing conceptual understanding of the site and does not indicate the emergence of new or previously unidentified source areas.

A comparative review of the Conceptual Site Model (CSM) has confirmed that there have been no material changes to the key components of source, pathways, or receptors since the 2022 Gas Risk Assessment. Consequently, the overall gas risk classification for the site remains unchanged, with a moderate risk identified in on-site waste areas and a low risk to off-site receptors.

In summary, the 2025 monitoring data indicates that landfill gas conditions at the Mobuoy site remain stable and consistent with the current understanding of risk.

Continued gas monitoring is scheduled for 2026 to enable NIEA to identify any emerging trends, maintain oversight of landfill gas risks, and further develop the evidence base to support landfill gas management proposals outlined in the draft Remediation Strategy for the site.

Updates to 2026 Monitoring Schedule

Updates for 2026 ground gas monitoring schedule –

- No changes to the 2025 monitoring schedule are proposed for 2026. The locations and parameters monitored, and the frequency of monitoring (quarterly) will remain unchanged.
- During 2026, NIEA will consider the technical merit of monitoring trace gasses at select locations, and if viable, trace gas monitoring may be undertaken to validate historical testing results which identified low levels of these gasses.

Updates for 2026 surface gas monitoring schedule –

- One round of surface gas monitoring is planned for 2026 to provide an update on the surveys undertaken in 2023. Monitoring locations will be aligned with those previously assessed to enable direct comparison of results.
- In addition, NIEA will undertake supplementary surface gas testing at selected locations across the site to support validation of the data obtained during the main survey.

1.0 Introduction

1.1 Background Information

The Mobuoy Road waste site, located approximately 1.5km east of Derry/Londonderry covers an area of around 46 hectares. It comprises of two distinct parcels of land: the City Industrial Waste (CIW) site and the Campsie Sand & Gravel (CSG) site. Both areas have been subject to waste being buried in the ground with no barrier, or other engineered control(s), in place to protect the land, water, and air environments from contamination and gases generated by the buried waste.

NIEA is developing plans for remediation of the Mobuoy Road waste site. Prior to any remediation, potential environmental impacts from the buried waste are closely monitored through the implementation of a comprehensive Environmental Monitoring Programme (EMP).

The focus of this report is on landfill gas that is monitored at the site, however, detailed information on the groundwater quality and surface water quality components of the EMP are available on the Mobuoy Remediation Project website.

1.2 What is landfill gas and why is it monitored?

Landfill gas is a natural byproduct of the decomposition of biodegradable waste and is the main emission to air from landfill sites. Landfill gas composition varies, but the main components are methane and carbon dioxide, with hydrogen sulphide and several other gases present in very small amounts, referred to as 'trace' gasses.

Landfill gas can pose a risk to the environment and a localised risk to human health; however, the level of risk is dependent upon three key factors – the concentration of gas released, the rate at which gas is generated and released, and whether people are exposed to it.

As major components of landfill gas, methane and carbon dioxide are suitable indicators to identify landfill gas and monitor for potential movement of landfill gas. Methane and carbon dioxide do not generally pose a toxicological risk, but they can displace oxygen levels in confined spaces which, in turn, can pose a risk to human health.

Comparable with how the environmental risks to the groundwater and surface water were assessed at the Mobuoy site, the environmental risks associated with landfill gas at the site have also been assessed in line with the UK's "Land Contamination Risk Management" (LCRM) guidance and the supplementary guidance embedded within it.

The Gas Risk Assessments completed at the Mobuoy site provide point-in-time evaluations of gas concentrations and flow rates, the pathways by which gas may migrate, and the potential effects on receptors that could be exposed to gas from the site. This information is presented through a Conceptual Site Model (CSM), a model which summarises the current understanding of landfill gas conditions at the site and the associated risks, particularly to human health. This looks at where the gas could travel, who or what it could affect, and whether it presents any risks to people or the environment.

Ongoing landfill gas monitoring and site inspections help monitor the current risk and identify any changes in gas composition or human activity at, or around, the site that could affect the assessment of the risk. Any such changes may require the CSM to be updated and the gas risk to be re-evaluated through an update of the Gas Risk Assessment.

1.3 Landfill Gas Risk Assessments available for the site

Two detailed Gas Risk Assessments have been completed at the site and the full reports, including supporting landfill gas monitoring data, is available on the Mobuoy Remediation Project website –

- White Young Green (2016) Gas Risk Assessment, City Industrial Waste / Campsie Sand & Gravel Sites
- Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site

The 2022 update represents our current assessment of the risks associated with landfill gas at the site. A summary of the current understanding of the landfill gas conceptual site model is presented on Table 13, later in this report.

1.4 Purpose of this monitoring report

This monitoring report should be read alongside the Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site. This report presents and summarises the ground gas monitoring data collected during the 2025 monitoring period.

1.5 Gas monitoring report limitations

This report presents the findings of landfill gas monitoring undertaken at the site. As with any monitoring programme, a number of limitations are acknowledged to help inform interpretation of the results. Identifying and considering these limitations is an important part of the assessment process and helps ensure that conclusions are based on a clear understanding of the available evidence and its constraints. The main limitations specific to the landfill gas monitoring at the Mobuoy site are presented below:

- Waste has been buried at the Mobuoy Waste site without engineered gas containment measures, such as a liner or cap, which would normally be in place, along with a gas management system, at a licensed landfill site. As presented in the Gas Risk Assessments, there are several monitoring locations that demonstrate air ingress, one of the reasons for this being due to absence of engineered containment or management of landfill gas. Long term gas management, including a long-term gas monitoring network, is a key objective of the draft Remediation Strategy.

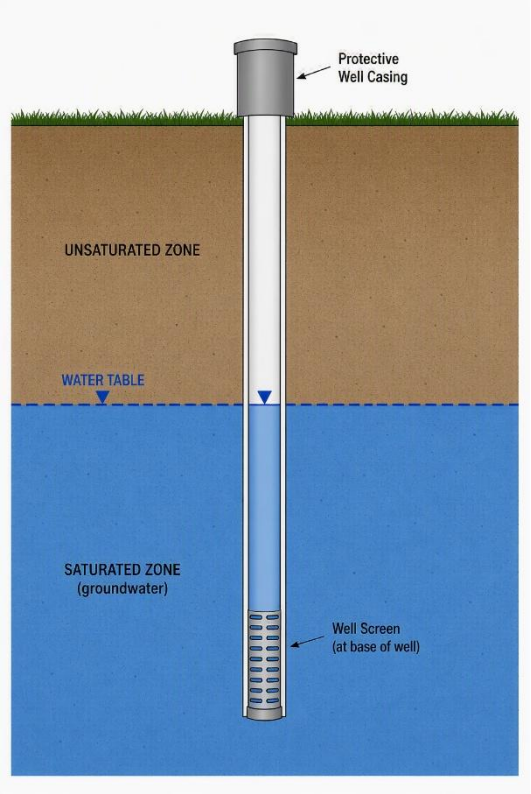
- The extensive borehole network across the site has been primarily designed for the purposes of ground investigation and targeted groundwater and leachate monitoring. Due to this, the ground gas monitoring information collected at some locations is limited by the borehole location and/or the borehole construction design. This is generally limited to parts of the site where the water table is shallow, and the water table rests above the level of slotted section of the monitoring pipework. When this occurs, the flow of air from the waste to the gas analyser (air testing equipment) is restricted and monitoring data is limited to gasses that have accumulated in the headspace of the monitoring pipework – see illustration on Inset 1. This generally occurs in parts of the site where groundwater level is less than 1 metre below ground level – a common occurrence in the Campsie Sand and Gravel site, and less common in the City Industrial Waste site.

- Boreholes that have been selected as perimeter monitoring locations are considered to be the best available locations to monitor the pathway between the source of landfill gas at the site and sensitive receptors beyond the site boundary. Some perimeter monitoring boreholes are positioned around the margins of the waste deposits, or if installed into natural deposits are

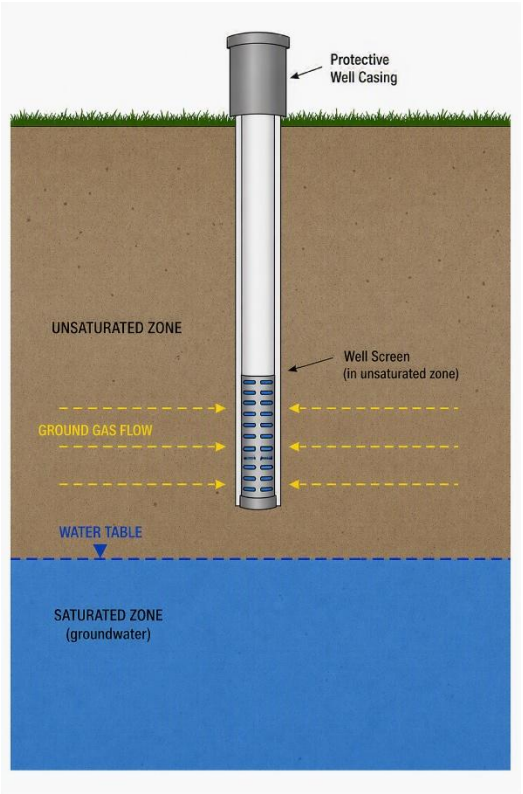
positioned close to nearby gas generating waste deposits. Reasonably, zero landfill gas readings are not expected at many of these locations, but monitoring changes in landfill gas over time at these locations is effective at meeting the aims of the Gas Monitoring Programme.

Despite these limitations, repeated gas monitoring at set locations across the site allows NIEA to compare updated monitoring results with previous monitoring results. Comparing monitoring results over time provides a scientific and quantifiable basis to identify any increasing, stable, or decreasing trends in monitored gas concentration(s) which could represent a change in the risk associated with landfill gas generated at the site and trigger a review of the Gas Risk Assessment for the site.

Inset 1: Illustration showing well screen below the water table



Inset 2: Illustration showing well screen above the water table



2.0 Aims of the Gas Monitoring Programme

This report presents a summary of the ground gas monitoring programme undertaken in 2025. The purpose of the on-going ground gas monitoring at the site is to:

1. Continued appraisal of gas risk at the Mobuoy site by assessing 2025 monitoring data against data used to inform the 2022 Gas Risk Assessment.
2. Determine whether changes in landfill gas conditions require the 2022 Gas Risk Assessment to be updated, or whether monitoring evidence indicates that its conclusions remain valid and representative of current site conditions.

3. Monitor for potential gas emissions from localised pockets of degradable waste across the wider site and other waste zones and determine whether any additional gas risk assessment is required.
4. Continue to build and maintain a comprehensive gas monitoring dataset to inform long-term landfill gas management measures and support the detailed design of the draft Remediation Strategy for the site.

This is done by:

1. Comparing updated landfill gas monitoring data with monitoring data used to inform the 2022 Gas Risk Assessment. Landfill gasses monitored include Methane - CH_4, Carbon Dioxide - CO_2, Oxygen - O_2, Hydrogen Sulphide - H_2S), Flow rates,
2. Monitoring site/ground conditions that could impact current understanding of gas migration and CSM assumptions.
3. Monitoring boreholes installed into waste and natural ground on-site for any changes in ground gas conditions and other baseline parameters – trend analysis, anomalies, spatial patterns.
4. Reviewing the CSM and assessing whether any components have changed.

3.0 Conceptual Site Model (CSM) – Landfill Gas

3.1 Description of Conceptual Site Model

In the context of landfill gas, a CSM is a structured representation of how gas that is generated from decomposing waste at a site behaves and poses risk. It brings together the understanding of the source, pathways and receptors into a clear framework that can be used for environmental risk assessment. Each of the components are discussed in turn in the following sections.

3.1.1 Source

The source of landfill gas at Mobuoy site is from the degradation of waste that has been buried at the site. Detailed information on the waste type, waste volume, and the distribution of the different types of waste at the site is presented in detail in Factual Report: Information on the type of waste and quantity of waste buried at the Mobuoy site, which is available on our website.

In summary, it is estimated that approximately 1.6 million cubic metres of waste has been deposited at the site.

It is important to note that an estimated 50% of the waste (approximately 800,000 cubic metres) is inert material, such as construction and demolition rubble. Inert waste is chemically stable and does not undergo any significant physical, chemical, or biological transformations. As a result, it does not generate landfill gas to any significant level.

However, the remaining 50% (estimated to be approximately 800,000 cubic metres) is comprised of municipal and industrial waste, which can undergo physical, chemical and biological transformation and degradation processes. Subsequently, these types of waste have the highest potential to generate landfill gases at the site. Of that estimated 800,000 cubic metres of potential landfill gas generating waste, 60% (approx. 500,000 cubic metres) is concentrated in City Industrial Waste North (Waste Zones 1-3) which is, therefore, considered to be the part of the site that poses the greater landfill gas risk and is the focus of Gas Risk Assessments completed for the site.

The main landfill gases considered through the Gas Risk Assessment (and monitoring) are methane, carbon dioxide, volatile organic compounds (VOCs) and hydrogen sulphide, as these are the gases most likely to pose a risk to people, property or the environment (receptors).

3.1.2 Pathways

In areas of the site where landfill gas is generated on-site, there is potential for gas to move, or migrate, from the waste via preferential pathways and accumulate, for example, in enclosed spaces such as buildings. Methane and carbon dioxide can displace oxygen levels in confined spaces and pose a risk to human health. The migration of gas can be influenced by both natural and anthropogenic factors.

Lateral migration may occur through permeable strata, including sand and gravel horizons, made ground, and fissured bedrock, particularly where these materials present lower resistance relative to surrounding soils.

Anthropogenic activities can also create pathways that facilitate gas migration. For example, excavations and the installation of monitoring boreholes may provide vertical conduits, enabling gases to reach the surface. Vertical migration may additionally occur in areas where waste is overlain by thin soil cover.

Gas migration patterns are further affected by fluctuations in atmospheric pressure, groundwater levels, and soil moisture content. Falling atmospheric pressure can promote outward gas movement, while rising groundwater levels may displace landfill gas laterally within permeable strata.

Collectively, these factors demonstrate the importance of considering both natural and man-made pathways when assessing the potential for gas migration from un-engineered landfill sites such as Mobuoy.

3.1.3 Receptors

Through the Gas Risk Assessments carried out at the site, several potential sensitive receptors that could be at risk from gas migration (and accumulation) have been identified and assessed. Potential sensitive receptors include users of the Mobuoy site, users of land surrounding the site, and the nearest buildings to the site (residential properties and a gospel hall).

Identifying and assessing these receptors is an important part of the CSM and is essential for understanding the potential risks from migrating gas and designing a monitoring plan to effectively monitor any risk.

To note: landfill gas modelling, completed as part of the Gas Risk Assessment (2016), was reviewed as part of the Updated Gas Risk Assessment (2022) and considered to remain valid as there has been no substantial change to site conditions. The results of the modelling demonstrate that any potential risks associated with the movement and accumulation of landfill gas off-site is limited to a distance of 12 metres from the site boundary. Since there are no buildings or confined spaces within the 12m buffer from the site where landfill gasses could accumulate, the potential risk to off-site receptors is considered to be negligible.

4.0 Ground Gas Monitoring Locations and Frequency

4.1 Gas Monitoring Network – Borehole Selection Rationale

Despite the limitations noted in Section 1.5 (Limitations), a number of boreholes installed at the Mobuoy site are appropriate gas monitoring locations to meet the aims of landfill gas monitoring programme.

Factors such as location, construction design, response zone depth (screened/slotted section), groundwater/water table level, and historical gas monitoring results were considered when selecting gas monitoring locations.

4.2 Gas Monitoring Schedule – Monitoring Frequency

Landfill ground gas is monitored at perimeter monitoring locations (not within waste) 4 times per year at the site. This is referred to as a 'quarterly' monitoring round. The monitoring rounds are distributed throughout the year to capture potential effects of seasonal and environmental influences of ground gas monitoring results.

Landfill ground gas is monitored at in-waste monitoring locations (within the waste) once per year at the site. This is referred to as an 'annual' monitoring round.

During 2025, 4 quarterly and 1 annual ground gas monitoring rounds were completed at the site. Details of the monitoring carried out is presented on Table 1 and Table 2. Maps presenting ground gas monitoring locations are provided at Appendix A.

Table 1 – 2025 Gas Monitoring Schedule

Monitoring Round	Monitoring By	Dates
Round 1 - Quarterly & Annual	Tetra Tech ICT	24 - 27/03/2025
Round 2 - Quarterly	NIEA Mobuoy RPT	26/09 - 08/10/2025
Round 3 - Quarterly	NIEA Mobuoy RPT	24 - 26/11/2025
Round 4 - Quarterly	NIEA Mobuoy RPT	17 – 18/12/2025

Table 2 – 2025 Gas Monitoring schedule

Source Zone	Quarterly	Annual
Zone 1	BH117, BH302, BH02, BH214, BH610S	BH213, BH214, BH215, BH602R, BH603R, BH645, BH646
Zone 2	BH647A, BH211	BH01, BH648, BH649B
Zone 3	BH303, BH666, BH670	BH301, BH611A, BH667, BH668, BH674
Zone 4	BH121, BH616	BH208, BH209, BH615S, BH617
Zone 5	BH628, BH631	BH07, BH203
Zone 6	BH624D, BH624S, BH625	BH632, BH653
Zone 7	BH205, BH661, BH618D, BH618S	BH619D, BH619S, BH620, BH621
Zone 8	BH06, BH105, BH409, BH411, BH636D	BH206, BH402S, BH403, BH636S, BH652
Zone 9	-	BH218, BH637, BH656, BH657, BH658
CIW Yard	-	BH613, BH614
Off-Site	BH612	-

5.0 Ground Gas Monitoring Results

5.1 Ground gas monitoring methodology

A GA5000 gas analyser was used to measure methane, carbon dioxide, oxygen concentrations, and atmospheric pressure. The sections below summarise the gas monitoring results obtained during 2025.

The results obtained for each quarter were compared against the "historical range" of gas monitoring data available for each monitoring location. This historical range varies between locations due to the phased development of the monitoring network. For example, boreholes installed during earlier ground investigations (BH100 and BH200 series, drilled in 2015) have a longer dataset, whereas boreholes installed more recently (BH400 and BH600 series, drilled in 2021–2022) have a shorter monitoring record. Due to this, the historical range for each location reflects the duration over which data has been collected.

Details of all ground investigations carried out at the site can be read in full on the Mobuoy Remediation Project website.

5.2 Sub-division of the Site into waste zones

Due to the extent of the site and the variability in ground gas conditions, it has been subdivided into distinct waste areas for the purposes of this monitoring report and to aid interpretation. These sub-divisions align with those defined in the latest Gas Risk Assessment to allow ease of comparison. The waste areas are CIW North, CIW South, CSG Central, CSG North, and CSG South.

5.2.1 CIW North (DQRA Waste Zones 1 – 3)

During the 2025 monitoring period, gas monitoring was undertaken at 24 boreholes across Zones 1-3 within CIW North. The 2025 monitoring schedule included the addition of BH02, BH211, BH214 and BH666, which were introduced as replacement monitoring locations for previously monitored large-diameter boreholes.

Gas monitoring at BH666 was undertaken for the first time in 2025; therefore, no baseline data was available at this location for comparison.

A review of groundwater levels within CIW North indicates that the gas monitoring response zone was fully submerged in five of the 24 boreholes (BH02, BH647A, BH666, BH667 and BH668).

A summary of results from gas monitoring in CIW North in 2025 is presented in Tables 3 and 4. Full gas monitoring results are provided in Appendix B.

Table 3 – CIW North Landfill Gas Monitoring Results 2025 – Methane (CH_4)

	Maximum Methane (%v/v)				
	Q1	**Q2**	**Q3**	**Q4**	**Historical Range**
BH117	10.5	0.3	-	9.4	0.0 - 25.3
BH213	71.6	-	-	-	39.1 - 68.3
BH214	1.4*	70.7	72.0	72.3	62.1 - 71.6
BH215	76.9	-	-	-	6.4 - 67.8
BH302	32.3	35.0	0.1	25.6	0.4 - 67.8
BH602R	77.6	-	-	-	28.9 - 67.2
BH603R	4.7	-	-	-	0.0 - 41.9
BH610S	52.5	31.9	53.8	29.0	22.3 - 70.5
BH645	79.3	-	-	-	0.3 - 77.5
BH646	64.9	-	-	-	41.7 - 61.4
BH01	79.8	-	-	-	41.7 - 82.5
BH211	74.4	62.5	68.4	65.0	35.3 - 71.7
BH647A	2.1	1.3	1.1	1.3	0.3 - 7.5
BH648	52.2	-	-	-	4.1 - 45.0
BH649B	1.3	-	-	-	0.0 - 1.6
BH02	-	41.6	40.2	36.5	0.0 - 8.0
BH301	1.1	-	-	-	0.0 - 6.5
BH303	5.5	11.3	7.7	10.2	7.7 - 17.7
BH611A	18.1	-	-	-	0.9 - 32.1
BH666	-	25.8	0.2	1.6	-
BH667	36.6	-	-	-	0.0 - 47.4
BH668	15.9	-	-	-	0.8 - 32.5
BH670	3.8	0.9	1.5	1.9	0.0 - 3.1
BH674	1.2	-	-	-	0.7 - 36.7

Key: - Not Monitored during this period, * Considered anomalous gas reading

Table 4 - CIW North Landfill Gas Monitoring Results 2025 – Carbon Dioxide (CO_2)

	Maximum Carbon Dioxide (%v/v)				
	Q1	**Q2**	**Q3**	**Q4**	**Historical Range**
BH117	21.3	0.6	-	21.4	0.1 - 33.9
BH213	36.9	-	-	-	20.8 - 37.3
BH214	0.8*	29.9	29.0	29.7	30.2 - 36.8
BH215	36.5	-	-	-	6.2 - 37.0
BH302	27.6	24.7	0.2	23.8	0.6 - 32.3
BH602R	36.8	-	-	-	14.3 - 41.5
BH603R	14.7	-	-	-	7.0 - 25.7
BH610S	28.2	25.2	27.1	14.8	10.1 - 30.5
BH645	35.2	-	-	-	0.0 - 33.3
BH646	31.9	-	-	-	18.4 - 30.9
BH01	31.9	-	-	-	18.0 - 34.1
BH211	38.8	38.4	33.0	34.9	19.7 - 44.4
BH647A	2.8	0.6	0.5	0.4	0.0 - 4.8
BH648	24.7	-	-	-	1.8 - 22.8
BH649B	3.5	-	-	-	0.9 - 5.3
BH02	-	28.5	27.5	25.5	0.0 - 19.1
BH301	0.7	-	-	-	0.1 - 7.2
BH303	7.3	22.9	14.6	19.8	15.5 - 27.2
BH611A	9.4	-	-	-	0.7 - 21.3
BH666	-	18.9	0.1	2.2	-
BH667	23.4	-	-	-	0.1 - 25.0
BH668	6.4	-	-	-	0.5 - 23.5
BH670	21.5	18.8	19.3	19.1	0.3 - 20.3
BH674	1.6	-	-	-	0.6 - 22.5

Key: - Not Monitored during this period, * Considered anomalous gas reading

Following a review of the gas monitoring data, several key observations have been identified:

- At BH02, gas concentrations recorded during the 2025 monitoring period were elevated relative to historical results at this location. Methane concentrations ranged from 36.5 to 41.6 %v/v, carbon dioxide from 25.5 to 28.5%v/v. By comparison, monitoring undertaken between 2020 and 2023 recorded lower maximum concentrations, with methane up to 8.0% v/v and carbon dioxide up to 19.1% v/v. The response zone at BH02 is typically fully submerged, and therefore gas results may not be fully representative of ground gas conditions, however, the increased methane and carbon dioxide concentrations in 2025 remain notable.
- At BH214, the Q1 2025 monitoring exhibited an anomalous groundwater level and gas readings (methane, carbon dioxide and oxygen) that fall outside the historical range observed at this location and is considered abnormally low. This result is not considered further.
- BH666 was incorporated into the 2025 monitoring programme as a replacement for BH405 and has no baseline gas data for comparison. It was monitored on three occasions in 2025, during which methane concentrations ranged from 0.2 to 25.8% v/v, carbon dioxide from 0.1 to 18.9% v/v, oxygen from 7.4 to 19.5% v/v, and hydrogen sulphide from 0 to 1 ppm.

Summary

Compared with historical monitoring data for locations in this area, the levels of methane and carbon dioxide detected in 2025 are generally consistent with the historical range. A slight increase in the levels detected at BH02 are noted and will be kept under review.

Based on the gas monitoring results collected during 2025 in this part of the site, combined with observations during site inspections, no factors have been identified that would alter the risk presented in Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site.

Update for 2026 Monitoring Schedule:

- Boreholes in Waste Zones 1-3 will continue to be monitored in accordance with the 2025 schedule.
- Gas monitoring information for BH02 to be kept under review.
- Consideration will be given to testing the levels of 'trace gasses' at select locations to validate historical testing which identified low levels of these gasses.

5.2.2 CIW South (DQRA Waste Zones CIW Yard & Zone 4)

During the 2025 monitoring period, gas was monitored at 8No. monitoring boreholes within CIW Yard & Zone 4. In Q2 2025, BH616 which is scheduled for quarterly monitoring, was inaccessible. To overcome this, BH617, which is scheduled for annual monitoring, was monitored as an appropriate alternative.

A review of groundwater levels within CIW North indicates that the gas monitoring response zone was fully submerged in 3 of the 8 boreholes (BH121, BH616 & BH617). Where the response zone is submerged at the time of monitoring, the collected data is unlikely to be fully representative of ground gas conditions, as groundwater inhibits the flow of soil gas to the borehole pipework and monitoring instrument.

A summary of results from gas monitoring in CIW South in 2025 is presented in Tables 5 and 6 below. Full gas monitoring results are provided in Appendix B.

Table 5 – CIW South Landfill Gas Monitoring Results 2025 – Methane (CH_4)

	Maximum Methane (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH612	1.1	0.6	0.2	1.4	0.0 - 0.2
BH613	34.8	-	-	-	0.8 - 35.0
BH614	1.2	-	-	-	0.0 - 3.9
BH121	1.3	0.2	0.1	0.1	0.0 - 1.0
BH208	12.4	-	-	-	0.4 - 54.7
BH209	55.2	-	-	-	1.0 - 81.8
BH615S	28.0	-	-	-	1.1 - 22.9
BH616	65.0	-	68.4	71.1	8.1 - 50.1
BH617	1.2	1.4	-	-	0.0 - 20.7

Key: - Not Monitored during this period

Table 6 – CIW South Landfill Gas Monitoring Results 2025 – Carbon Dioxide (CO_2)

	Maximum Carbon Dioxide (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH612	4.1	16.6	1.3	13.0	7.2 - 11.6
BH613	22.6	-	-	-	0.7 - 22.2
BH614	1.6	-	-	-	2.9 - 3.2
BH121	6.6	6.2	4.7	6.4	0.1 - 5.2
BH208	18.2	-	-	-	0.1 - 55.8
BH209	10.0	-	-	-	0.2 - 33.1
BH615S	22.2	-	-	-	0.9 - 22.7
BH616	16.6	-	26.0	29.4	3.0 - 18.0
BH617	1.3	1.0	-	-	0.1 - 20.9

Key: - Not Monitored during this period

Following a review of the gas monitoring data, the following key observations are noted:

- At BH615S, methane was recorded at 28.0%v/v, above the historical range observed at this location (1.1 - 22.9%v/v). While above the historical range, the detection is not elevated high enough to indicate a change in risk at this location.
- At BH616, both methane & carbon dioxide were recorded above the historical range for those parameters. Methane measured in 2025 ranged from 65.0 - 71.1%v/v, compared to the historical range of 8.1 - 50.1%v/v. Carbon Dioxide recorded during 2025 ranged from 16.6 - 29.4%v/v, compared with a historical range of 3.0 - 18.0%v/v. While elevated, the detection is not elevated high enough to indicate a change in risk at this location.

Summary

Compared with historical monitoring data for locations in this area, the levels of methane and carbon dioxide detected in 2025 are generally consistent with the historical range. The increase in the levels detected at BH615S and BH616 are noted and will be kept under review.

Based on the gas monitoring results collected during 2025 in this part of the site, combined with observations during site inspections, no factors have been identified that would alter the risk presented in Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site.

Update to 2026 Monitoring Schedule:

- Boreholes in Waste Zones CIW Yard & Zone 4 will continue to be monitored in accordance with the 2025 schedule.
- Gas monitoring information for BH615S and BH616 to be kept under review.
- Consideration will be given to testing the levels of 'trace gasses' at select locations to validate historical testing which identified low levels of these gasses.

5.2.3 CSG South (DQRA Waste Zones 5 & 6)

During the 2025 monitoring period, gas was monitored at all scheduled monitoring boreholes in CSG South (Waste Zones 5 & 6) - 9No. monitoring locations in total were scheduled.

A review of groundwater levels within CSG South indicates that the gas monitoring response zone was fully submerged in 7 of the 9 boreholes (BH07, BH628, BH624S, BH624D, BH625, BH632 & BH653).

Where the response zone is submerged at the time of monitoring, the collected data is unlikely to be fully representative of ground gas conditions, as groundwater inhibits the flow of soil gas to the borehole pipework and monitoring instrument.

A summary of results from gas monitoring in CSG South in 2025 is presented in Tables 7 and 8 below. Full gas monitoring results are provided in Appendix B.

Table 7 - CSG South Landfill Gas Monitoring Results 2025 – Methane (CH_4)

	Maximum Methane (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH07	16.7	-	-	-	0.3 – 64.4
BH203	16.2	-	-	-	2.6 - 81.8
BH628	1.1	0.2	0.2	0.1	0.0 – 0.3
BH631	1.1	0.2	0.2	0.1	0.0 – 0.3
BH624S	1.7	62.7	81.3	61.7	0.0 – 72.4
BH624D	10.4	0.8	63.9	2.6	0.0 – 46.5
BH625	1.5	0.5	0.4	0.3	0.0 – 26.1
BH632	86.9	-	-	-	0.2 - 84.7
BH653	1.2	-	-	-	0.0 – 0.4

Key: - Not Monitored during this period

Table 8 – CSG South Landfill Gas Monitoring Results 2025 – Carbon Dioxide (CO_2)

	Maximum Carbon Dioxide (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH07	10.2	-	-	-	0.1 – 32.1
BH203	15.8	-	-	-	1.5 – 43.1
BH628	0.1	0.1	0.2	0.1	0.0 - 1.8
BH631	2.0	0.1	0.7	0.7	0.0 – 8.5
BH624S	0.2	22.9	19.5	24.1	0.0 – 24.4
BH624D	5.3	2.5	25.3	4.6	0.0 – 18.2
BH625	1.0	0.8	2.9	3.0	0.8 – 13.7
BH632	19.4	-	-	-	0.0 – 17.4
BH653	2.1	-	-	-	0.0 – 1.1

Key: - Not Monitored during this period

Following a review of the gas monitoring data, the following key observations are noted:

- At BH624S, methane was recorded at 81.3%v/v in Q3 only which is above the historical range (0.0 - 72.4%v/v) at this location.
- At BH624D, methane was recorded at 63.9%v/v in Q3 only which is above the historical range (0.0 - 46.5%v/v) at this location.
- At BH632, methane was recorded at 86.9%v/v in Q1 only which is above the historical range (0.2 - 84.7%v/v) at this location.
- At BH624S, carbon dioxide was recorded at 25.3%v/v in Q3 only which is above the historical range (0.0 - 18.2%v/v) at this location.

- At BH632, carbon dioxide was recorded at 19.4%v/v in Q1 only which is above the historical range (0.0 - 17.4%v/v) at this location.
- At BH653, carbon dioxide was recorded at 2.1%v/v in Q1 only which is above the historical range (0.0 - 1.1%v/v) at this location.

Summary

Compared with historical monitoring data for locations in this area, the levels of methane and carbon dioxide detected in 2025 are generally consistent with the historical range. The isolated increase in the levels detected at a number of locations during the monitoring period are noted and will be kept under review.

Based on the gas monitoring results collected during 2025 in this part of the site, combined with observations during site inspections, no factors have been identified that would alter the risk presented in Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site.

Update to 2026 Monitoring Schedule:

- Boreholes in Waste Zones 5 & 6 will continue to be monitored in accordance with the 2025 schedule.
- Gas monitoring information for BH624S, BH642D, BH632, BH624S, BH632, and BH653 to be kept under review.
- Consideration will be given to testing the levels of 'trace gasses' at select locations to validate historical testing which identified low levels of these gasses.

5.2.4 CSG Central (DQRA Waste Zone 7)

During the 2025 monitoring period, gas was monitored at 9No. monitoring boreholes in Zone 7. Gas monitoring at BH661 was undertaken for the first time in 2025; therefore, no baseline data was available at this location for comparison.

A review of groundwater levels within Waste Zone 7 indicates that the gas monitoring response zone was fully submerged in 6 of the 9 boreholes (BH205, BH618D, BH619D, BH620, BH621 & BH661). Where the response zone is submerged at the time of monitoring, the collected data is unlikely to be fully representative of ground gas conditions, as groundwater inhibits the flow of soil gas to the borehole pipework and monitoring instrument.

A summary of results from gas monitoring in CSG Central in 2025 is presented in Tables 9 and 10 below. Full gas monitoring results are provided in Appendix B.

Table 9 - CSG Central Landfill Gas Monitoring Results 2025 – Methane (CH_4)

	Maximum Methane (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH205	14.1	13.5	15.3	3.3	0.0 - 17.6
BH221	25.7	-	-	-	0.0 - 96.6
BH618S	13.2	12.1	13.5	15.3	9.2 - 21.7
BH618D	1.6	10.5	11.3	1.2	0.0 - 8.4
BH619S	19.2	-	-	-	0.0 - 50.8
BH619D	1.4	-	-	-	0.0 - 35.9
BH620	22.4	-	-	-	0.1 - 19.1
BH621	1.3	-	-	-	0.0 - 9.3
BH661	-	7.7	8.6	7.0	-

Key: - Not Monitored during this period

Table 10 - CSG Central Landfill Gas Monitoring Results 2025 – Carbon Dioxide (CO_2)

	Maximum Carbon Dioxide (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH205	17.6	18.2	18.4	3.3	0.1 - 18.5
BH221	1.8	-	-	-	0.0 - 16.2
BH618S	9.0	11.6	5.0	4.3	4.1 - 9.7
BH618D	8.4	10.8	7.1	2.8	1.2 - 8.5
BH619S	5.5	-	-	-	0.1 - 4.1
BH619D	0.8	-	-	-	0.0 - 4.4
BH620	9.0	-	-	-	0.1 - 10.5
BH621	7.1	-	-	-	0.0 - 7.7
BH661	-	5.5	2.9	1.8	-

Key: - Not Monitored during this period

Following a review of the gas monitoring data, the following key observations are noted:

- At BH618S, carbon dioxide was recorded at 11.6%v/v was recorded in Q3 only, slightly above the historical range at this location (4.1 - 9.7%v/v)
- At BH618D, methane was recorded at 10.5%v/v and 11.3%v/v in Q2 and Q3 only, slightly above the historical range at this location (0.0 - 8.4%v/v). In addition, slightly elevated carbon dioxide was recorded at 10.8%v/v in Q2 only, exceeding the historical range (1.2 - 8.5%v/v).
- At BH619S, carbon dioxide was recorded at 5.5%v/v, slightly above the historical range at this location (0.1 - 4.1%v/v).
- At BH620, slightly elevated methane was recorded at 22.4%v/v, slightly above the historical range at this location (0.1 - 19.1%v/v).

Summary

Compared with historical monitoring data for locations in this area, the levels of methane and carbon dioxide detected in 2025 are generally consistent with the historical range. The isolated increase in the levels detected at a number of locations during the monitoring period are noted and will be kept under review.

Based on the gas monitoring results collected during 2025 in this part of the site, combined with observations during site inspections, no factors have been identified that would alter the risk presented in Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site.

Update to 2026 Monitoring Schedule:

- Boreholes in Waste Zone 7 will continue to be monitored in accordance with the 2025 schedule.
- Gas monitoring information for BH618S, BH618D, BH619S, and BH620 to be kept under review.
- Consideration will be given to testing the levels of 'trace gasses' at select locations to validate historical testing which identified low levels of these gasses.

5.2.5 CSG North (DQRA Waste Zones 8 & 9)

During the 2025 monitoring period, gas was monitored at 15No. monitoring boreholes in CSG North (Waste Zones 8 & 9).

A review of groundwater levels within CSG North indicates that the gas monitoring response zone was fully submerged in 9 of the 15 boreholes (BH206, BH218, BH402S, BH403, BH409, BH411, BH636D, BH637 & BH658). Where the response zone is submerged at the time of monitoring, the collected data is unlikely to be fully representative of ground gas conditions, as groundwater inhibits the flow of soil gas to the borehole pipework and monitoring instrument.

A summary of results from gas monitoring in CSG North in 2025 is presented in Tables 11 and 12 below. Full gas monitoring results are provided in Appendix B.

Table 11 - CSG North Landfill Gas Monitoring Results 2025 – Methane (CH_4)

	Maximum Methane (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH06	1.2	8.5	0.2	6.7	1.0 - 69.6
BH105	24.0	15.1	22.4	24.2	0 - 31.9
BH206	24.4	-	-	-	0.1 - 56.2
BH402S	5.4	-	-	-	1.9 - 29.0
BH403	8.0	-	-	-	3.4 - 67.0
BH409	1.1	0.4	0.2	0.2	0.0 – 0.2
BH411	1.2	0.3	0.2	0.2	0.0 – 0.2
BH636S	56.4	59.2	-	-	14.6 - 65.9
BH636D	1.1	0.5	0.2	0.3	0.2 – 12.1
BH652	1.9	-	-	-	0.3 – 21.2
BH218	2.4	-	-	-	2.1 - 71.5
BH637	32.4	-	-	-	0.4 – 44.2
BH656	43.1	-	-	-	5.6 - 71.1
BH657	89.3	-	-	-	10.5 – 81.1
BH658	2.9	-	-	-	0.0 – 1.8

Key: - Not Monitored during this period

Table 12 - CSG North Landfill Gas Monitoring Results 2025 – Carbon Dioxide (CO_2)

	Maximum Carbon Dioxide (%v/v)				
	Q1	Q2	Q3	Q4	Historical Range
BH06	0.6	6.6	0.2	2.9	0.2 - 12.7
BH105	18.1	18.5	18.5	16.9	0.1 - 22.4
BH206	7.1	-	-	-	0.2 - 18.5
BH402S	1.1	-	-	-	0.7 - 8.7
BH403	4.3	-	-	-	2.9 - 29.7
BH409	2.5	3.5	0.2	1.2	0.1 – 2.6
BH411	1.1	0.6	0.7	4.5	0.6
BH636S	27.4	31.6	-	-	8.2 – 30.7
BH636D	1.6	4.8	2.0	2.8	0.1 – 5.2
BH652	22.0	-	-	-	17.6 - 20.7
BH218	1.2	-	-	-	1.7 - 39.5
BH637	15.1	-	-	-	0.2 – 18.1
BH656	25.3	-	-	-	2.7 – 24.0
BH657	19.0	-	-	-	7.4 – 25.8
BH658	6.9	-	-	-	0.1 – 8.1

Key: - Not Monitored during this period

Following a review of the gas monitoring data, the following key observations are noted:

- At BH657, methane was recorded at 89.3%v/v, slightly above the historical range at this location (10.5 - 81.1%v/v).
- At BH409 methane was recorded at 1.1%v/v, slightly above the historical range (0.0 – 0.2%v/v) in Q1 only at this location.
- At BH409 carbon dioxide was recorded at 3.5%v/v, slightly above the historical range (0.1 – 2.6%v/v) in Q2 only at this location.
- At BH411 methane was recorded at 1.2%v/v, slightly above the historical range (0.0 – 0.2%v/v) in Q1 only at this location.
- At BH411 carbon dioxide was recorded at 1.1%v/v, slightly above the historical range (0.0 – 0.6%v/v) in Q1 only at this location.
- At BH658 methane was recorded at 2.9%v/v, slightly above the historical range (0.0 – 1.8%v/v) in Q1 only at this location.
- At BH652 carbon dioxide was recorded at 22.0%v/v, slightly above the historical range (17.6 – 20.7%v/v) in Q1 only at this location.
- At BH656 carbon dioxide was recorded at 25.3%v/v, slightly above the historical range (2.7 – 24.0%v/v) in Q1 only at this location.

Summary

Compared with historical monitoring data for locations in this area, the levels of methane and carbon dioxide detected in 2025 are generally consistent with the historical range. The isolated increase in the levels detected at a number of locations during the monitoring period are noted and will be kept under review.

Based on the gas monitoring results collected during 2025 in this part of the site, combined with observations during site inspections, no factors have been identified that would alter the risk presented in Tetra Tech (2022) Gas Risk Assessment, Mobuoy Road Waste Site.

Update to 2026 Monitoring Schedule:

- Boreholes in Waste Zones 8 and 9 will continue to be monitored in accordance with the 2025 schedule.
- Gas monitoring information for BH409, BH411, BH658, BH652, and BH656 to be kept under review.
- Consideration will be given to testing the levels of 'trace gasses' at select locations to validate historical testing which identified low levels of these gasses.

5.3 Hydrogen Sulphide and Carbon Monoxide

Trace gasses, hydrogen sulphide (H2S) and carbon monoxide (CO), are monitored alongside methane, carbon dioxide, and oxygen at ground gas monitoring locations. Monitored hydrogen sulphide and carbon monoxide results are presented at Appendix B.

As would be expected, the highest concentrations of hydrogen sulphide and carbon monoxide are encountered in Waste Zones 1-3/CIW North. A review of hydrogen sulphide and carbon monoxide levels monitored across the Mobuoy site during 2025 confirms that concentrations are within levels detected historically.

5.4 Updates for 2026 ground gas monitoring schedule

No updates to the 2025 monitoring schedule are required for 2026. The locations and parameters monitored, and the frequency of monitoring (quarterly) will remain unchanged.

During 2026, NIEA will consider the technical merit of monitoring trace gasses at select locations, and if viable, trace gas monitoring may be undertaken to validate historical testing results which identified low levels of these gasses.

6.0 Surface Gas Monitoring

6.1 Methodology

The Environment Agency (EA) guidance document **LFTGN07 v2 (2010) – 'Guidance on Monitoring Landfill Gas Surface Emissions'** sets out the industry standard methodology for monitoring landfill gas surface emissions. This guidance is primarily intended for engineered landfill sites that have been purpose designed for waste disposal, incorporating appropriate lining and capping systems together with engineered landfill gas management infrastructure.

It is important to note that the Mobuoy site is not an engineered landfill site. Due to this, the methodology has been used as guidance for monitoring surface gas at the Mobuoy site.

6.2 Baseline Survey (2023)

In February 2023, Tetra Tech was commissioned to undertake an independent survey of surface gas emissions at the site. The survey was completed on 9 February 2023 in accordance with Environment Agency guidance LFTGN07 (v2). The scope focussed on the northern area of the City Industrial Waste site (CIW North – Waste Zones 1 to 3), identified as presenting the greatest potential risk to air quality due to the significant volume of domestic waste.

The works included an initial walkover survey to assess site conditions across Waste Zones 1 to 3, selected based on the findings of the updated Gas Risk Assessment (2022), which identified these areas as posing the highest risk. During the walkover, a GES Gas-Tec MK5 hand-held flame ionisation detector (FID) was used to screen near-surface air for elevated hydrocarbon concentrations, including methane.

Overall, the survey identified generally low surface gas emissions, with typical methane concentrations of less than 10,000 ppm and no methane detected at the majority of monitoring locations. Approximately four locations within Waste Zones 1 to 3 recorded methane concentrations ranging from 1,000 to 10,000 ppm. These areas were typically characterised by dense vegetation, including grasses and shrub willow. Locations of elevated methane concentrations were observed to correlate with borehole positions, indicating that measurements may have been taken at or near borehole headworks. Elevated concentrations in such areas are not unexpected, as boreholes can act as preferential pathways for gas migration, particularly where gas bungs are absent or bentonite seals are insufficient. Since the survey, NIEA has undertaken works to reinstate and secure borehole headworks, including the installation or replacement of gas bungs where necessary.

Although elevated methane concentrations were often associated with borehole locations, they were not limited to these areas. In Waste Zone 1, located in the northern part of the site, a surface methane concentration of 1,813 ppm was recorded in an area of sparse vegetation cover. The FID data, together with visual and olfactory observations, indicate that cover thickness in this location is likely to be limited.

FID monitoring locations and corresponding results are provided in Appendix C and D.

6.4 NIEA Update Survey (2023)

A subsequent surface gas emissions survey was undertaken by the NIEA Mobuoy Remediation Project Team on 13 and 22 June 2023, focussing on Waste Zones 1, 2 and 3. The survey was carried out using a GMI MK2-500 Gascoseeker in accordance with LFTGN07 (v2) guidance. Monitoring locations broadly corresponded with those assessed by Tetra Tech in February 2023, with additional targeted checks undertaken at selected borehole headworks.

No surface gas emissions were detected at any of the monitoring locations during the June 2023 survey. It is possible this was attributable to the prevailing weather conditions at the time, in particular elevated atmospheric pressure. High atmospheric pressure can suppress the escape of landfill gas by creating an external pressure gradient that opposes the upward migration of gas from the waste mass.

Methane detections were, however, recorded inside borehole headworks across Waste Zones 1 – 3. In most cases, methane concentrations were below the ‘Lower Exposure Limit’ (LEL) for Methane (5% by volume). Exceptions were recorded at BH611 and BH668 in Waste Zone 2, and BH211 in Waste Zone 3, where methane concentrations exceeded the LEL. These detections were highly localised and confined to the internal borehole headworks, with no associated surface emissions detected in adjacent areas. Elevated gas concentrations within borehole headworks are potentially due to damaged installations of weathered headworks seals which can act as localised pathways for gas migration from depth to surface.

6.5 Updates for 2026 surface gas monitoring schedule

One round of surface gas monitoring is planned for 2026 to provide an update on the surveys undertaken in 2023. Monitoring locations will be aligned with those previously assessed to enable direct comparison of results.

In addition, NIEA will undertake supplementary surface gas testing at selected locations across the site to support validation of the data obtained during the main survey.

7.0 Review of risk presented in the Gas Risk Assessment (2022)

In the context of landfill gas, as described in Section 3.0, the source–pathway–receptor Conceptual Site Model (CSM) provides a structured framework for understanding how gas generated from decomposing waste behaves and may pose a risk.

A comparative review of each component of the CSM, by assessing conditions observed in 2025 against those presented in the 2022 Gas Risk Assessment, provides a basis for identifying any potential changes in risk (Table 13). This process supports informed decision-making on whether an update to the formal Gas Risk Assessment is required.

Table 13 – Comparative Assessment of the CSM in 2022 and 2025

Conceptual Site Model	Understanding as per 2022 Gas Risk Assessment	2025 Review of CSM to identify potential changes
Source(s) (gas generated by decomposing waste)	Comprises heterogeneous waste deposits across the site, including municipal, domestic, construction and industrial materials. Decomposition of biodegradable waste generates landfill gas—primarily methane and carbon dioxide—with trace gases such as hydrogen sulphide, forming a long-term and variable ground gas source.	**No change in source noted in 2025** **Lines of evidence:** • Weekly site inspection information - No change in waste volume as no additional waste buried at the site • Gas Monitoring Information –Ground gas monitoring information collected during 2025 from in waste monitoring locations is generally consistent with historical monitoring information at the site. While the level of methane and/or carbon dioxide was noted as above the historical monitored range at some discrete locations or monitoring rounds, these slight elevations are not considered to be significant.
Pathway(s) (the routes through which landfill gas can migrate from the waste source to potential receptors)	These include movement through the subsurface via permeable soils, made ground, and natural deposits, as well as along preferential pathways such as fractures, services, or poorly sealed boreholes. Gas may migrate laterally and vertically before accumulating in confined or low-permeability spaces, creating potential risks associated with inhalation or explosion.	**No change in pathways noted in 2025** **Lines of evidence:** • Weekly site inspection information – No excavations, change in land use, or alterations to soil material covering waste at the site that could create additional pathways for ground gas to migrate from the site. • Gas Monitoring Information –Ground gas monitoring information collected during 2025 from 'perimeter' monitoring locations is generally consistent with historical monitoring information at the site. While the level of methane and/or carbon dioxide was noted as above the historical monitored range at some discrete locations or monitoring rounds, these slight elevations are not considered to be significant.

Receptor (people or property that could be affected if ground gas reaches them)	**On-site:** NIEA staff, Contractors, as well as potential trespassers who may be exposed to ground gas at the surface or within confined spaces.
	
	Off-site: Neighbouring land users and nearby residential properties, although modelled risk is limited to 12 metres from the site boundary and the nearest residential/commercial property is significantly beyond that 12-meter buffer.
		No change in receptors noted in 2025
		
		Lines of evidence:
		• Weekly site inspection information –
		  ○ **On Site**: NIEA staff and Contractors continue to attend the site to deliver No excavations, change in land use, or alterations to soil material covering waste at the site that could create additional pathways for ground gas to migrate from the site.
		  ○ **Off Site**: No change in neighbouring land use or additional residential or commercial properties.
		• Gas Monitoring Information –Ground gas monitoring information collected during 2025 from 'perimeter' monitoring locations is generally consistent with historical monitoring information at the site. While the level of methane and/or carbon dioxide was noted as above the historical monitored range at some discrete locations or monitoring rounds, these slight elevations are not considered to be significant.

Risk Summary	**On-Site**: Moderate **Off-site**: Low Ground gas risk at the site is generally moderate within waste deposits and lower within surrounding soils, with variability across different areas. Elevated concentrations of methane and carbon dioxide confirm an active source, although flow rates are often low, limiting migration potential and reducing overall risk in many locations. The highest risks are associated with waste zones, where there is potential for gas accumulation and, in confined conditions, explosion or inhalation hazards. Risk to nearby off-site receptors is considered low due to distance and limited lateral migration, but remains a consideration, particularly in areas where gas has been detected in natural deposits. Overall, the site presents a persistent but largely controlled landfill gas risk, which could change depending on future remediation or disturbance of the waste.	**No lines of evidence that would indicate a change in the gas risk, as presented in the 2022 Gas Risk Assessment. Therefore:** **On-Site**: Remains Moderate **Off-site**: Remains Low

8.0 Conclusion

This report presents a review of ground gas monitoring undertaken at the Mobuoy Road Waste site during the 2025 monitoring period, supported by reference to surface gas surveys completed in 2023. The monitoring programme remains a key component of the Environmental Monitoring Programme (EMP), providing an evidence base to validate the current understanding of landfill gas conditions at the site, as defined within the 2022 Gas Risk Assessment (GRA), and to inform the ongoing development of the remediation strategy.

The results of the 2025 monitoring programme indicate that landfill gas conditions across the site remain broadly consistent with historical trends. While elevated concentrations of methane and carbon dioxide were recorded at a number of discrete locations, including within CIW North and selected boreholes across other waste zones, these occurrences are localised and do not represent a widespread or sustained increase in gas generation or migration. In general, the observed concentrations remain within or close to established historical ranges for the site.

Ground gas monitoring data indicate that elevated gas concentrations are predominantly associated with known source areas, particularly within CIW North (Waste Zones 1–3), which is consistent with the higher proportion of biodegradable waste identified in this area. The spatial distribution of gas concentrations therefore aligns with the existing conceptual understanding of the site and does not indicate the emergence of new or previously unidentified source areas.

Measured flow rates across the ground gas monitoring network continue to show mainly low or negative flow rates, suggesting limited accumulation of landfill gas within the waste. Monitoring at 'perimeter' locations has not identified any evidence of sustained or significant off-site migration.

A comparative review of the Conceptual Site Model (CSM) has confirmed that there have been no material changes to the key components of source, pathways, or receptors since the 2022 Gas Risk Assessment. Consequently, the overall gas risk classification for the site remains unchanged, with a moderate risk identified in on-site waste areas and a low risk to off-site receptors. This conclusion is supported by both monitoring data and previous modelling, which indicates that potential off-site migration is limited to a short distance from the site boundary.

It is acknowledged that certain limitations apply to the monitoring dataset, including the influence of groundwater levels on gas measurements and the use of boreholes not specifically designed for gas monitoring. These factors are taken into account in the interpretation of the data and do not materially affect the overall conclusions. Identifying and considering these limitations is an important part of the assessment process and helps ensure that conclusions are based on a clear understanding of the available evidence and its constraints.

In summary, the 2025 monitoring data indicates that landfill gas conditions at the Mobuoy site remain stable and consistent with the current understanding of risk.

Continued gas monitoring is scheduled for 2026 to enable NIEA to identify any emerging trends, maintain oversight of landfill gas risks, and continue to build a data set and evidence base to support landfill gas management proposals in the draft Remediation Strategy for the site.

Appendix A - Maps of Surface Gas Monitoring Locations 2025

Waste Zones 1-3

Waste Zone 4 and CIW Yard

Waste Zones 5 & 6

Waste Zone 7


Zone 8
Zone 3
GIW Yard
BH205
BH620
Zone 7
BH621
BH619
Zone 4
BH661
BH618
BH221
Zone 6

Waste Zones 8 & 9

Appendix B – 2025 Ground Gas Monitoring Results

Glossary of Terms

BH	- Borehole		H2S	- Hydrogen sulphide
CH4	- Methane		CO	- Carbon monoxide
CO2	- Carbon dioxide		WL	- Water level
O2	- Oxygen		MG	- Made ground

BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH117	Zone 1	NIEA 2025 Q1	27/03/2025	10.5	21.3	1.6	2	2	0.1	0.1	1012	YES	5.63	4.7-5.7	MG/Gravel
BH117	Zone 1	NIEA 2025 Q2	26/09/2025	0.3	0.6	20.2	1	0	-0.3	-0.3	1017	YES	Dry	4.7-5.7	MG/Gravel
BH117	Zone 1	NIEA 2025 Q3	24/11/2025	6.3	14.6	5.5	0	0	0	0	1002	YES	Dry	4.7-5.7	MG/Gravel
BH117	Zone 1	NIEA 2025 Q4	17/12/2025	9.4	21.4	0	1	0	-0.3	-0.3	993	YES	Dry	4.7-5.7	MG/Gravel
BH213	Zone 1	NIEA 2025 Q1	27/03/2025	71.6	36.9	0.7	19	4	0.1	0.1	1012	YES	2.60	1.0-6.0	MG
BH214	Zone 1	NIEA 2025 Q1	27/03/2025	1.4	0.8	20.7	2	2	0.1	0.1	1012	YES	0.35	1.0-9.0	MG
BH214	Zone 1	NIEA 2025 Q2	26/09/2025	70.7	29.9	0.2	12	1	15	15	1017	YES	6.65	1.0-9.0	MG
BH214	Zone 1	NIEA 2025 Q3	24/11/2025	72	29	0.1	6	0	21.8	21.8	1002	YES	Dry	1.0-9.0	MG
BH214	Zone 1	NIEA 2025 Q4	17/12/2025	72.3	29.7	0	15	0	23.8	23.8	993	YES	Dry	1.0-9.0	MG
BH215	Zone 1	NIEA 2025 Q1	27/03/2025	76.9	36.5	0.2	0	2	0.1	0.1	1012	YES	2.45	1.0-11.5	MG/Clay
BH302	Zone 1	NIEA 2025 Q1	24/03/2025	32.3	27.6	0	3	2	0.1	0.1	1019	NO	9.82	6.0-16.0	Gravel/Sand
BH302	Zone 1	NIEA 2025 Q2	26/09/2025	35	24.7	0.1	2	0	-0.1	-0.1	1017	NO	10.35	6.0-16.0	Gravel/Sand
BH302	Zone 1	NIEA 2025 Q3	24/11/2025	0.1	0.2	20	0	0	0	0	1002	NO	12.38	6.0-16.0	Gravel/Sand
BH302	Zone 1	NIEA 2025 Q4	17/12/2025	25.6	23.8	0.3	1	0	-0.3	-0.3	993	NO	9.61	6.0-16.0	Gravel/Sand
BH602R	Zone 1	NIEA 2025 Q1	24/03/2025	77.6	36.8	0	3	4	0.1	0.1	1019	YES	1.20	0.3-3.3	MG
BH603R	Zone 1	NIEA 2025 Q1	24/03/2025	4.7	14.7	1.5	0	3	1.2	1.2	1019	YES	1.23	0.3-5.3	MG
BH610S	Zone 1	NIEA 2025 Q1	27/03/2025	52.5	28.2	0	0	1	0.1	0.1	1012	YES	2.51	0.5-5.0	MG

BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH610S	Zone 1	NIEA 2025 Q2	26/09/2025	31.9	25.2	2.7	2	1	-0.2	-0.2	1017	YES	2.88	0.5-5.0	MG
BH610S	Zone 1	NIEA 2025 Q3	24/11/2025	53.8	27.1	0	2	0	0	0	1002	YES	2.38	0.5-5.0	MG
BH610S	Zone 1	NIEA 2025 Q4	17/12/2025	29	14.8	10	1	0	-0.3	-0.3	993	YES	2.29	0.5-5.0	MG
BH645	Zone 1	NIEA 2025 Q1	27/03/2025	79.3	35.2	0.1	6	0	0.1	0.1	1012	YES	4.72	0.8-6.8	MG
BH646	Zone 1	NIEA 2025 Q1	27/03/2025	64.9	31.9	0	6	0	0.1	0.1	1012	YES	2.66	1.0-7.0	MG
BH01	Zone 2	NIEA 2025 Q1	24/03/2025	79.8	31.9	0.1	31	0	0.2	0.2	1019	YES	9.38	1.0-12.5	MG
BH211	Zone 2	NIEA 2025 Q1	24/03/2025	74.4	38.8	0	9	0	0.1	0.1	1019	YES	13.59	1.0-4.0	MG
BH211	Zone 2	NIEA 2025 Q2	26/09/2025	62.5	38.4	0	13	3	0	0	1017	YES	14.08	1.0-4.0	MG
BH211	Zone 2	NIEA 2025 Q3	24/11/2025	68.4	33	0.1	18	0	0	0	1002	YES	14.00	1.0-4.0	MG
BH211	Zone 2	NIEA 2025 Q4	17/12/2025	65	34.9	0	6	0	-0.1	-0.1	993	YES	13.97	1.0-4.0	MG
BH647A	Zone 2	NIEA 2025 Q1	24/03/2025	2.1	2.8	18.8	0	0	0.1	0.1	1019	NO	11.53	15.5-17.5	Sand/Gravel
BH647A	Zone 2	NIEA 2025 Q2	26/09/2025	1.3	0.6	20.3	0	1	-0.3	-0.3	1017	NO	12.44	15.5-17.5	Sand/Gravel
BH647A	Zone 2	NIEA 2025 Q3	24/11/2025	1.1	0.5	20	1	0	0.2	0.2	1000	NO	11.40	15.5-17.5	Sand/Gravel
BH647A	Zone 2	NIEA 2025 Q4	17/12/2025	1.3	0.4	20	0	0	-0.2	-0.2	993	NO	11.16	15.5-17.5	Sand/Gravel
BH648	Zone 2	NIEA 2025 Q1	24/03/2025	52.2	24.7	0	4	4	0.1	0.1	1019	YES	11.05	1.2-11.2	MG
BH649B	Zone 2	NIEA 2025 Q1	24/03/2025	1.3	3.5	18.6	0	0	0.1	0.1	1019	NO	Dry	17.0-19.0	Sand/Gravel
BH02	Zone 3	NIEA 2025 Q2	26/09/2025	41.6	28.5	0	1	3	-0.2	-0.2	1017	NO	12.09	12.0-14.0	MG/Gravel
BH02	Zone 3	NIEA 2025 Q3	24/11/2025	40.2	27.5	0.1	1	0	-4.3	-4.3	1002	NO	11.55	12.0-14.0	MG/Gravel
BH02	Zone 3	NIEA 2025 Q4	17/12/2025	36.5	25.5	0.4	1	0	-0.2	-0.2	993	NO	11.36	12.0-14.0	MG/Gravel
BH301	Zone 3	NIEA 2025 Q1	24/03/2025	1.1	0.7	20.2	0	0	0.1	0.1	1019	NO	8.10	3.0-12.0	Gravel/Sand
BH303	Zone 3	NIEA 2025 Q1	24/03/2025	5.5	7.3	15.1	0	0	1	1	1019	NO	11.78	9.0-14.0	Gravel/Sand
BH303	Zone 3	NIEA 2025 Q2	26/09/2025	11.3	22.9	1.1	1	0	-0.3	-0.3	1017	NO	Dry	9.0-14.0	Gravel/Sand
BH303	Zone 3	NIEA 2025 Q3	24/11/2025	7.7	14.6	6.9	1	0	0	0	1000	NO	11.82	9.0-14.0	Gravel/Sand
BH303	Zone 3	NIEA 2025 Q4	17/12/2025	10.2	19.8	2.1	0	0	-0.3	-0.3	993	NO	11.60	9.0-14.0	Gravel/Sand
BH611A	Zone 3	NIEA 2025 Q1	24/03/2025	18.1	9.4	3.7	0	0	0.1	0.1	1019	NO	12.76	11.0-13.0	Sand
BH666	Zone 3	NIEA 2025 Q2	26/09/2025	25.8	18.9	7.4	1	3	-0.2	-0.2	1017	NO	14.05	13.5-16.0	Sand

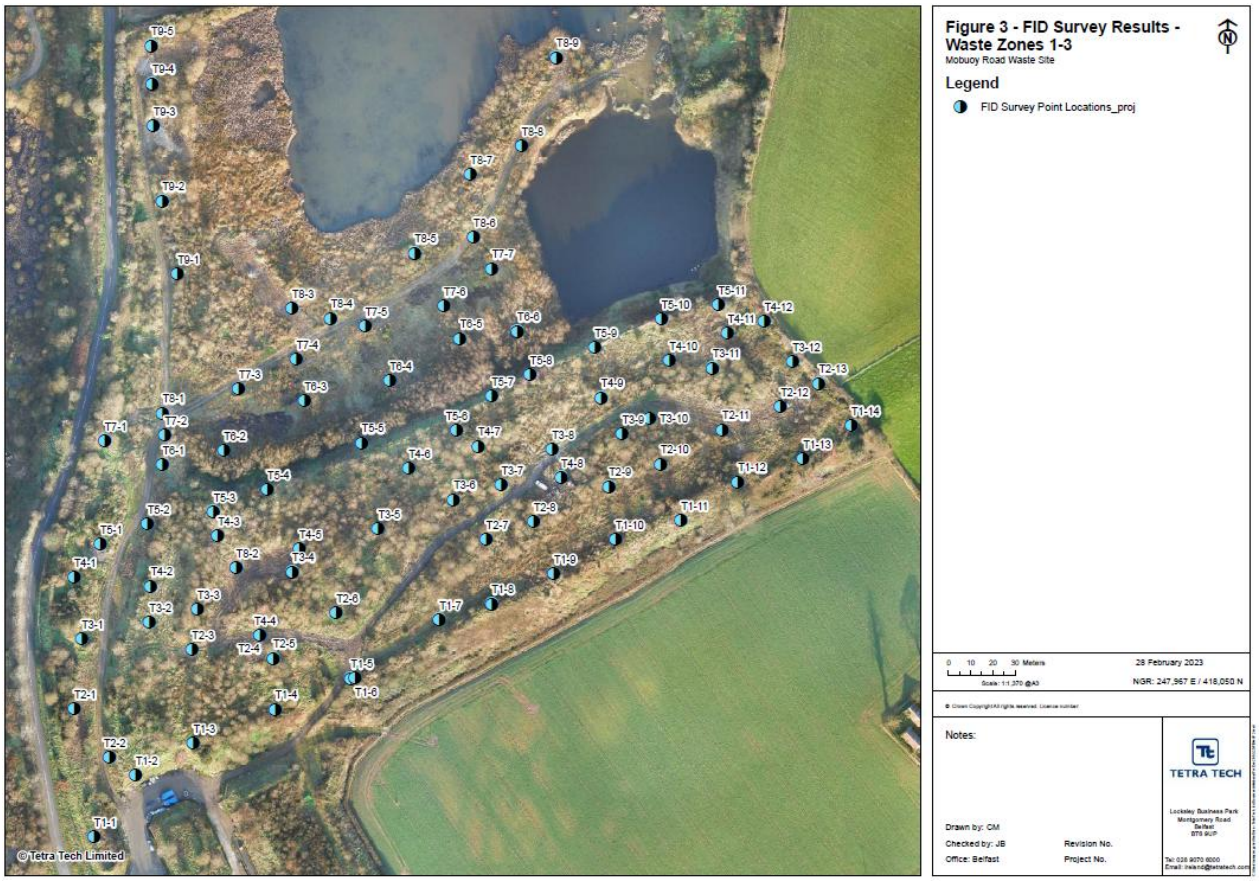
BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH666	Zone 3	NIEA 2025 Q3	24/11/2025	0.2	0.1	19.1	1	0	0	0	1002	NO	13.99	13.5-16.0	Sand
BH666	Zone 3	NIEA 2025 Q4	17/12/2025	1.6	2.2	19.5	0	0	-9	-9	993	NO	12.53	13.5-16.0	Sand
BH667	Zone 3	NIEA 2025 Q1	27/03/2025	36.6	23.4	6.6	0	3	0.8	0.8	1012	NO	6.65	14.0-16.0	Sand
BH668	Zone 3	NIEA 2025 Q1	24/03/2025	15.9	6.4	17.9	0	0	0.1	0.1	1019	NO	14.00	15.0-16.0	Sand
BH670	Zone 3	NIEA 2025 Q1	24/03/2025	3.8	21.5	0.6	0	0	0.1	0.1	1019	NO	11.72	8.0-15.0	Sand
BH670	Zone 3	NIEA 2025 Q2	26/09/2025	0.9	18.8	0.8	1	2	-0.1	-0.1	1017	NO	12.12	8.0-15.0	Sand
BH670	Zone 3	NIEA 2025 Q3	24/11/2025	1.5	19.3	0.6	1	0	0	0	1002	NO	11.72	8.0-15.0	Sand
BH670	Zone 3	NIEA 2025 Q4	17/12/2025	1.9	19.1	1.1	1	0	-0.3	-0.3	993	NO	11.50	8.0-15.0	Sand
BH674	Zone 3	NIEA 2025 Q1	24/03/2025	1.2	1.6	19.9	0	0	0.1	0.1	1019	NO	6.82	6.0-12.0	Sand
BH121	Zone 4	NIEA 2025 Q1	24/03/2025	1.3	6.6	18.9	0	0	0.1	0.1	1019	NO	2.26	3.0-5.0	Sand
BH121	Zone 4	NIEA 2025 Q2	01/10/2025	0.2	6.2	17.5	1	0	-18.7	-18.7	1016	NO	2.39	3.0-5.0	Sand
BH121	Zone 4	NIEA 2025 Q3	24/11/2025	0.1	4.7	18.6	0	0	13.6	13.6	1002	NO	1.87	3.0-5.0	Sand
BH121	Zone 4	NIEA 2025 Q4	17/12/2025	0.1	6.4	17.3	0	0	-19.3	-19.3	993	NO	1.87	3.0-5.0	Sand
BH208	Zone 4	NIEA 2025 Q1	24/03/2025	12.4	18.2	0.1	0	0	0.1	0.1	1019	YES	2.17	0.7-2.7	MG/Sand
BH209	Zone 4	NIEA 2025 Q1	24/03/2025	55.2	10	7.6	0	0	0.1	0.1	1019	YES	1.85	1.0-4.0	MG
BH615S	Zone 4	NIEA 2025 Q1	24/03/2025	28	22.2	0.4	0	0	0.1	0.1	1019	YES	3.64	0.5-4.8	MG
BH616	Zone 4	NIEA 2025 Q1	26/03/2025	65	16.6	5.9	0	0	0.1	0.1	1021	YES	1.58	2.0-5.0	MG
BH616	Zone 4	NIEA 2025 Q3	24/11/2025	68.4	26	1.2	7	0	1.3	1.3	1002	YES	1.61	2.0-5.0	MG
BH616	Zone 4	NIEA 2025 Q4	17/12/2025	71.1	29.4	0	30	0	-5.5	-5.5	993	YES	Dry	2.0-5.0	MG
BH617	Zone 4	NIEA 2025 Q1	24/03/2025	1.2	1.3	10.9	0	0	0.1	0.1	1019	NO	3.00	3.0-8.0	Sand/Silt/Gravel
BH617	Zone 4	NIEA 2025 Q2	01/10/2025	1.4	1	19.5	1	0	-0.6	-0.6	1016	NO	3.16	3.0-8.0	Sand/Silt/Gravel
BH07	Zone 5	NIEA 2025 Q1	26/03/2025	16.7	10.2	5	0	0	0.1	0.1	1021	NO	3.87	4.0-7.5	Sand
BH203	Zone 5	NIEA 2025 Q1	27/03/2025	16.2	15.8	0.2	0	1	0.1	0.1	1012	YES	3.77	1.0-4.0	MG
BH628	Zone 5	NIEA 2025 Q1	26/03/2025	1.1	0.1	21.1	0	0	0.1	0.1	1021	NO	2.65	3.0-8.0	Sand
BH628	Zone 5	NIEA 2025 Q2	08/10/2025	0.2	0.1	19.9	1	0	-0.2	-0.2	1020	NO	Dry	3.0-8.0	Sand
BH628	Zone 5	NIEA 2025 Q3	25/11/2025	0.2	0.2	21.4	0	0	-0.1	-0.1	1019	NO	2.10	3.0-8.0	Sand

BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH628	Zone 5	NIEA 2025 Q4	17/12/2025	0.1	0.1	20.8	0	0	-8.5	-8.5	995	NO	2.14	3.0-8.0	Sand
BH631	Zone 5	NIEA 2025 Q1	26/03/2025	1.1	2	18.6	0	0	0.1	0.1	1021	NO	3.12	0.2-3.2	MG/Sand/Silt
BH631	Zone 5	NIEA 2025 Q2	08/10/2025	0.2	0.1	20.8	1	0	-0.3	-0.3	1020	NO	Dry	0.2-3.2	MG/Sand/Silt
BH631	Zone 5	NIEA 2025 Q3	25/11/2025	0.2	0.7	21	0	0	-0.2	-0.2	1019	NO	2.60	0.2-3.2	MG/Sand/Silt
BH631	Zone 5	NIEA 2025 Q4	17/12/2025	0.1	0.7	20.5	0	0	-0.2	-0.2	995	NO	2.65	0.2-3.2	MG/Sand/Silt
BH624D	Zone 6	NIEA 2025 Q1	27/03/2025	10.4	5.3	18.5	0	0	0.1	0.1	1012	NO	2.01	5.0-12.0	Sand/Peat
BH624D	Zone 6	NIEA 2025 Q2	08/10/2025	0.8	2.5	18.4	2	0	-2.9	-2.9	1020	NO	Dry	5.0-12.0	Sand/Peat
BH624D	Zone 6	NIEA 2025 Q3	25/11/2025	63.9	25.3	0.2	1	0	-11.9	-11.9	1018	NO	2.11	5.0-12.0	Sand/Peat
BH624D	Zone 6	NIEA 2025 Q4	17/12/2025	2.6	4.6	17.9	0	0	-2.9	-2.9	995	NO	2.05	5.0-12.0	Sand/Peat
BH624S	Zone 6	NIEA 2025 Q1	27/03/2025	1.7	0.2	21.2	0	0	0.1	0.1	1012	YES	1.29	1.0-4.5	Sand/Peat
BH624S	Zone 6	NIEA 2025 Q2	08/10/2025	62.7	22.9	3.3	1	0	-12.4	-12.4	1020	YES	Dry	1.0-4.5	Sand/Peat
BH624S	Zone 6	NIEA 2025 Q3	25/11/2025	81.3	19.5	0.1	0	0	-4.7	-4.7	1018	YES	1.21	1.0-4.5	Sand/Peat
BH624S	Zone 6	NIEA 2025 Q4	17/12/2025	61.7	24.1	2.8	0	0	-5.4	-5.4	995	YES	0.98	1.0-4.5	Sand/Peat
BH625	Zone 6	NIEA 2025 Q1	27/03/2025	1.5	1	19.9	0	0	0.1	0.1	1012	NO	2.42	3.0-8.0	Sand
BH625	Zone 6	NIEA 2025 Q2	08/10/2025	0.5	0.8	20.2	1	0	-0.2	-0.2	1020	NO	Dry	3.0-8.0	Sand
BH625	Zone 6	NIEA 2025 Q3	25/11/2025	0.4	2.9	18.9	0	0	-14.7	-14.7	1018	NO	1.82	3.0-8.0	Sand
BH625	Zone 6	NIEA 2025 Q4	17/12/2025	0.3	3	18.9	0	0	-18	-18	995	NO	1.84	3.0-8.0	Sand
BH632	Zone 6	NIEA 2025 Q1	26/03/2025	86.9	19.4	1.2	0	0	0.1	0.1	1021	NO	0.98	4.0-10.0	Peat
BH653	Zone 6	NIEA 2025 Q1	27/03/2025	1.2	2.1	20.3	0	0	0.1	0.1	1012	NO	1.17	2.0-8.0	Sand
BH205	Zone 7	NIEA 2025 Q1	26/03/2025	14.1	17.6	0.5	0	0	0.1	0.1	1021	YES	5.64	4.6-7.6	Sand
BH205	Zone 7	NIEA 2025 Q2	02/10/2025	13.5	18.2	0	1	3	0	0	1010	YES	5.82	4.6-7.6	Sand
BH205	Zone 7	NIEA 2025 Q3	25/11/2025	15.3	18.4	0.1	0	0	-0.2	-0.2	1018	YES	5.34	4.6-7.6	Sand
BH205	Zone 7	NIEA 2025 Q4	18/12/2025	3.3	3.3	16.6	0	0	-0.1	-0.1	992	YES	5.23	4.6-7.6	Sand
BH221	Zone 7	NIEA 2025 Q1	26/03/2025	25.7	1.8	13.5	0	0	0.1	0.1	1021	NO	2.30	3.6-6.6	Gravel/Organic Peat
BH618D	Zone 7	NIEA 2025 Q1	26/03/2025	1.6	8.4	0.3	0	0	0.1	0.1	1021	NO	3.53	3.0-8.0	Sand
BH618D	Zone 7	NIEA 2025 Q2	02/10/2025	10.5	10.8	0.1	1	0	-5.5	-5.5	1011	NO	3.62	3.0-8.0	Sand
BH618D	Zone 7	NIEA 2025 Q3	25/11/2025	11.3	7.1	0	3	0	-12.3	-12.3	1018	NO	3.21	3.0-8.0	Sand

BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH618D	Zone 7	NIEA 2025 Q4	18/12/2025	1.2	2.8	17.1	1	0	-18.1	-18.1	992	NO	3.25	3.0-8.0	Sand
BH618S	Zone 7	NIEA 2025 Q1	26/03/2025	13.2	9	0.1	0	0	0.1	0.1	1021	YES	2.80	0.4-2.4	MG
BH618S	Zone 7	NIEA 2025 Q2	02/10/2025	12.1	11.6	0	5	0	-0.2	-0.2	1011	YES	Dry	0.4-2.4	MG
BH618S	Zone 7	NIEA 2025 Q3	25/11/2025	13.5	5	0	21	0	-0.3	-0.3	1018	YES	Dry	0.4-2.4	MG
BH618S	Zone 7	NIEA 2025 Q4	18/12/2025	15.3	4.3	0.1	17	0	-0.3	-0.3	992	YES	Dry	0.4-2.4	MG
BH619D	Zone 7	NIEA 2025 Q1	26/03/2025	1.4	0.8	20	0	0	0.1	0.1	1021	NO	2.96	4.0-8.0	Sand
BH619S	Zone 7	NIEA 2025 Q1	26/03/2025	19.2	5.5	0.1	0	0	0.1	0.1	1021	YES	2.95	0.5-3.5	MG
BH620	Zone 7	NIEA 2025 Q1	26/03/2025	22.4	9	0.9	0	0	0.1	0.1	1021	MG Above	4.25	5.0-8.0	Sand
BH621	Zone 7	NIEA 2025 Q1	26/03/2025	1.3	7.1	3	0	0	0.1	0.1	1021	NO	3.20	4.0-8.0	Sand/Silt/Gravel
BH661	Zone 7	NIEA 2025 Q2	02/10/2025	7.7	5.5	0	1	0	-0.9	-0.9	1011	MG above	1.90	4.0-8.0	Sand/Silt/Gravel
BH661	Zone 7	NIEA 2025 Q3	25/11/2025	8.6	2.9	2.1	0	0	-14.2	-14.2	1018	MG above	0.91	4.0-8.0	Sand/Silt/Gravel
BH661	Zone 7	NIEA 2025 Q4	18/12/2025	7	1.8	11.6	0	1	-19.8	-19.8	992	MG above	0.89	4.0-8.0	Sand/Silt/Gravel
BH06	Zone 8	NIEA 2025 Q1	24/03/2025	1.2	0.6	21.1	0	0	0.1	0.1	1019	NO	4.51	4.0-7.2	Clay
BH06	Zone 8	NIEA 2025 Q2	02/10/2025	8.5	6.6	14	1	0	0.1	0.1	1010	NO	4.66	4.0-7.2	Clay
BH06	Zone 8	NIEA 2025 Q3	26/11/2025	0.2	0.2	20.4	1	0	-18.6	-18.6	1008	NO	4.49	4.0-7.2	Clay
BH06	Zone 8	NIEA 2025 Q4	18/12/2025	6.7	2.9	18.2	0	0	-19.2	-19.2	992	NO	4.38	4.0-7.2	Clay
BH105	Zone 8	NIEA 2025 Q1	26/03/2025	24	18.1	0.1	0	0	0.1	0.1	1021	YES	5.10	1.0-8.0	MG/Gravel Sized Fragments
BH105	Zone 8	NIEA 2025 Q2	02/10/2025	15.1	18.5	0.1	2	0	0	0	1009	YES	5.31	1.0-8.0	MG/Gravel Sized Fragments
BH105	Zone 8	NIEA 2025 Q3	26/11/2025	22.4	18.5	0	13	0	-0.2	-0.2	1008	YES	4.56	1.0-8.0	MG/Gravel Sized Fragments
BH105	Zone 8	NIEA 2025 Q4	18/12/2025	24.2	16.9	0.1	9	0	-0.2	-0.2	992	YES	4.41	1.0-8.0	MG/Gravel Sized Fragments
BH206	Zone 8	NIEA 2025 Q1	26/03/2025	24.4	7.1	12.9	0	0	0.1	0.1	1021	NO	5.26	4.0-7.0	Gravel/Sand
BH402S	Zone 8	NIEA 2025 Q1	24/03/2025	5.4	1.1	20.4	0	0	0.1	0.1	1019	MG	2.73	2.5-4.5	MG
BH403	Zone 8	NIEA 2025 Q1	26/03/2025	8	4.3	17.6	0	0	0.1	0.1	1021	NO	3.95	9.5-11.3	Gravel/Sand
BH409	Zone 8	NIEA 2025 Q1	24/03/2025	1.1	2.5	20.6	0	0	0.1	0.1	1019	NO	5.28	7.5-8.5	Gravel/Sand
BH409	Zone 8	NIEA 2025 Q2	02/10/2025	0.4	3.5	17.7	0	0	0	0	1010	NO	5.10	7.5-8.5	Gravel/Sand

BH	Location	Monitoring Round	Date	Max Steady CH4 (%v/v)	Max Steady CO2 (%v/v)	Min Steady O2 (%v/v)	Max H2S (ppm)	Max CO (ppm)	Max Peak Flow Rate Magnitude (l/hr)	Max Steady Flow (l/h)	Baro	Waste Present	WL (mbgl)	Screening Depth (mbgl)	Strata
BH409	Zone 8	NIEA 2025 Q3	26/11/2025	0.2	0.2	19.2	1	0	-0.1	-0.1	1008	NO	4.95	7.5-8.5	Gravel/Sand
BH409	Zone 8	NIEA 2025 Q4	18/12/2025	0.2	0.2	19.2	1	0	-0.1	-0.1	992	NO	4.95	7.5-8.5	Gravel/Sand
BH411	Zone 8	NIEA 2025 Q1	26/03/2025	1.2	1.1	19.9	0	0	0.1	0.1	1021	NO	2.60	3.0-6.3	Gravel/Sand
BH411	Zone 8	NIEA 2025 Q2	02/10/2025	0.3	0.6	20.4	0	0	0	0	1011	NO	3.06	3.0-6.3	Gravel/Sand
BH411	Zone 8	NIEA 2025 Q3	26/11/2025	0.2	0.7	20.1	1	0	-0.3	-0.3	1008	NO	2.88	3.0-6.3	Gravel/Sand
BH411	Zone 8	NIEA 2025 Q4	18/12/2025	0.2	4.5	14.6	1	0	-0.1	-0.1	992	NO	2.70	3.0-6.3	Gravel/Sand
BH636D	Zone 8	NIEA 2025 Q1	26/03/2025	1.1	1.6	16.6	0	0	0.1	0.1	1021	NO	4.64	11.5-13.5	Psammite/Pelite
BH636D	Zone 8	NIEA 2025 Q2	02/10/2025	0.5	4.8	10.2	0	0	-8.3	-8.3	1011	NO	4.38	11.5-13.5	Psammite/Pelite
BH636D	Zone 8	NIEA 2025 Q3	26/11/2025	0.2	2	15.6	1	0	-15	-15	1008	NO	4.11	11.5-13.5	Psammite/Pelite
BH636D	Zone 8	NIEA 2025 Q4	18/12/2025	0.3	2.8	13.3	0	0	-18.9	-18.9	993	NO	3.76	11.5-13.5	Psammite/Pelite
BH636S	Zone 8	NIEA 2025 Q1	26/03/2025	56.4	27.4	3.1	0	0	0.1	0.1	1021	YES	4.12	2.0-5.0	MG/Sand
BH636S	Zone 8	NIEA 2025 Q2	02/10/2025	59.2	31.6	1.6	7	6	0	0	1011	YES	Dry	2.0-5.0	MG/Sand
BH652	Zone 8	NIEA 2025 Q1	26/03/2025	1.9	22	0.1	0	0	0.1	0.1	1021	NO	Dry	4.5-6.0	Sand/Gravel
BH218	Zone 9	NIEA 2025 Q1	26/03/2025	2.4	1.2	20.2	0	0	0.1	0.1	1021	YES	1.87	2.0-3.5	MG/Clay
BH637	Zone 9	NIEA 2025 Q1	26/03/2025	32.4	15.1	0.1	0	0	0.1	0.1	1021	NO	3.29	8.0-10.1	Sand/Gravel
BH656	Zone 9	NIEA 2025 Q1	26/03/2025	43.1	25.3	0.3	0	0	0.1	0.1	1021	YES	5.50	0.5-5.5	MG
BH657	Zone 9	NIEA 2025 Q1	26/03/2025	89.3	19	0	0	0	0.1	0.1	1021	MG above	3.58	0.5-3.0	MG
BH658	Zone 9	NIEA 2025 Q1	26/03/2025	2.9	6.9	8.4	0	0	0.1	0.1	1021	NO	3.44	6.0-10.0	Sand/Gravel/Silt
BH612	Off Site	NIEA 2025 Q1	24/03/2025	1.1	4.1	12.4	0	0	0.1	0.1	1019	NO	Dry	3.0-5.0	Sand
BH612	Off Site	NIEA 2025 Q2	26/09/2025	0.6	16.6	0.4	2	0	-0.2	-0.2	1016	NO	Dry	3.0-5.0	Sand
BH612	Off Site	NIEA 2025 Q3	24/11/2025	0.2	1.3	19.5	1	0	0.3	0.3	1000	NO	Dry	3.0-5.0	Sand
BH612	Off Site	NIEA 2025 Q4	17/12/2025	1.4	13	3.5	0	0	-0.3	-0.3	993	NO	5.45	3.0-5.0	Sand
BH613	CIW Yard	NIEA 2025 Q1	24/03/2025	34.8	22.6	0.1	0	3	0.2	0.2	1019	YES	2.51	0.5-2.5	MG
BH614	CIW Yard	NIEA 2025 Q1	26/03/2025	1.2	1.6	16.9	0	0	0.2	0.2	1021	MG above	2.30	0.8-4.3	Sand/Gravel

Appendix C – Surface Gas Monitoring Locations Waste Zones 1-3 (2023 FID Survey)



Appendix D – FID Survey Results 13th June 2023

Survey Point	Methane Concentration (%)	Co-ordinates	
		Easting	Northing
T1-1	0	247793	417851
T1-2	0	247812	417878
T1-3	0	247838	417893
T1-4	0	247875	417908
T1-5	0	247908	417922
T1-6	0	247910	417922
T1-7	0	247948	417948
T1-8	0	247972	417955
T1-9	0	248000	417969
T1-10	0	248027	417984
T1-11	0	248057	417993
T1-12	0	248082	418010
T1-13	0	248111	418020
T1-14	0	248133	418035
T2-1	0	247784	417908
T2-2	0	247800	417886
T2-3	0	247837	417935
T2-4	0	247861	417924
T2-5	0	247874	417931
T2-6	0	247902	417951
T2-7	0	247969	417984
T2-8	0	247991	417992
T2-9	0	248024	418008
T2-10	0	248048	418018
T2-11	0	248075	418033
T2-12	0	248101	418044
T2-13	0	248119	418054
T3-1	0	247788	417939
T3-2	0	247818	417947
T3-3	0	247840	417953
T3-4	0	247882	417970
T3-5	0	247921	417989
T3-6	0	247955	418002
T3-7	0	247976	418009
T3-8	0	247999	418025
T3-9	0	248030	418031
T3-10	0	248043	418039
T3-11	0	248071	418061
T3-12	0	248107	418064
T4-1	0	247784	417967
T4-2	0	247819	417963
T4-3	0	247849	417986
T4-4	0	247868	417941

T4-5	0	247885	417980
T4-6	0	247934	418016
T4-7	0	247966	418026
T4-8	0	248003	418012
T4-9	0	248021	418048
T4-10	0	248052	418064
T4-11	0	248078	418077
T4-12	0	248094	418082
T5-1	0	247796	417982
T5-2	0	247817	417991
T5-3	0	247847	417997
T5-4	0	247871	418007
T5-5	0	247913	418027
T5-6	0	247956	418033
T5-7	0	247972	418048
T5-8	0	247989	418058
T5-9	0	248018	418071
T5-10	0	248048	418083
T5-11	0	248073	418089
T6-1	0	247824	418018
T6-2	0	247852	418024
T6-3	0	247888	418046
T6-4	0	247926	418056
T6-5	0	247957	418074
T6-6	0	247983	418077
T7-1	0	247798	418029
T7-2	0	247825	418031
T7-3	0	247858	418052
T7-4	0	247884	418065
T7-5	0	247915	418080
T7-6	0	247950	418089
T7-7	0	247972	418106
T8-1	0	247824	418041
T8-2	0	247872	418074
T8-3	0	247882	418088
T8-4	0	247900	418083
T8-5	0	247937	418113
T8-6	0	247964	418120
T8-7	0	247962	418148
T8-8	0	247985	418161
T8-9	0	248001	418200
T9-1	0	247831	418103
T9-2	0	247824	418136
T9-3	0	247820	418170
T9-4	0	247819	418189
T9-5	0	247819	418206