



Valencia Waste Management Ltd

Pilsworth South

Materials Recycling Facility

Ground Gas Risk Assessment Report

ECL.9595.R06.001 Rev: -

May 2025

Prepared for
Valencia Waste Management Ltd
Ardley Fields Cottage
Ardley Fields Farm
Ardley
Oxfordshire

Prepared by
Egniol Consulting Ltd
1 Canon Harnett Court
Warren Park
Wolverton
Milton Keynes
MK12 5NF

Document Review

Rev	Date	Prepared By	Reviewed By	Approved By
-	21/05/2025	Matthew Clarke	Dermot McGee	Dermot McGee

This document has been prepared by EGNOL CONSULTING Limited (EGNIOL) for the sole use of our client (the "Client") and in accordance with generally accepted consultancy principles and the terms of reference agreed between EGNOL and the Client. Any information provided by third parties and referred to herein has not been checked or verified by EGNOL, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of EGNOL.

T: 01248 355 996 W: www.egniol.com

INVESTORS IN PEOPLE™
We invest in people Gold
Rydym yn buddsoddi mewn pobl Aur



Company no: 06668552

Offices:

Llys Onnen, Ffordd y Llyn, Parc Menai, Bangor LL57 4DF
1 Canon Harnett Court, Warren Park, Wolverton, Milton Keynes MK12 5NF
Office 4, Botanical Gardens Business Centre, 3 Southbourne Rd, Sheffield S10 2QN
A323A, Business First, 25 Goodlass Road, Liverpool L24 9HJ

Contents

	<i>Page</i>
1.0 Introduction	1
2.0 Site Information.....	2
2.1 Setting and Size	2
3.0 Previous Work	4
3.1 WA, Phase 1 Report.....	4
3.2 WA, Phase 2 Report.....	4
3.3 Valencia Perimeter Monitoring Wells	5
4.0 Ground Gas Risk Assessment	8
4.1 Gas Monitoring Data Evaluation	8
4.2 Gas Pollutant Linkages	9
4.3 Ground Gas Screening Values	10
5.0 References	12

Tables

	<i>Page</i>
Table 1: WA Monitoring Wells Response Zones.....	5
Table 2: WA Gas Monitoring Results Summary.....	5
Table 3: Perimeter Monitoring Wells Response Zones	7
Table 4: Perimeter Gas Monitoring Results Summary	7

Figures

	<i>Page</i>
Figure 1 - Site Location Plan.....	2

Appendices

	<i>Appendix</i>
Plan Drawing	1
Exploratory Hole Logs.....	2
Gas Monitoring Data.....	3
Gas Risk Assessment Plots	4

1.0 INTRODUCTION

- 1.0.1 Egniol Consulting Limited (Egniol) have been appointed by Valencia Waste Management Ltd as a consultant to undertake a Ground Gas Risk Assessment for the existing Materials Recycling Facility at their Pilsworth South Landfill Site, Bury.
- 1.0.2 This report has been prepared on the understanding that the development comprises a Materials Recycling Facility (MRF). Should the site use change significantly from the above, the contents of this report will require review and amendment, as appropriate.
- 1.0.3 In accordance with the appointment, Egniol have produced this report to assess the risks to the building and to inform assessment of the nominal efficacy of the existing construction and so determine the need for any additional, post-constructional, gas protection measures.
- 1.0.4 The approximate site area was the subject of a Phase 1 (Desk Study) Ground Investigation Report and a Phase 2 (Intrusive) Ground Investigation Report, prepared by Consulting Engineers, Wardell Armstrong (WA), for the same client (report references GM12887-RPT-001, dated July 2023, and GM13005-RPT-001, dated May 2024). The findings of the WA reports are summarised herein, but the current report should be read in conjunction with the previous reports for full details of the investigations undertaken at the site.
- 1.0.5 As part of the landfill environmental management, the client has installed perimeter gas monitoring wells and performed periodic gas monitoring. The findings from monitoring of 8No of these wells have been included in this report.
- 1.0.6 This report does not include assessment of the risks to the development from Radon gas.
- 1.0.7 Our work has been carried out following current and relevant standards and guidance, as listed within our references.

2.0 SITE INFORMATION

2.1 Setting and Size

- 2.1.1 Pilsworth South Landfill site is operated by the client and is located on Pilsworth Road, Unsworth, Bury at postcode BL9 8QZ.
- 2.1.2 The area of the MRF is close to the north-western corner of the landfill and is approximately centred on grid co-ordinates 382278,408983, as shown on Figure 1, below:

Figure 1 - Site Location Plan



- 2.1.3 The building is rectangular on plan, extending 60.6m from north-west to south-east and 80.7m north-east to south-east, and covering an area of 4,890m².
- 2.1.4 The site is bounded by:
- An open area used for plant and materials storage to the north-east, with a water storage pond beyond
 - Closed landfill cells to the south-east, including an asbestos cell (Cell 6) and an area for a proposed new asbestos cell between Cell 6 and the site, with other closed landfill cells beyond
 - An open area used for plant and materials storage to the north-west, with the site perimeter road, planting/screening zones, and the M66 Motorway beyond
 - A Contractor's compound to the south-west, with leachate tanks beyond

- 2.1.5 The closed landfill cells are all of 'modern', engineered plastic-liner construction under quality-assured supervision.
- 2.1.6 The leachate tanks are of modern construction (2021) and within a fully bunded compound.
- 2.1.7 During installation of the leachate tanks a septic tank (formerly servicing the contractor's compound) was encountered some 10m north-east of the final leachate tank location. The septic tank was removed and was, reportedly, intact on removal.

3.0 PREVIOUS WORK

3.0.1 The following relevant information is summarised from the previous reports.

3.1 WA, Phase 1 Report

3.1.1 The initial Contamination Conceptual Site Model identified the following potential sources of ground gas that could affect the development:

- Pilsworth South Landfill, closed landfill cells and leachate tanks
- Pilsworth South Landfill, active landfill cells
- Made Ground on and around the site
- Coal mine(s) beneath the site

3.1.2 The overall risk was, qualitatively, assessed as being Low to Medium.

3.2 WA, Phase 2 Report

3.2.1 The Phase 2 investigation was designed to provide (*inter alia*) a general classification of the ground gas risks to the development.

3.2.2 The fieldworks included five cable-tool percussive boreholes (referenced as LCP01 to LCP05 within the WA report and CP01 to CP05 on the logs) to depths of between 27.00m and 29.80m. Three of the holes were then continued, using rotary open-hole techniques to 55.00m depth.

3.2.3 The bore/coreholes were supplemented by seven mechanically-excavated trial pits (TP01 to TP04 and TP06 to TP08), also located within the then-proposed building footprint and excavated to depths of 0.70m (TP08) and between 3.00m and 4.00m.

3.2.4 Gas monitoring wells (referenced in the WA report as BH01 to BH05) were installed in all five of the holes, at depths of between 15.30m and 23.00m below Ground Level.

3.2.5 The holes were spread across the proposed building footprint: as shown on the As-built Ground Investigation Locations drawing in the WA report, but the actual building footprint varied from that proposed, being located to the south and east and rotated on plan. Thus, only BH05, TP02 and TP03 were beneath the final building footprint, but all holes were within 30m of the final footprint.

3.2.6 A log of the bore/corehole arisings was made by the rig foremen, and these have been drafted on to the Egniol format logs presented in Appendix 2 of this report. The locations of WA exploratory holes are shown on Egniol drawing ECL.9595.D06.001, presented in Appendix 1 of this report.

3.2.7 Gas and groundwater depth monitoring on the five wells was undertaken on six occasions between 19th March 2024 and 23rd April 2024. The gas monitoring included measurement of peak- and steady-state levels of the gases carbon dioxide, methane, oxygen, carbon monoxide and hydrogen disulphide; well pressure; gas flow rates (peak and steady), and a record of atmospheric pressure 3 hour prior to monitoring and during monitoring.

3.2.8 WA monitoring results are presented in Appendix H of the WA report and Appendix 3 of this report.

3.2.9 The exploratory holes revealed a surface cover, between 0.05m and 1.30m thick, of coarse and very coarse soil, over predominantly coarse 'Upper' Superficial deposits (locally gravelly, fine and medium sand) with subordinate horizons of fine soil (soft to stiff, slightly gravelly, sandy silty clay, with low cobble content) present below 8.10m depth and extending as deep as 28.50m depth, and 'Lower' Superficial deposits that, generally, comprised coarse sand and gravel, with low cobble content. These Superficial deposits overlay Bedrock of mudstone and sandstone, with no evidence of coal seams or of potential mine workings.

3.2.10 The response zones of the four wells are detailed in Table 1, below:

Table 1: WA Monitoring Wells Response Zones

Well	Response Zone (m)	Stratum	Egniol Comments
BH01	1.00 to 23.00	Superficial (coarse)	See Ground Gas Risk Assessment Section
BH02	9.90 to 21.00	Superficial (coarse)	
BH03	1.00 to 21.00	Superficial (coarse)	
BH04	1.00 to 23.00	Superficial (coarse)	
BH05	2.40 to 15.30	Superficial (coarse)	

3.2.11 The change in atmospheric pressure was not recorded for the second visit, but all of the other five visits were during periods of very rapidly falling pressure, with between 13.1mB and 19.6mB falls recorded in the previous 3 hours.

3.2.12 The results of the WA monitoring are summarised in Table 2, below and shown against date on the plot provided in Appendix 4:

Table 2: WA Gas Monitoring Results Summary

Parameter	Range	Comments
Oxygen (%v/v)	7.8 to 20.8	See Ground Gas Risk Assessment section
Carbon Dioxide (%v/v)	0.0 to 8.1	
Methane (%v/v)	<0.1	
Flow rate (l/h)	<0.1 to 5.0 11.8	See Ground Gas Risk Assessment. Single flow rate >5.0l/h unrelated to unusual gas levels and seemingly an anomaly, or possible mis-recording

3.3 Valencia Perimeter Monitoring Wells

3.3.1 Ground gas monitoring data from eight landfill perimeter gas monitoring wells has been included in this report for assessment. The wells are referenced as PS001GM to PS004GM, PS004aGM and PS015GM to PS017GM.

3.3.2 The holes were spread around the north-western perimeter of the landfill, between 50m and 120m north and west of the building footprint.

3.3.3 The locations of perimeter holes are shown on Egniol drawing ECL.9595.D06.001, presented in Appendix 1 of this report. A log of the borehole arisings was made by the rig foremen and are presented in Appendix 2 of this report.

- 3.3.4 Data from gas and groundwater depth monitoring on the eight wells, undertaken on between thirty-six and forty-one occasions between 14th April 2022 and 7th March 2025 has been assessed. The gas monitoring included measurement of peak and steady-state levels of the gases carbon dioxide, methane, oxygen, carbon monoxide and hydrogen disulphide; atmospheric pressure; well pressure, and (on most but not all occasions) gas flow rates.
- 3.3.5 Monitoring results are presented in summary format in Appendix 3 of this report.
- 3.3.6 The exploratory holes revealed assorted surface cover of Topsoil, clay Made Ground and sand, between 0.30m and 1.50m thick, over a similar sequence to the WA exploratory holes: of interbedded coarse and fine Superficial soils to depths of between 23.00m and 26.70m, over Bedrock. The soils within the top 6.0m, or so, were predominantly coarse (locally slightly gravelly, sand) with subordinate horizons of fine soil (soft to stiff, locally slightly gravelly, sandy silty clay) present in PS002GM, PS003GM and PS0016GM.
- 3.3.7 The response zones of the eight wells are, where the information is presented on the logs, detailed in Table 3, overleaf.
- 3.3.8 Data relevant to the change in atmospheric pressure in the period prior to the monitoring visits has not been reported along with the perimeter well data.
- 3.3.9 The results of the perimeter well monitoring are summarised in Table 4, below and shown against date on the plot provided in Appendix 4:

Table 3: Perimeter Monitoring Wells Response Zones

Well (PS00~)	Response Zone (m)	Stratum	Egniol Comments
1GM	1.50 to 8.80 8.80 to 13.00 13.00 to 18.80 18.80 to 26.70 26.70 to 29.50	Superficial (coarse) Superficial (fine) Superficial (coarse) Superficial (fine) Bedrock (mudstone)	See Ground Gas Risk Assessment section
2GM	1.50 to 5.00 5.00 to 9.50 9.50 to 14.00 14.00 to 16.00 16.00 to 24.20 24.20 to 26.50	Superficial (fine) Superficial (coarse) Superficial (fine) Superficial (coarse) Superficial (fine) Bedrock (mudstone)	
3GM	1.00 to 4.00 4.00 to 9.00 9.00 to 14.00 14.00 to 16.30 16.30 to 23.00 23.00 to 24.50	Superficial (fine) Superficial (coarse) Superficial (fine) Superficial (coarse) Superficial (fine) Bedrock (mudstone)	
4GM	1.80 to 8.60 8.60 to 25.60 25.60 to 26.00	Superficial (coarse) Superficial (fine) Bedrock (mudstone)	
4aGM	Unspecified	Unspecified	
15GM	Unspecified	Unspecified	
16GM	Unspecified	Unspecified	
17GM	3.00 to 13.00 13.00 to 14.10	Superficial (coarse) Superficial (fine)	

Table 4: Perimeter Gas Monitoring Results Summary

Parameter	Range	Comments
Oxygen (%v/v)	0.5 to 21.7	See Ground Gas Risk Assessment section
Carbon Dioxide (%v/v)	0.0 to 12.2	
Methane (%v/v)	<0.1 to 0.5	
Flow rate (l/h)	-3.7 to 2.2	

4.0 GROUND GAS RISK ASSESSMENT

4.0.1 The following gas risk assessment has been conducted in accordance with the document listed in the References section.

4.0.2 The possible risks from the various sources of ground gases are explored in the following sub-sections:

Pathways

4.0.3 The following key details pertain to migration pathways on this site:

- The leachate tanks are of modern construction, including an engineered bund
- The closed cells are of modern, fully engineered, construction
- The superficial cover is of >25m thickness and predominantly coarse near to surface and, therefore, potentially a pathway stratum for gas migration, but with a significant and, seemingly, persistent layer of fine soils below about 8m or 9m depth, which, if not penetrated by the gas wells, would serve as a break to upward gas migration to surface
- The monitoring wells beneath and around the site could act as migration pathways (the chimney effect) for gas migration to surface

Sources

4.0.4 The following key details pertain to ground gas sources that may affect this site:

- The WA bore/coreholes, extended to 55.00m depth, found no evidence of coal mining beneath the area around the site
- The Bedrock strata, and therefore, any potential for coal workings, are below the groundwater level
- The site is not within an area of probable shallow coal workings

4.0.5 The landfill within the landfill cells to the south-east, is contained within engineered plastic-lined and quality-assured, landfill cells, so the potential for gas leak is low.

4.0.6 There are no natural sources of significant non-mine gas generation potential beneath the site.

4.1 Gas Monitoring Data Evaluation

4.1.1 We consider, on the basis of comments in BS857 (see Section 8.4, Note 56), NHBC Guidance, and comment from the EA regarding a suggested slotted section length (of gas monitoring installations) limit of 3.0m, that the WA gas monitoring wells and the perimeter monitoring wells, with lengths of between 11.10m and 22.00m, are too long to reliably model the gas regime for the MRF development.

4.1.2 Furthermore, the base of the wells is below the groundwater level, and so the flow data may be affected by groundwater fluctuations.

4.1.3 With the wells encompassing a large volume of coarse soil it is likely that the wells are collecting an unrepresentatively large volume of ground gas. Furthermore, in general, the response zone of the wells (where reported) extends below the layer of Superficial fine soils that would, otherwise, act as a barrier to upward gas migration.

- 4.1.4 Nevertheless, the monitoring data has been assessed as if reliable and somewhat overly conservative (with regard to the indicated potential for gas protection measures).
- 4.1.5 Steady-state gas concentrations have been adopted as reliably representative, rather than peak concentrations, as the peak concentrations may result from the well construction (long, deep, wells that extend below the groundwater level).
- 4.1.6 A plot, presented in Appendix 4, of the monitoring data on a Ternary Plot of Ground Gas Concentrations (after Ground Gas Information Sheet No.1) shows the data within the range of possible Microbial Respiration of Organic Material in soil (the bottom left-hand corner of that plot): and not from a landfill source.
- 4.1.7 The possibility of Carbon Dioxide migration from depths, which can also plot within this area of the ternary gas plot, is further assessed by means of the Stoichiometric Assessment of Carbon Dioxide and Oxygen Gas Concentrations plot (also in Appendix 3 and based on the CL:AIRE guidance on Coal Mine Gas).
- 4.1.8 The Carbon Dioxide and Oxygen gas plot shows the majority of the monitoring data around the Biological Respiration line, with some data plotting below the methane oxidation line, indicating dissolution out of groundwater. No data plots indicate migration of Carbon Dioxide gas from depth or of oxidation of pyrite in colliery spoil.
- 4.1.9 Furthermore, the measured gas flow rates, where positive, are generally very low (0.1l/h to 5.0l/h) with only one instance of a flow reading >5.0l/h. This flow reading is, seemingly, an anomaly, unrelated to variations in gas volumes.
- 4.1.10 There are instances of Carbon Dioxide gas >5%v/v, listed below, but these are all in association with low, or zero flow rates and, as detailed above likely resulting from biological respiration in soil rather than from landfill or coal mines:
- PS004GM most recently between July and August 2024, when between 7.0%v/v and 8.4%v.v was recorded
 - PS004aGM one instance of 12.2%v/v in September 2022
 - WA_BH03 one instance, second monitoring visit, of 6.1%v/v 27th March 2024, associated with low atmospheric pressure
 - WA_BH05 four instances (out of the six total visits), of between 6.9%v/v and 8.1%v/v
- 4.1.11 Thus, the gases within the wells at the time of the monitoring can be attributed to the normal ranges for 'non-gassing' ground.

4.2 Gas Pollutant Linkages

- 4.2.1 Below is our commentary on the gas pollutant linkages at the site, on the basis of our Site Conceptual Model and the monitoring data assessed:

Mine Gas

- 4.2.2 The initial (WA) site model posited, on the basis of the known presence, beneath the site, of coal seams a potential residual gas risk from mine workings beneath the site.

- 4.2.3 Subsequent intrusive bore/corehole found no evidence of workings and the groundwater level is such that any working would be flooded.
- 4.2.4 We conclude, therefore, that there is currently no credible source of mine gas to significantly affect the site.

Landfill Gas

- 4.2.5 The site is on an active landfill, with closed cells nearby. Evaluation of the gas monitoring conducted, however, has shown that the gas concentrations recorded are not characteristic of landfill gas mixtures.
- 4.2.6 We conclude, therefore, that there is currently no credible source of landfill gas to significantly affect the site.

Summary

- 4.2.7 On the basis of the works to-date, therefore, we consider that the measured gas concentrations do not result from mine gas or landfill gas sources.

4.3 Ground Gas Screening Values

- 4.3.1 The gas monitoring results have been evaluated with reference to CIRIA C665 and BS8485 as an additional line of evidence and in order to allow assessment of the range of gas protection measures that may be necessary. The building is an industrial/commercial type, with a ground-bearing, reinforced cement-concrete, ground floor slab: Situation B in the CIRIA development classification.
- 4.3.2 With no credible source of mine gases, no credible source of landfill gases, no significant organic content within the soils beneath the site and the inherent conservatism of the well construction used for the assessment, we have adopted the GSV (Gas Screening Value) from the individual wells, rather than a value derived from the worst-case gas concentration and the worst-case flow rate.
- 4.3.3 The GSV, in litres of gas/hour, is calculated by multiplying the borehole gas concentration (%) by the measured borehole flow rate (l/hr). We have calculated the GSV for each well and each monitoring event and this provides a worst-case GSV of 0.031 l/hr.
- 4.3.4 The maximum borehole GSV is indicative of CS (Characteristic Gas Situation) 1 and a Very Low Risk to development. The maximum Methane concentrations were generally below the limit of detection, of 0.1%v/v and at no time above 1.0%v/v, with a maximum of 0.5%v/v. The maximum recorded Carbon Dioxide concentration was 12.2%v/v but was generally well below 5%v/v and the source of the gas seems to be from the natural strata beneath the site, so no increase on account of these maximum levels is necessary as that would result in a disproportionately high gas hazard prediction and an over-precautionary Characteristic Gas Situation. Flow rate at no time exceeds 70l/h, so there is no need to increase on that account. Negative flow rates have been excluded on account of the high probability that they relate to fluctuations in groundwater depths.
- 4.3.5 As stated above, this assessment is, likely, on the conservative side as the monitoring wells are too long and extend through the fine soil barrier to gas migration at depth.

- 4.3.6 The site has been shown to be in Characteristic Gas Situation 1. Accordingly, special precautions to the building for gas protection purposes are not required.
- 4.3.7 If further confirmation of the gas risk to the development is required, gas monitoring installations could be fitted to measure and record gas concentrations within the building. If these devices showed a need for remediation, then the building could be retro-fitted with suitable protection, such as a gas venting system. Further guidance can be found in the CIRIA publication, C795: *Retrofitting ground gas protection measures in existing or refurbished buildings*.

5.0 REFERENCES

- 5.1 NHBC, Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present, 2007
- 5.2 CL:AIRE, Research Bulletin 17, 'A Pragmatic Approach to Ground Gas Risk Assessment', 2012
- 5.3 CL:AIRE, Technical Bulletin 17, 'Ground Gas Monitoring and 'Worst-Case' Conditions', 2018
- 5.4 British Standards, Code of practice for the characterization and remediation from ground gas in affected developments, BS8485, 2019
- 5.5 CL:AIRE, 'Good Practice for Risk Assessment of Coal Mine Gas Emissions', 2021



Valencia Waste Management Ltd

Pilsworth South
Materials Recycling Facility

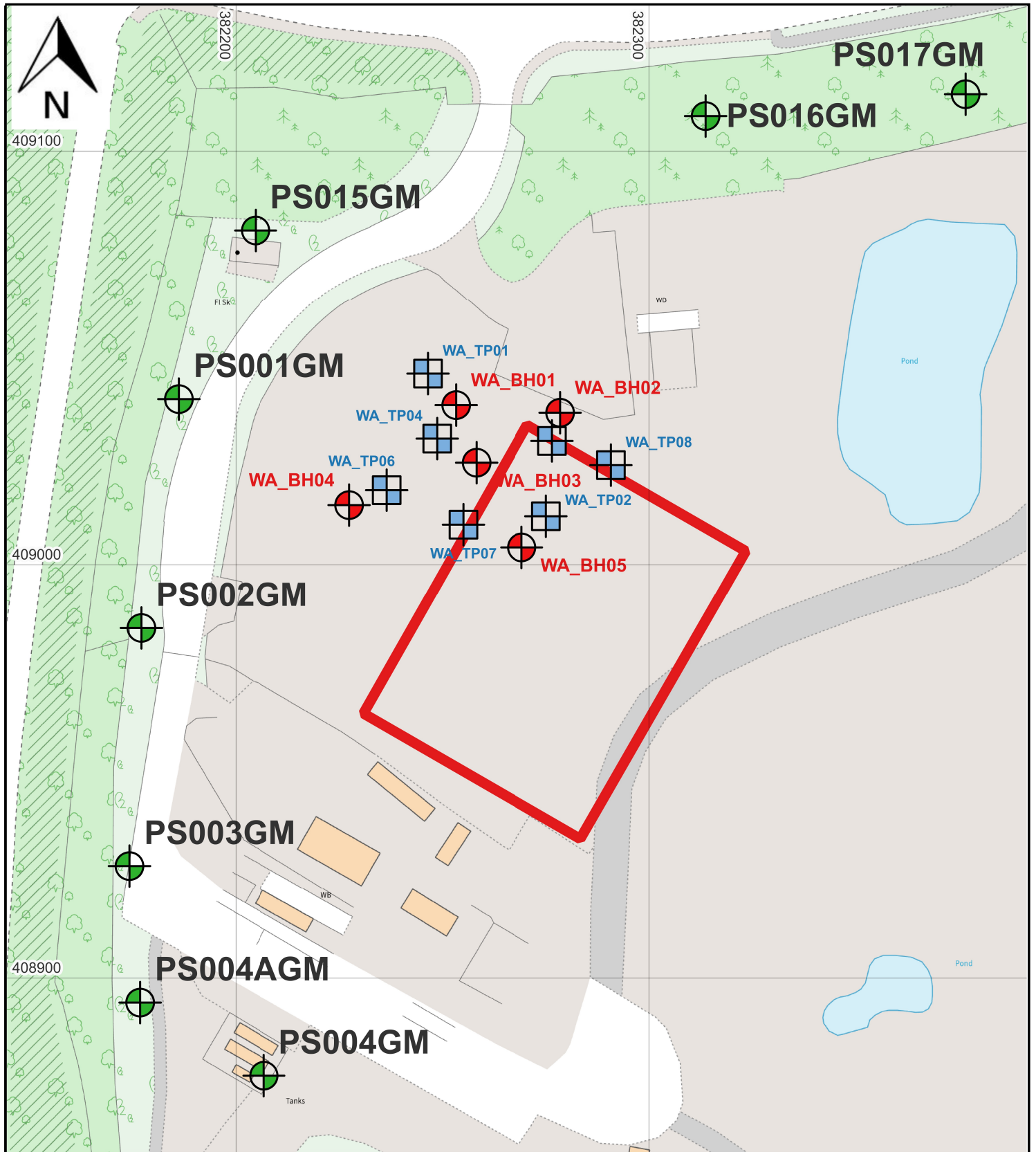
Ground Gas Risk Assessment Report
ECL.9595.R06.001 Rev -

May 2025

Appendix 1

Plan Drawing

ECL.9595.D06.001 - Monitoring Well and Exploratory Hole Location Plan



© Crown Copyright and database rights 2025

0 25 50 75 100 m

Legend:

- Perimeter Monitoring Well
- WA Monitoring Well
- WA Trial Pit
- Approximate building footprint

Drawn by (and date):

MC
(21/05/2025)

Checked by (and date):

DMcG
(22/05/2025)

Approved by (and date):

DMcG
(22/05/2025)

Client:

Valencia Waste Management Limited

Project:

Pilsworth South Landfill Site, MRF

Title:

Monitoring Well and Exploratory Hole
Location Plan

Scale:

1:1250 @A4

Status:

FINAL

Drawing number:

ECL.9595.D06.001

Rev:



Egniol Consulting Ltd
1st Floor
1 Canon Hammett Court
Warren Park
Milton Keynes
MK12 5NF
www.egniol.com



Valencia Waste Management Ltd

Pilsworth South
Materials Recycling Facility

Ground Gas Risk Assessment Report
ECL.9595.R06.001 Rev -

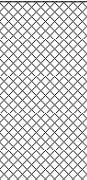
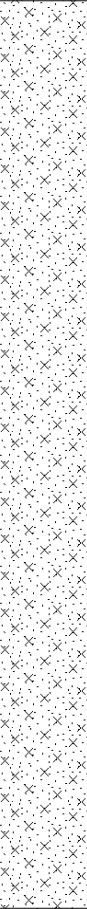
May 2025

Appendix 2

Exploratory Hole Logs

Wardell Armstrong, Bore/Corehole Logs
Valencia, Perimeter Well Logs



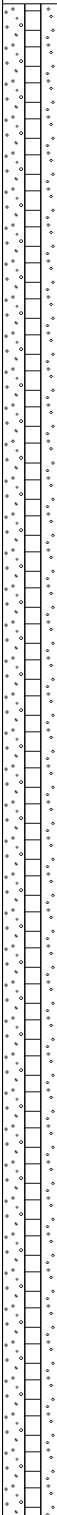
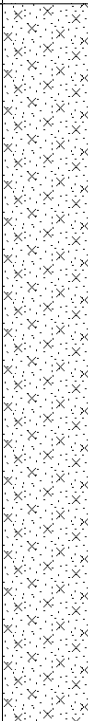
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
W1	-	1.20 - 1.70 1.20	B SPT	N=20 (3,3/5,5,5,5)	1.20			Pre-dug backfilled hand-dug pit	1
		1.90 2.00 - 2.50 2.00	D B SPT	N=22 (3,4/5,6,5,6)				Dense dark brown/orange brown silty sands coarse bands/lenses	2
		2.90 3.00 - 3.50 3.00	D B SPT	N=18 (3,3/4,3,5,6)	4.00			Dense dark brown/orange brown silty sands coarse bands/lenses with coal fragment bands throughout.	3
		3.90 4.00 - 4.50 4.00	D B SPT	N=12 (2,2/3,3,3,3)					4
		4.90 5.00 - 5.50 5.00	D B SPT	N=20 (3,3/4,5,5,6)	5				
		6.00	D		6				
		6.50 - 7.00 6.50	B SPT	N=12 (2,3/3,3,3,3)	7				
		7.50	D						
		8.00 - 8.50 8.00	B SPT	N=17 (1,3/4,4,4,5)	8				
		9.00	D		9				
		9.50 - 10.00 9.50	B SPT	N=18 (3,3/4,4,4,6)				10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





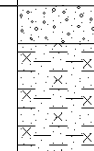
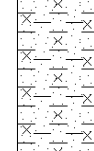
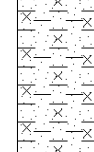
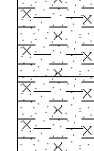
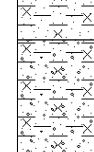
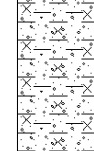
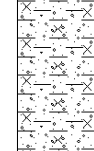
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	D	0 (./,,,)	14.80			Dense dark brown/orange brown silty sands coarse bands/lenses with coal fragment bands throughout.	-
		11.00 - 12.30 11.00	B SPT						11
		12.30 - 12.80 12.30	B SPT						N=20 (3,3/3,5,5,7)
		13.50	D						
		14.00 - 14.50 14.00	B SPT	N=22 (3,3/3,6,6,7)					14
		15.00	D						15
		15.50 - 16.00 15.50	B SPT	N=27 (2,3/5,7,7,8)					16
		16.50	D						
		17.00 - 17.50 17.00	B SPT	N=29 (3,4/4,7,8,10)					17
		18.00	D						18
		18.50 - 19.00 18.50	B SPT	N=22 (2,2/3,3,8,8)			19		
		19.50	D						
		20.00 - 20.50	B				20		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		20.00	SPT	N=9 (2,1/1,2,3,3)	20.25		Dense small to medium sized gravels, rounded, sub + angular + flat with gritty brown coarse sand. Soft grey silty sandy clay occasional large cobble.			
		21.00	D							
		21.50 - 22.00 21.50	B SPT	N=8 (1,2/2,2,2,2)				21		
		22.50	D							
		23.00 - 23.50 23.00	B SPT	N=13 (2,2/2,3,4,4)	23.45		Soft grey brown silty sandy clay, silty.	22		
		24.00	D							
		24.50 - 25.00 24.50	B SPT	N=50 (4,7/10,11,12,17)	24.20		Very stiff brown sandy boulder clay - large sandstone cobble.	23		
		25.50	D							
		26.00 - 26.50 26.00	B SPT	N=50 (4,6/10,12,13,15)				24		
		27.00	D							
		27.50 - 28.00 27.50	B SPT	50 (9,11/50 for 150mm)	28.30			25		
		28.00 - 28.30	B							
		28.30 - 28.70 28.30	B SPT	50 (10,14/50 for 180mm)	29.00		Very stiff grey clay/mudstone.	26		
		28.70	SPT	50 (10,15/50 for 150mm)						
										27
										28
								29		
								30		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					31.00			Mudstone grey weathered	
								Mudstone grey silty.	31
									32
									33
									34
					34.50			Sandstone grey hard.	35
35.60			Mudstone grey dark.	36					
	</								

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.



[illegible]

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.



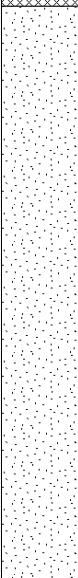
[illegible]

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	18.00	250	28.70		01:00					
23.00	250	26.50	200	24.60	24.80	01:30					
29.00	200	29.00	150	28.00	28.30	01:00					
55.00	150			28.30	28.70	01:00					

Service avoidance pit to 1.2m depth by others (backfilled).
Variable (Falling) Head Permeability test at 1.2m depth.
Changed to rotary openhole at 29.00m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





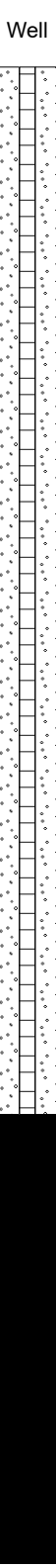
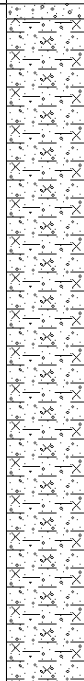
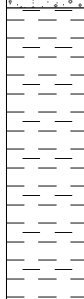
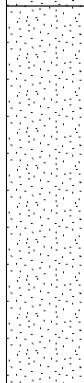
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.00 - 1.00	B	50 (25 for 105mm/50 for 105mm)	0.12			Sludge / topsoil.	-	
							0.40			Bricks and concrete
										Light brown/orange sand
		1.20	SPT	N=34 (9,8/10,8,8,8)	4.20				1	
		1.50 - 2.00	B						-	
		2.00	SPT						2	
		2.45 - 3.00	B						-	
		3.00	SPT	N=25 (4,5/6,6,8,5)					3	
		3.45 - 4.00	B						-	
		4.00	SPT			N=24 (6,4/6,6,6,6)				4
		4.45 - 5.00	B							
		5.00	SPT	N=30 (5,7/6,7,7,10)						5
		5.50 - 6.00	B							
		6.50	SPT			N=29 (6,6/8,6,7,8)				-
		7.00 - 7.30	B							
		8.00	SPT	N=29 (4,5/6,6,8,9)	8.00					8
8.45 - 9.00	B								9	
9.50	SPT	N=28 (6,6/8,8,6,6)						-		
10.00 - 10.80	B								10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	17.50	250	10.10	14.50	02:30					
27.50	200	26.00	200	15.00	16.00	01:30					
				16.00	17.50	01:15					
				19.50	21.50	01:15					
				21.50	26.00	03:05					

Service avoidance pit to 1.2m depth by others (backfilled).
Well with 63mm diameter monitoring pipe installed to 21.0m depth. Raised cover at surface.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					10.10			Dense sandy gravels	
								Stiff/very stiff brown bolder clay	
		11.00	SPT	N=46 (4,4/8,11,11,16)				11	
		11.30 - 11.90	B					12	
		12.50	SPT	N=47 (6,9/11,11,11,14)					
		13.00 - 13.70	B					13	
		14.00	SPT	N=50 (9,8/12,12,13,13)					14
		14.50 - 15.00	B		14.50		Large gravel and sands with few cobbles		
					15.00			Stiff/very stiff brown clay	15
		15.50	SPT	N=49 (10,9/10,15,14,10)					16
		16.00 - 16.50	B						
		17.00 - 17.45	B		17.00		Dense blowing green/brown sands	17	
		17.00	SPT	N=38 (9,8/6,10,10,12)					
17.50 - 18.00	B		17.50		Dense grey/brown sands				
							18		
18.50	SPT	N=48 (8,9/11,11,13,13)							
19.00 - 19.50	B						19		
20.00 - 20.30	D						20		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	17.50	250	10.10	14.50	02:30					
27.50	200	26.00	200	15.00	16.00	01:30					
				16.00	17.50	01:15					
				19.50	21.50	01:15					
				21.50	26.00	03:05					

Service avoidance pit to 1.2m depth by others (backfilled).
Well with 63mm diameter monitoring pipe installed to 21.0m depth. Raised cover at surface.



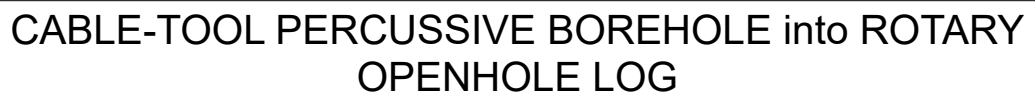


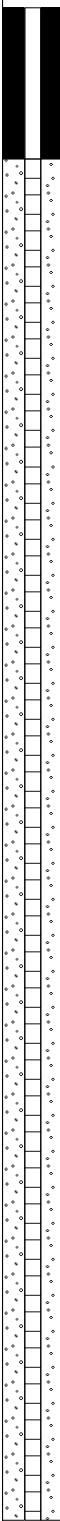
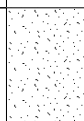
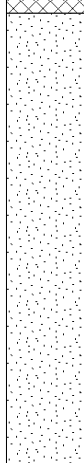
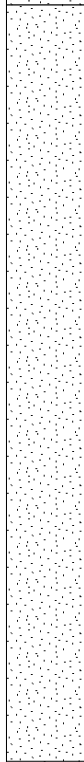
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		20.00	SPT	N=47 (9,8/8,10,15,14)	20.50			Dense grey/brown sands	21	
		20.50 - 21.00	B					Very dense sands with minimal firm clay		
		21.50	SPT	50 (6,9/50 for 165mm)	21.50			Very dense sands	22	
		21.65 - 22.30	B		22.00			Firm silty clay/sand		
		23.00	SPT	50 (9,12/50 for 80mm)	24.00			Very stiff boulder clay	24	
		23.20 - 24.00	B							24.50
		25.00 - 26.00	B		26.00					26
		26.15 - 27.00	B							
		27.50	SPT	75 (25,50/75 for 150mm)	27.50			Very hard obstruction	28	
					27.50			End of Borehole at 27.500m		
								29		
								30		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	17.50	250	10.10	14.50	02:30					
27.50	200	26.00	200	15.00	16.00	01:30					
				16.00	17.50	01:15					
				19.50	21.50	01:15					
				21.50	26.00	03:05					

Service avoidance pit to 1.2m depth by others (backfilled).
Well with 63mm diameter monitoring pipe installed to 21.0m depth. Raised cover at surface.





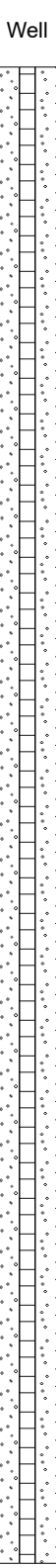
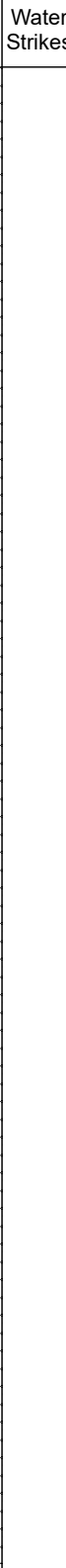
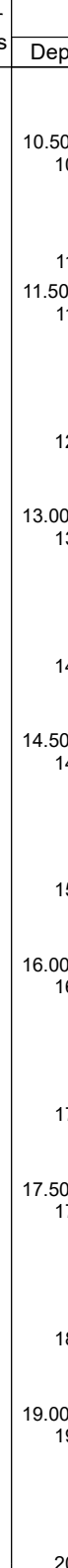
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 - 1.00	B	N=31 (3,5/6,7,9,9)	0.80		Brown sandy soil fill containing brick concrete gravel some cobbles.	1	
		1.20 - 1.70 1.20	B SPT						Fine brown sand some coarse gravels, possible fill.
		2.20 - 2.70 2.20	B SPT	N=16 (3,3/4,4,4,4)	2.00		Fine brown sand.	2	
		3.20 - 3.70 3.20	B SPT	N=17 (3,4/4,4,5,4)					3
		4.20 - 4.70 4.20	B SPT	N=17 (3,4/4,4,4,5)	5.00			4	
		5.20 - 5.70 5.20	B SPT	N=20 (2,3/4,5,5,6)				Fine brown sand some coal fragments.	5
		6.20 - 6.70 6.20	B SPT	N=25 (2,3/4,5,7,9)			6		
		7.20	D				7		
		7.70 - 8.20 7.70	B SPT	N=25 (2,3/4,5,7,9)			8		
		8.70	D				9		
		9.20 - 9.70 9.20	B SPT	N=24 (2,2/3,5,7,9)			10		
		10.00	D						

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	15.50	200	25.40	25.80	00:30					
15.60	250	15.60	250	28.10	28.40	00:20					
29.50	200	29.25	200	29.50	29.80	01:00					
55.00	150	30.00	150								

Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 15.50m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.80m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 21.0m depth.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 - 11.00 10.50	B SPT	N=20 (5,5/4,5,5,6)	11.30		Fine brown sand some coal fragments.	11	
		11.30 11.50 - 12.00 11.50	D B SPT	N=19 (2,3/4,4,5,6)			Fine light brown sand some coarse gravel, small pebbles.	12	
		12.50	D					13	
		13.00 - 13.50 13.00	B SPT	N=27 (3,4/6,6,7,8)				14	
		14.00	D					15	
		14.50 - 15.00 14.50	B SPT	N=29 (4,5/7,6,8,8)				16	
		15.50	D					17	
		16.00 - 16.50 16.00	B SPT	N=31 (3,4/6,7,9,9)				18	
		17.00	D					19	
		17.50 - 18.00 17.50	B SPT	N=32 (4,5/7,8,8,9)				20	
		18.50	D						
		19.00 - 19.50 19.00	B SPT	N=34 (3,5/7,9,9,9)					
20.00	D								

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300		200	25.40	25.80	00:30					
15.60	250	15.60	250	28.10	28.40	00:20					
29.50	200	29.25	200	29.50	29.80	01:00					
55.00	150	30.00	150								

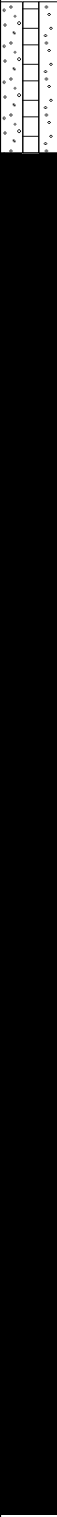
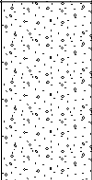
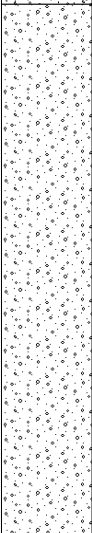
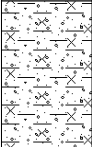
Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 15.50m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.80m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 21.0m depth.





CABLE-TOOL PERCUSSIVE BOREHOLE into ROTARY OPENHOLE LOG

Project Name: Pilsworth Quarry		Client:		Date(s): 12/02/2024 to 22/02/2024	
Location:		Contractor:			
Project No. : 10219		Crew Name:		Plant: Cable-tool Percussive Rig (Dando 2000-3) to 29.80m Rotary Rig (Comacchio Geo 205/3) to base	
Borehole Number CP03	Hole Type CP+RO	Level	Logged By Paul Butterfield (CP Foreman) SS (Rotary Foreman)	Scale 1:50	Page Number Sheet 3 of 6

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		20.50 - 21.00 20.50	B SPT	N=36 (3,6/8,8,10,10)				Fine light brown sand some coarse gravel, small pebbles.	21
		21.20	D		21.20			Fine brown sand coarse gravels, small pebbles.	
		21.50 - 21.95 21.50 - 22.00	U B	Ublow=90					22
		22.60 22.60	B SPT	N=46 (5,6/10,11,12,13)					23
		23.50	D						
		24.00 - 24.45 24.00 - 24.50	U B	Ublow=100					24
		24.70	D		24.70				
					25.00			Soft to firm silty sandy clay turning firm with depth & slightly laminated.	25
		25.30 - 25.80 25.30	B SPT	50 (10,18/50 for 40mm)				Firm to stiff boulder clay.	
					26.00				26
		26.30	D						
		26.80 - 27.30 26.80	B SPT	33 (10,10/33 for 115mm)	26.80			Firm to stiff boulder clay, some cobbles.	27
		27.60	D		27.60			Very stiff boulder clay.	28
		28.50 - 29.00 28.50	B SPT	33 (15,10/33 for 105mm)	28.50			Stiff grey boulder clay, some cobbles.	29
		29.50 - 29.80 29.80	B SPT	30 (10,15/30 for 85mm)	29.80				
					30.00			Bedrock, weathered mudstone.	30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	15.50	200	25.40	25.80	00:30					
15.60	250	15.60	250	28.10	28.40	00:20					
29.50	200	29.25	200	29.50	29.80	01:00					
55.00	150	30.00	150								

Remarks Service avoidance pit to 1.2m depth. Unable to advance 200mm-diameter casing below 15.50m depth. Re-bored in 250mm-diameter. Changed to rotary openhole at 29.80m depth. Rotary casing installed and borehole casing withdrawn. Well with 63mm diameter monitoring pipe installed to 21.0m depth.										
--	--	--	--	--	--	--	--	--	--	---



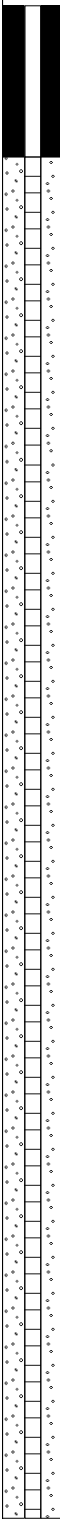
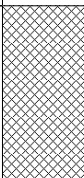
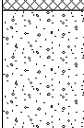
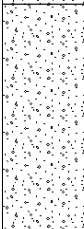
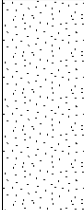
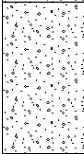
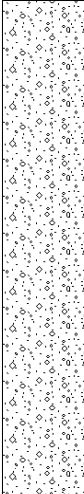


Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					41.00			Mudstone grey silty.	-	
									41	
										42
										-
										43
										-
										44
										-
										45
										-
										46
										-
										47
										-
										48
										-
										49
										-
										50

Remarks Service avoidance pit to 1.2m depth. Unable to advance 200mm-diameter casing below 15.50m depth. Re-bored in 250mm-diameter. Changed to rotary openhole at 29.80m depth. Rotary casing installed and borehole casing withdrawn. Well with 63mm diameter monitoring pipe installed to 21.0m depth.	
--	---



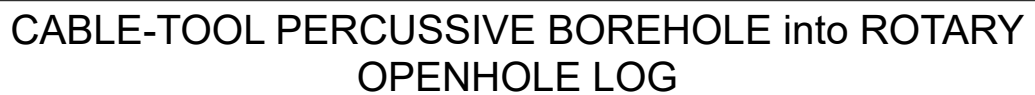


Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.50	B	N=55 (10,10/15,15,15,10)	1.20		Soft brown sands with concrete slabs and stone	1	
		0.60 - 1.20	B						
	1.20	SPT							
			1.50 - 2.00	B	N=52 (8,8/8,16,14,14)	2.00		Soft brown/black gravelly sand very dense	2
		2.00	SPT						
		2.50 - 3.00	B						
			3.00	SPT	N=26 (4,6/8,6,6,6)	3.50		Dense gravelly sand	3
		3.20 - 3.40	B						
		3.50 - 4.00	B						
			4.00	SPT	N=26 (4,4/4,5,7,10)	3.80		Fine sand and gravels	4
		4.50 - 5.00	B						
		5.00	SPT						
			5.50 - 6.20	B	N=27 (6,4/5,5,7,10)	5.20		Fine black sands	5
		6.20	SPT						
		6.50	SPT						
			6.95 - 7.30	B	N=23 (6,7/7,9,3,4)	6.20		Light brown / orange fine sands and gravel	6
		8.00	SPT						
		8.45 - 9.20	B						
			9.50	SPT	N=32 (7,9/6,8,9,9)	9.50		Dense light brown gravel sands with some cobbles blowing	7
		9.50	SPT						
	10.00 - 11.00	B							
		10.00 - 11.00	B	N=13 (3,4/4,3,3,3)	9.50		Dense light brown sands with some cobbles blowing	8	
	9.50	SPT							
	10.00 - 11.00	B							
		10.00 - 11.00	B	N=13 (3,4/4,3,3,3)	9.50		Dense light brown sands with some cobbles blowing	9	
	9.50	SPT							
	10.00 - 11.00	B							
		10.00 - 11.00	B	N=13 (3,4/4,3,3,3)	9.50		Dense light brown sands with some cobbles blowing	10	
	9.50	SPT							
	10.00 - 11.00	B							

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	14.00	200	1.50	2.20	01:20	Tool	Depth Top	Depth Base	Inclination	Orientation
14.00	200	17.00	250	11.30	13.30	01:55					
17.00	250	29.00	150	13.30	14.50	01:15					
29.50	200	29.50	200	14.50	17.00	01:15					
55.00	150			19.50	21.00	01:00					

Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 14.00m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.50m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





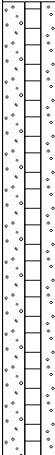
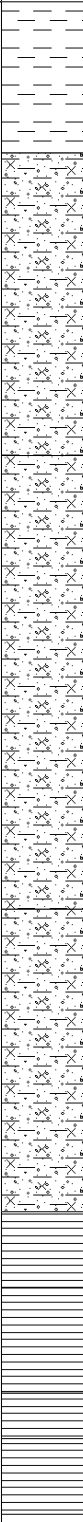
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
W1		11.00	SPT	N=17 (4,4/3,4,5,5)	12.50			Dense light brown sands with some cobbles blowing	11
	11.50 - 12.50	B		...very large cobbles, gravel and sands (in re-bore) between 11.3m and 13.3m				12	
	12.50	SPT	N=19 (3,3/5,5,5,4)	Large cobbles with gravels and sands				13	
	13.00 - 14.00	B						14	
	14.00	SPT	N=35 (8,9/9,8,9,9)	16.00			15		
	14.50 - 15.00	B					16		
	15.50	SPT	N=48 (10,9/12,10,10,16)			Dense blowing sands	17		
	16.00 - 16.70	B						18	
	17.00	SPT	N=39 (9,9/10,10,9,10)	Firm/stiff silty clay with hints of boulder clay	19				
	17.45 - 18.00	B					20		
	18.00	SPT	N=50 (1,4/5,15,15,15)						
	18.50 - 19.00	B							
	19.50	SPT	N=52 (10,10/10,12,14,16)	19.00					
20.00 - 21.00	B								

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	14.00	200	1.50	2.20	01:20					
14.00	200	17.00	250	11.30	13.30	01:55					
17.00	250	29.00	150	13.30	14.50	01:15					
29.50	200	29.50	200	14.50	17.00	01:15					
55.00	150			19.50	21.00	01:00					

Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 14.00m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.50m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
 		21.00	SPT	N=45 (10,9/10,12,12,11)	21.00		Firm/stiff silty clay with hints of boulder clay		
		21.30 - 22.00	B				Firm/stiff dark grey/brown boulder clay.	21	
		22.50	SPT	N=42 (6,6/8,10,12,12)					
		22.95 - 23.40	B		23.00		Stiff/very stiff grey/brown boulder clay.	23	
		24.00	SPT	N=52 (8,9/52 for 255mm)				24	
		24.45 - 25.30	B					25	
		25.50	SPT	N=48 (10,12/12,12,11,13)					
		25.90 - 26.00	B		26.00		Very stiff boulder clay.	26	
		27.30 - 28.00	B					27	
		28.00 - 28.50	B		28.00		Very weathered mudstone.	28	
		28.40 - 29.00 28.50	B SPT	50 (9,9/50 for 95mm)	28.50		Hard mudstone.		
					29.20			29	
		29.50	SPT	44 (10,10/44 for 150mm)	29.50		Very hard mudstone.		
							Mudstone grey.		
								30	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	14.00	200	1.50	2.20	01:20					
14.00	200	17.00	250	11.30	13.30	01:55					
17.00	250	29.00	150	13.30	14.50	01:15					
29.50	200	29.50	200	14.50	17.00	01:15					
55.00	150			19.50	21.00	01:00					

Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 14.00m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.50m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description														
		Depth (m)	Type	Results																		
					30.60		Mudstone grey.	31														
							Sandstone grey hard.		32													
										33												
											34											
												35										
													36									
					37																	
						38																
								39														
														40								
															34.90		Mudstone grey silty.	35				
																			36			
																				37		
																					38	
																						39

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300	14.00	200	1.50	2.20	01:20					
14.00	200	17.00	250	11.30	13.30	01:55					
17.00	250	29.00	150	13.30	14.50	01:15					
29.50	200	29.50	200	14.50	17.00	01:15					
55.00	150			19.50	21.00	01:00					

Service avoidance pit to 1.2m depth.
Unable to advance 200mm-diameter casing below 14.00m depth. Re-bored in 250mm-diameter.
Changed to rotary openhole at 29.50m depth. Rotary casing installed and borehole casing withdrawn.
Well with 63mm diameter monitoring pipe installed to 23.0m depth.



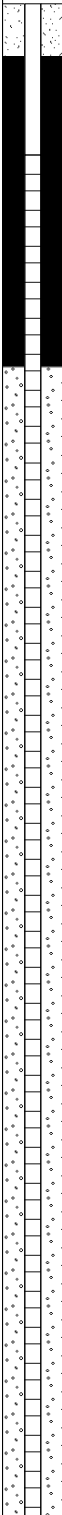
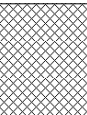
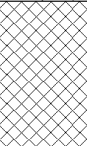
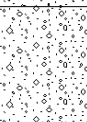




Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					55.00			Mudstone grey stiff silty.	-
									51
									52
									53
									54
									55
									56
									57
									58
									59
									60
</									

Remarks Service avoidance pit to 1.2m depth. Unable to advance 200mm-diameter casing below 14.00m depth. Re-bored in 250mm-diameter. Changed to rotary openhole at 29.50m depth. Rotary casing installed and borehole casing withdrawn. Well with 63mm diameter monitoring pipe installed to 23.0m depth.	
--	---



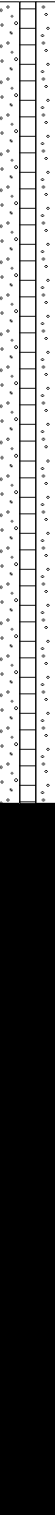
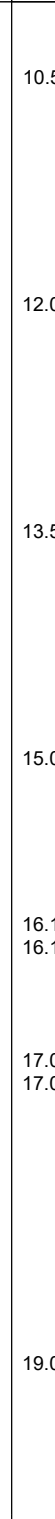
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.70	B	49 (4,6/49 for 225mm)	0.75			Compact soil some brick & cobbles.	1
		0.70 - 1.20	B					Dark brown sandy soil some gravels. Fill material.	
		1.20 - 1.70 1.20	B SPT					Fine brown sand some coarse gravel, possible fill material.	
		2.20 - 2.70 2.20	B SPT	N=9 (1,2/2,2,2,3)	2.20			Fine brown sand.	2
		3.20 - 3.70 3.20	B SPT	N=20 (1,1/4,5,5,6)					
		4.20 - 4.70 4.20	B SPT	N=26 (2,3/6,6,6,8)					
		5.20 - 5.70 5.20	B SPT	N=22 (3,4/5,6,6,5)	4.20			Fine brown sand some coarse gravel.	3
		6.00	D						
		6.50 - 7.00 6.50	B SPT	N=22 (1,4/5,5,6,6)					
		7.50	D		8.70			Some fine brown sand, gravels, cobbles small pebbles.	4
		8.00 - 8.50 8.00	B SPT	N=23 (2,3/3,5,7,8)					
		8.70	D						
		9.00 - 9.50 9.00	B SPT	N=24 (2,3/5,5,7,7)	9.50			Fine brown sand, gravels, some large cobbles small pebbles.	5
		10.00	D						

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.20	300			28.50	29.00	01:00					
15.67	250	28.40	200								
28.40	200										

Service avoidance pit to 1.2m depth.
Variable (Falling) Head Permeability test at 1.2m depth.
Well with 63mm diameter monitoring pipe installed to 15.3m depth. Raised cover at surface.

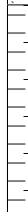
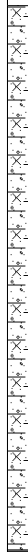




Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 - 11.00 10.50	B SPT	N=27 (5,5/5,7,8,7)				Fine brown sand, gravels, some large cobbles small pebbles.	11
		11.50	D						12
		12.00 - 12.50 12.00	B SPT	N=30 (4,6/7,7,8,8)					
		13.00	D						
		13.50 - 14.00 13.50	B SPT	N=29 (3,5/6,7,8,8)					
		14.50	D					... <i>gravel more frequent towards 14.0m</i>	
		15.00 - 15.50 15.00	B SPT	N=32 (4,4/7,8,8,9)					
		15.90	D					15.90	
		16.10 - 16.50 16.10 - 16.55	B U	Ublow=100					
		17.00 - 17.45 17.00 - 17.50	U B	Ublow=100					
		18.00	D						
		18.40	D					18.40	
		19.00 - 19.50 19.00	B SPT	N=43 (4,4/7,10,12,14)				19.50	
20.00	D			20					

Remarks	
Service avoidance pit to 1.2m depth.	
Variable (Falling) Head Permeability test at 1.2m depth.	
Well with 63mm diameter monitoring pipe installed to 15.3m depth. Raised cover at surface.	



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		20.50 - 21.00 20.50	B SPT	50 (7,10/50 for 200mm)	23.30			Dense, brown silty sand.	21
		21.50	D						22
		22.00 - 22.50 22.00	B SPT	50 (6,10/50 for 200mm)					23
		23.00	D						
		23.30	D						
		23.50 - 23.95 23.50 - 24.00	U B	Ublow=100	24.70		Stiff brown clay slightly laminated.	24	
		24.50	D						
		24.70	D						
		25.00 - 25.50 25.00	B SPT	N=50 (6,11/50 for 235mm)				25	
		26.00	D					26	
		26.50 - 26.95 26.50 - 27.00	U B	Ublow=100	28.30		Stiff boulder clay, very stiff some cobbles with depth.	27	
		27.50 - 28.00 27.50	B SPT	50 (8,10/50 for 170mm)				28	
		28.30	D						
		28.50 - 29.00	B						
		29.00	SPT	50 (25 for 110mm/50 for 85mm)				29	
							End of Borehole at 29.000m	30	

[illegible]

Service avoidance pit to 1.2m depth.
Variable (Falling) Head Permeability test at 1.2m depth.
Well with 63mm diameter monitoring pipe installed to 15.3m depth. Raised cover at surface.





Valencia Waste Management Ltd

Pilsworth South
Materials Recycling Facility

Ground Gas Risk Assessment Report
ECL.9595.R06.001 Rev -

May 2025

Appendix 3

Gas Monitoring Data

*Wardell Armstrong, Gas Monitoring Records
Valencia, Perimeter Well Records (summary)*

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	1	of	6
Date:	19/03/2024		
Time:	13:45	to	15:40

Operator:	XM
Ground Gas Analyser:	12002
Last Calibration:	07/03/2024



		GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
Monitoring Point	Order	Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady (mins)	PID Peak (ppm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady (mins)	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady			Peak	Steady						
BH1	2	0.00	0.00	4.00	2.40	0.00	0.00	14.00	14.70	2.00		0.30	0.30		2.00		9.30	17.60	Bung was left open prior to arrival on-site
BH2	4	0.00	0.00	0.10	0.00	0.00	0.00	20.70	20.70	2.00		0.00	0.00		2.00		10.20	17.20	
BH3	3	0.00	0.00	0.10	0.10	0.00	0.00	20.70	20.80	2.00		0.10	0.00		2.00		6.73	18.58	
BH4	1	0.00	0.00	0.00	0.00	0.00	0.00	18.30	20.80	2.00		0.40	0.30		2.00		8.69	20.43	
BH5	5	0.00	0.00	4.00	4.10	0.00	0.00	10.40	10.80	2.00		0.00	0.00		2.00		8.87	15.23	
Max		0.00	0.00	4.00	4.10	0.00	0.00	20.70	20.80		0.0	0.40	0.30	0.00		0	10.20	20.43	
Min		0.00	0.00	0.00	0.00	0.00	0.00	10.40	10.80		0.0	0.00	0.00	0.00		0	6.73	15.23	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☒ Dry ☐ Wet
☐ Frozen ☐ Snow

Wind: ☒ Calm ☐ Moderate ☐ Strong

Cloud cover: ☒ None ☐ Cloudy ☐ Overcast

Precipitation: ☒ None ☐ Moderate ☐ Heavy

Additional Comments:
N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☒	Falling (decreasing change >1.6 mbar)
☐	Steady (change of 0.1 - 1.5 mbar)
☐	Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☐	Falling
☐	Steady
☒	Rising

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	2	of	6
Date:	27/03/2024		
Time:	14:00	to	15:30

Operator:	SC
Ground Gas Analyser:	12002
Last Calibration:	07/03/2024



Monitoring Point	Order	GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
		Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady		Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady	(mins)		Peak	Steady		(mins)				
BH1	2	0.00	0.00	0.10	0.10	0.00	0.00	20.40	20.40	2.00		2.10	1.90		2.00		7.25	17.73	
BH2	4	0.00	0.00	0.10	0.00	1.00	0.00	20.00	20.20	2.00		5.40	5.00		2.00		10.10	17.16	
BH3	3	0.00	0.00	6.40	6.10	0.00	0.00	11.80	12.20	2.00		0.00	0.00		2.00		9.40	18.52	
BH4	1	0.00	0.00	0.90	0.90	1.00	0.00	18.40	18.40	2.00		0.00	0.00		2.00		8.58	20.25	
BH5	5	0.00	0.00	6.90	6.90	0.00	0.00	8.40	8.50	2.00		0.40	0.40		2.00		9.21	15.00	
Max		0.00	0.00	6.90	6.90	1.00	0.00	20.00	20.20		0.0	5.40	5.00	0.00		0	10.10	20.25	
Min		0.00	0.00	0.10	0.00	0.00	0.00	8.40	8.50		0.0	0.00	0.00	0.00		0	7.25	15.00	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☐ Dry ☒ Wet
☐ Frozen ☐ Snow

Wind: ☐ Calm ☒ Moderate ☐ Strong

Cloud cover: ☐ None ☐ Cloudy ☒ Overcast

Precipitation: ☐ None ☒ Moderate ☐ Heavy

Additional Comments:
 N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☐	Falling (decreasing change >1.6 mbar)
☐	Steady (change of 0.1 - 1.5 mbar)
☐	Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☒	Falling
☐	Steady
☐	Rising

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	3	of	6
Date:	04/04/2024		
Time:	15:00	to	16:00

Operator:	SC
Ground Gas Analyser:	12002
Last Calibration:	07/03/2024



Monitoring Point	Order	GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
		Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady		Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady	(mins)		Peak	Steady		(mins)				
BH1	2	0.00	0.00	0.10	0.00	0.00	0.00	20.40	20.40	2.00		0.00	0.00		2.00		9.24	17.68	
BH2	4	0.00	0.00	0.00	0.00	1.00	0.00	19.70	20.00	2.00		0.40	0.30		2.00		10.08	17.20	
BH3	3	0.00	0.00	0.00	0.00	0.00	0.00	20.40	20.50	2.00		0.00	0.00		2.00		9.03	18.53	
BH4	1	0.00	0.00	0.40	0.40	0.00	0.00	19.60	19.60	2.00		0.00	0.00		2.00		8.93	20.27	
BH5	5	0.00	0.00	7.30	7.00	0.00	0.00	7.50	8.00	2.00		0.00	0.00		2.00		9.27	15.05	
Max		0.00	0.00	7.30	7.00	1.00	0.00	20.40	20.50		0.0	0.40	0.30	0.00		0	10.08	20.27	
Min		0.00	0.00	0.00	0.00	0.00	0.00	7.50	8.00		0.0	0.00	0.00	0.00		0	8.93	15.05	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☒ Dry ☐ Wet

☐ Frozen ☐ Snow

Wind: ☒ Calm ☐ Moderate ☐ Strong

Cloud cover: ☐ None ☒ Cloudy ☐ Overcast

Precipitation: ☒ None ☐ Moderate ☐ Heavy

Additional Comments:

N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☒ Falling (decreasing change >1.6 mbar)

☐ Steady (change of 0.1 - 1.5 mbar)

☐ Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☐ Falling

☐ Steady

☒ Rising

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	4	of	6
Date:	11/04/2024		
Time:	13:00	to	14:20

Operator:	SC
Ground Gas Analyser:	12002
Last Calibration:	07/03/2024



Monitoring Point	Order	GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
		Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady		Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady	(mins)		Peak	Steady		(mins)				
BH1	2	0.00	0.00	1.00	1.00	0.00	0.00	18.50	18.60	2.00		0.00	0.00		2.00		9.33	17.66	
BH2	4	0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.10	2.00		0.00	0.00		2.00		10.90	17.20	
BH3	3	0.00	0.00	0.10	0.00	0.00	0.00	20.60	20.60	2.00		0.00	0.00		2.00		9.11	18.41	
BH4	1	0.00	0.00	0.90	0.80	0.00	0.00	18.80	18.90	2.00		0.00	0.00		2.00		8.73	20.29	
BH5	5	0.00	0.00	7.00	6.80	0.00	0.00	8.50	8.60	2.00		0.00	0.00		2.00		9.29	15.13	
Max		0.00	0.00	7.00	6.80	0.00	0.00	20.60	20.60		0.0	0.00	0.00	0.00		0	10.90	20.29	
Min		0.00	0.00	0.00	0.00	0.00	0.00	8.50	8.60		0.0	0.00	0.00	0.00		0	8.73	15.13	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☒ Dry ☐ Wet

☐ Frozen ☐ Snow

Wind: ☒ Calm ☐ Moderate ☐ Strong

Cloud cover: ☐ None ☒ Cloudy ☐ Overcast

Precipitation: ☒ None ☐ Moderate ☐ Heavy

Additional Comments:

N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☒ Falling (decreasing change >1.6 mbar)

☐ Steady (change of 0.1 - 1.5 mbar)

☐ Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☐ Falling

☐ Steady

☒ Rising

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	5	of	6
Date:	18/04/2024		
Time:	09:00	to	12:30

Operator:	SC
Ground Gas Analyser:	12002
Last Calibration:	07/03/2024



Monitoring Point	Order	GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
		Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady		Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady	(mins)		Peak	Steady		(mins)				
BH1	2	0.00	0.00	3.10	3.10	0.00	0.00	16.00	16.10	2.00		0.00	0.00		2.00		9.30	17.54	
BH2	3	0.00	0.00	0.00	0.00	0.00	0.00	19.70	19.70	2.00		11.80	11.80		2.00		10.40	17.25	
BH3	1	0.00	0.00	0.00	0.00	1.00	0.00	20.30	20.40	2.00		0.10	0.10		2.00		9.09	18.33	
BH4	5	0.00	0.00	0.10	0.10	0.00	0.00	20.30	20.30	2.00		0.00	0.00		2.00		8.71	20.37	
BH5	4	0.00	0.00	8.10	8.10	0.00	0.00	7.70	7.80	2.00		0.00	0.00		2.00		8.84	15.20	
Max		0.00	0.00	8.10	8.10	1.00	0.00	20.30	20.40		0.0	11.80	11.80	0.00		0	10.40	20.37	
Min		0.00	0.00	0.00	0.00	0.00	0.00	7.70	7.80		0.0	0.00	0.00	0.00		0	8.71	15.20	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☒ Dry ☐ Wet

☐ Frozen ☐ Snow

Wind: ☒ Calm ☐ Moderate ☐ Strong

Cloud cover: ☒ None ☐ Cloudy ☐ Overcast

Precipitation: ☒ None ☐ Moderate ☐ Heavy

Additional Comments:

N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☒ Falling (decreasing change >1.6 mbar)

☐ Steady (change of 0.1 - 1.5 mbar)

☐ Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☐ Falling

☐ Steady

☒ Rising

Job No:	GM13005
Site Name:	Pilsworth Landfill Site
Client:	Valencia Waste Management Ltd

Visit No:	6	of	6
Date:	23/04/2024		
Time:	14:00	to	15:15

Operator:	SC
Ground Gas Analyser:	12910
Last Calibration:	10/04/2024



		GAS CONCENTRATIONS									VOLATILES	FLOW DATA				WELL AND WATER DATA			ADDITIONAL COMMENTS
Monitoring Point	Order	Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		Time Taken for Steady	PID Peak (ppm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time Taken for Steady (mins)	Product thickness (mm)	Water level (m bgl)	Depth of well (mbgl)	
		Peak	Steady	Peak	Steady	Peak	Peak	Min	Steady	(mins)		Peak	Steady						
BH1	2	0.00	0.00	0.20	0.20	0.00	0.00	19.40	19.30	2.00		0.50	0.50		2.00		9.28	17.55	
BH2	4	0.00	0.00	0.20	0.20	0.00	0.00	20.00	20.10	2.00		0.00	0.00		2.00		10.08	17.24	
BH3	3	0.00	0.00	0.20	0.20	0.00	0.00	19.00	19.00	2.00		1.20	1.20		2.00		9.08	17.81	
BH4	1	0.00	0.00	0.10	0.10	0.00	0.00	20.30	20.30	2.00		1.30	1.30		2.00		8.70	20.22	
BH5	5	0.00	0.00	0.20	0.20	0.00	0.00	20.20	20.20	2.00		3.60	3.60		2.00		9.25	14.79	
Max		0.00	0.00	0.20	0.20	0.00	0.00	20.30	20.30		0.0	3.60	3.60	0.00		0	10.08	20.22	
Min		0.00	0.00	0.10	0.10	0.00	0.00	19.00	19.00		0.0	0.00	0.00	0.00		0	8.70	14.79	

SITE INFORMATION:

Nature of ground: ☒ Soft-landscaping ☐ Hardstanding

State of ground: ☒ Dry ☐ Wet
☐ Frozen ☐ Snow

Wind: ☒ Calm ☐ Moderate ☐ Strong

Cloud cover: ☒ None ☐ Cloudy ☐ Overcast

Precipitation: ☒ None ☐ Moderate ☐ Heavy

Additional Comments:
N/A.

METEOROLOGICAL INFORMATION:

Gas Monitor Atmospheric Pressure: Start of Visit End of Visit

Official Barometric Pressure (mbar): 3hr Before End of Monitoring

Atmospheric Pressure Tendency:

Taken from www.metoffice.gov.uk station: BURY

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

☒	Falling (decreasing change >1.6 mbar)
☐	Steady (change of 0.1 - 1.5 mbar)
☐	Rising (increasing change >1.6 mbar)

General pressure Tendency for preceding 24 hours:

☒	Falling
☐	Steady
☐	Rising



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS001GM	14/03/2022	0.8	0.0	20.3	1010	-0.1	99.2
	20/04/2022	0.8	0.0	19.6	1009		99.2
	19/05/2022	0.6	0.1	21.3	1009		99.3
	01/07/2022	0.1	0.0	21.4	1003		99.9
	20/07/2022	0.9	0.0	20.9	1005	-0.3	99.1
	25/08/2022	0.8	0.0	20.1	1011	0.0	99.2
	14/09/2022	1.0	0.0	19.8	996	0.2	99.0
	06/10/2022	0.7	0.1	20.2	1011	0.2	99.2
	11/11/2022	0.2	0.0	20.7	1008	0.1	99.8
	15/12/2022	1.4	0.0	20.1	1001	0.3	98.6
	04/01/2023	1.3	0.4	20.0	996	-0.1	98.3
	17/02/2023	1.2	0.0	18.7	1003	-0.4	98.8
	23/03/2023	1.3	0.1	19.3	980	-0.4	98.6
	10/04/2023	1.6	0.0	19.9	991	-0.3	98.4
	08/05/2023	0.6	0.1	20.7	1006	-0.3	99.3
	22/06/2023	0.7	0.2	20.2	1008	-0.3	99.1
	10/07/2023	0.6	0.1	21.2	1006	-0.3	99.3
	17/08/2023	0.6	0.1	20.4	1011	-0.4	99.3
	21/09/2023	0.1	0.0	21.1	983	0.2	99.9
	11/10/2023	1.4	0.0	20.2	1000	0.3	98.6
	11/10/2023	1.4	0.0	20.2	1000	0.3	98.6
	21/11/2023	0.3	0.0	20.6	1020	0.2	99.7
	21/11/2023	0.3	0.0	20.6	1020	0.2	99.7
	08/12/2023	1.3	0.0	20.0	988	0.2	98.7
	08/12/2023	1.3	0.0	20.0	988	0.2	98.7
	24/01/2024	0.6	0.0	20.3	1013	0.4	99.4
	24/01/2024	0.6	0.0	20.3	1013	0.4	99.4
	14/02/2024	0.5	0.1	20.4	993	0.3	99.4
	25/03/2024	1.5	0.0	20.2	986	-0.4	98.5
	18/04/2024	1.0	0.0	20.5	1011	-1.1	99.0
	16/05/2024	0.8	0.0	19.9	996	0.0	99.2
	26/06/2024	0.9	0.1	19.7	1005	0.0	99.0
	17/07/2024	0.7	0.1	20.1	1011	-0.3	99.2
	29/08/2024	0.8	0.0	20.5	1005	0.0	99.2
	23/09/2024	1.1	0.0	20.1	990	0.2	98.9
	14/10/2024	0.9	0.0	20.2	1008	-0.1	99.1
	11/11/2024	1.0	0.0	20.2	1026	0.0	99.0
	10/12/2024	0.6	0.0	20.5	1025	0.0	99.4
	31/01/2025	0.4	0.0	20.5	1012	0.1	99.6
	26/02/2025	1.1	0.0	20.0	995	-0.1	98.9
	07/03/2025	1.1	0.0	20.0	998	-0.1	98.9

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS002GM	14/03/2022	0.1	0.0	20.8	1010	0.0	99.9
	20/04/2022	0.4	0.0	19.8	1009		99.6
	19/05/2022	0.1	0.1	21.4	1009		99.8
	01/07/2022	0.1	0.0	21.5	1003		99.9
	20/07/2022	0.1	0.0	21.2	1006	-0.3	99.9
	25/08/2022	0.1	0.0	20.5	1011	0.0	99.9
	14/09/2022	0.1	0.0	20.7	997	0.1	99.9
	06/10/2022	0.2	0.1	20.7	1011	0.1	99.7
	11/11/2022	0.1	0.0	20.9	1009	0.1	99.9
	15/12/2022	0.2	0.0	20.9	1001	0.3	99.8
	04/01/2023	0.2	0.4	19.9	995	-0.2	99.4
	17/02/2023	0.1	0.0	19.9	1003		99.9
	17/02/2023	0.1	0.0	19.9	1003	-0.4	99.9
	23/03/2023	1.6	0.1	19.1	980	-0.4	98.3
	10/04/2023	2.0	0.0	19.5	992	-0.4	98.0
	08/05/2023	1.8	0.1	19.5	1005	-0.2	98.1
	22/06/2023	0.4	0.5	20.5	1009	-0.4	99.1
	10/07/2023	0.5	0.1	20.6	1006	-0.3	99.4
	17/08/2023	0.1	0.0	19.9	1011	-0.4	99.9
	21/09/2023	0.2	0.0	20.9	984	0.1	99.8
	11/10/2023	0.2	0.0	19.7	1000	0.3	99.8
	11/10/2023	0.2	0.0	19.7	1000	0.3	99.8
	21/11/2023	0.0	0.0	20.9	1019	0.2	100.0
	21/11/2023	0.0	0.0	20.9	1019	0.2	100.0
	08/12/2023	0.1	0.0	21.0	992	0.2	99.9
	08/12/2023	0.1	0.0	21.0	992	0.2	99.9
	24/01/2024	0.1	0.1	20.9	1013	0.5	99.8
	24/01/2024	0.1	0.1	20.9	1013	0.5	99.8
	14/02/2024	0.2	0.1	20.8	994	0.2	99.7
	11/03/2024	0.1	0.0	21.0	997	-0.7	99.9
	18/04/2024	0.2	0.0	21.0	1011	-1.1	99.8
	16/05/2024	0.2	0.0	20.5	996	0.0	99.8
	26/06/2024	1.0	0.1	19.8	1005	-0.1	98.9
	17/07/2024	0.1	0.1	20.7	1011	-0.4	99.8
	29/08/2024	0.1	0.0	21.1	1005	0.0	99.9
	23/09/2024	2.1	0.0	19.0	991	0.1	97.9
	14/10/2024	0.1	0.0	20.4	1004	-0.2	99.9
	11/11/2024	0.7	0.0	20.7	1030	0.0	99.3
	10/12/2024	0.8	0.0	20.2	1026	0.0	99.2
	31/01/2025	0.1	0.1	20.8	1012	0.0	99.8
	26/02/2025	1.7	0.0	19.5	997	0.1	98.3
	07/03/2025	0.1	0.0	20.8	999	0.0	99.9

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS003GM	14/03/2022	0.8	0.0	20.7	1012	-0.1	99.2
	20/04/2022	0.8	0.0	19.9	1008	-0.3	99.2
	19/05/2022	2.3	0.0	20.2	1009		97.7
	01/07/2022	3.0	0.0	19.7	1003		97.0
	20/07/2022	2.9	0.0	20.9	1008	-0.4	97.1
	25/08/2022	3.6	0.0	17.8	1010	0.0	96.4
	14/09/2022	4.2	0.0	16.3	997	-0.1	95.8
	06/10/2022	4.3	0.1	16.3	1010	0.1	95.6
	11/11/2022	4.7	0.0	15.4	1008	0.3	95.3
	15/12/2022	3.6	0.0	16.7	1002		96.4
	15/12/2022	3.6	0.0	16.6	1002	-0.1	96.4
	04/01/2023	2.5	0.4	15.5	997	-0.1	97.1
	17/02/2023	1.8	0.0	17.9	1006	-0.5	98.2
	23/03/2023	0.5	0.0	20.0	980	-0.7	99.5
	10/04/2023	1.5	0.0	19.1	992	-0.4	98.5
	08/05/2023	2.1	0.1	18.6	1004	-0.2	97.8
	22/06/2023	0.1	0.0	21.3	1010	-0.8	99.9
	10/07/2023	3.8	0.1	17.8	1006	-0.3	96.1
	17/08/2023	4.7	0.0	16.5	1011	-0.4	95.3
	21/09/2023	4.2	0.0	17.7	983	0.2	95.8
	11/10/2023	3.2	0.0	19.3	1000	0.3	96.8
	11/10/2023	3.2	0.0	19.3	1000	0.3	96.8
	21/11/2023	2.8	0.0	17.3	1019	0.0	97.2
	21/11/2023	2.8	0.0	17.3	1019	0.0	97.2
	08/12/2023	1.7	0.1	17.9	988	0.1	98.2
	08/12/2023	1.7	0.1	17.9	988	0.1	98.2
	25/01/2024	1.0	0.1	19.8	1013	0.3	98.9
	25/01/2024	1.0	0.1	19.8	1013	0.3	98.9
	14/02/2024	0.6	0.1	20.2	996	0.3	99.3
	11/03/2024	0.8	0.1	20.0	996	-0.8	99.1
	24/04/2024	1.6	0.0	18.3	1009	-0.1	98.4
	16/05/2024	0.5	0.0	18.8	996	-0.2	99.5
	25/06/2024	3.0	0.0	17.9	1008	-0.2	97.0
	17/07/2024	3.0	0.0	17.9		-0.3	97.0
	29/08/2024	2.1	0.0	19.3	1004	-0.1	97.9
	23/09/2024	2.7	0.0	18.3	993	0.1	97.3
	14/10/2024	3.6	0.1	17.0	1010	-0.2	96.3
	11/11/2024	2.1	0.1	19.0	1031	0.0	97.8
	12/12/2024	2.2	0.0	19.2	1022	0.0	97.8
	20/01/2025	1.5	0.0	18.3	1006	-0.2	98.5
	26/02/2025	0.7	0.1	21.1	996	-0.7	99.2
	07/03/2025	1	0	19.1	999	-0.1	99.0

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS004GM	14/09/2022	0.7	0.0	20.4	997	-0.1	99.3
	06/10/2022	10.4	0.0	1.9	1012	0.1	89.6
	11/11/2022	6.3	0.0	5.8	1008	0.3	93.7
	15/12/2022	0.2	0.0	18.7	1002	0.4	99.8
	04/01/2023	1.4	0.0	0.5	997	0.0	98.6
	17/02/2023	7.0	0.0	1.3	1006	-0.5	93.0
	23/03/2023	3.4	0.0	4.2	981	-0.4	96.6
	10/04/2023	5.4	0.1	4.5	992	-0.4	94.5
	08/05/2023	6.7	0.0	7.4	1003	-0.2	93.3
	22/06/2023	8.8	0.0	6.4	1011	-0.8	91.2
	11/07/2023	8.7	0.3	3.4	996	0.3	91.0
	17/08/2023	5.5	0.0	5.8	1010	-0.5	94.5
	21/09/2023	3.7	0.0	5.1	985	0.1	96.3
	11/10/2023	5.4	0.0	5.7	1000	0.3	94.6
	11/10/2023	5.4	0.0	5.7	1000	0.3	94.6
	21/11/2023	1.0	0.0	12.4	1016	0.0	99.0
	21/11/2023	1.0	0.0	12.4	1016	0.0	99.0
	08/12/2023	1.4	0.0	11.6	988	-1.5	98.6
	08/12/2023	1.4	0.0	11.6	988	-1.5	98.6
	25/01/2024	1.6	0.0	10.7	1009	0.2	98.4
	25/01/2024	1.6	0.0	10.7	1009	0.2	98.4
	14/02/2024	2.9	0.0	5.6	995	0.3	97.1
	11/03/2024	0.5	0.1	19.7	996	-0.8	99.4
	24/04/2024	1.3	0.0	15.9	1010	0.2	98.7
	16/05/2024	1.5	0.0	13.6	997	-1.8	98.5
	25/06/2024	4.5	0.0	5.7	1008	-0.2	95.5
	17/07/2024	7.0	0.0	4.2	1011	-3.7	93.0
	29/08/2024	8.1	0.1	11.4	1006	-0.1	91.8
	23/09/2024	8.4	0.1	6.2	993	0.1	91.5
	14/10/2024	3.6	0.0	12.5	1008	-0.2	96.4
	11/11/2024	2.9	0.0	11.3	1028	0.0	97.1
	12/12/2024	1.0	0.0	19.3	1020	0.2	99.0
	20/01/2025	0.5	0.0	20.1	1009	-0.1	99.5
	26/02/2025	0.1	0.0	20.9	995	-0.1	99.9
	07/03/2025	1.1	0.0	17.8	999	-0.2	98.9

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS004AGM	14/03/2022	0.6	0.0	21.4	1012	0.0	99.4
	20/04/2022	0.2	0.0	20.4	1008	-0.3	99.8
	19/05/2022	0.4	0.0	21.4	1009		99.6
	01/07/2022	0.3	0.0	21.7	1004		99.7
	20/07/2022	1.0	0.0	21.4	1008	-0.2	99.0
	25/08/2022	0.8	0.0	20.2	1010	0.1	99.2
	14/09/2022	12.2	0.0	1.4	997	0.0	87.8
	06/10/2022	0.7	0.1	20.0	1011	0.1	99.2
	11/11/2022	0.6	0.0	20.8	1008	0.3	99.4
	15/12/2022	0.7	0.0	21.7	1002	0.4	99.3
	04/01/2023	0.9	0.1	20.9	997	-0.1	99.0
	17/02/2023	0.4	0.0	20.1	1005	-0.5	99.6
	23/03/2023	0.9	0.0	20.1	980	-0.3	99.1
	10/04/2023	0.8	0.0	21.1	993	-0.4	99.2
	08/05/2023	0.8	0.0	20.9	1003	-0.2	99.2
	22/06/2023	0.9	0.0	20.2	1009	-0.9	99.1
	10/07/2023	1.2	0.2	20.0	1006	-0.4	98.6
	17/08/2023	1.8	0.3	20.0	1011	-0.4	97.9
	21/09/2023	1.7	0.0	18.9	983	0.1	98.3
	11/10/2023	1.7	0.0	19.6	1000	0.3	98.3
	11/10/2023	1.7	0.0	19.6	1000	0.3	98.3
	21/11/2023	0.3	0.0	20.8	1020	-0.1	99.7
	21/11/2023	0.3	0.0	20.8	1020	-0.1	99.7
	19/12/2023	0.8	0.1	20.8	1010	0.3	99.1
	19/12/2023	0.8	0.1	20.8	1010	0.3	99.1
	25/01/2024	0.8	0.0	20.7	1012	0.3	99.2
	25/01/2024	0.8	0.0	20.7	1012	0.3	99.2
	14/02/2024	0.6	0.1	20.6	993	0.3	99.3
	11/03/2024	0.4	0.1	21.0	997	-0.8	99.5
	24/04/2024	0.5	0.0	20.6	1010	-0.2	99.5
	16/05/2024	0.5	0.0	20.8	996	-0.2	99.5
	25/06/2024	0.9	0.0	20.1	1008	-0.3	99.1
	17/07/2024	0.5	0.0	20.0	1011	-0.4	99.5
	29/08/2024	0.6	0.0	20.2	1006	-0.2	99.4
	23/09/2024	0.3	0.0	21.2	993	0.0	99.7
	14/10/2024	0.3	0.0	20.6	1008	0.1	99.7
	11/11/2024	1.2	0.1	21.1	1032	0.0	98.7
	30/12/2024	0.1	0.0	20.8	1015		99.9
	20/01/2025	0.3	0.0	18.0	1009	-0.1	99.7
	26/02/2025	0.1	0.0	20.8	994	-0.1	99.9
	07/03/2025	0.7	0.0	20.7	1000	-0.2	99.3

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS015GM	20/07/2022	0.1	0.0	21.1	1006	-0.2	99.9
	14/09/2022	0.6	0.0	20.1	996	0.1	99.4
	06/10/2022	1.0	0.1	20.0	1010	0.2	98.9
	11/11/2022	0.1	0.0	20.9	1007	0.0	99.9
	15/12/2022	1.2	0.0	20.4	1001	0.3	98.8
	04/01/2023	1.5	0.4	20.1	996	-0.2	98.1
	17/02/2023	0.2	0.0	19.7	1003	-0.4	99.8
	23/03/2023	0.5	0.0	20.3	980	-0.3	99.5
	10/04/2023	1.3	0.0	20.1	992	-0.4	98.7
	08/05/2023	0.4	0.1	20.9	1004	-0.3	99.5
	22/06/2023	0.1	0.0	20.6	1008	-0.4	99.9
	10/07/2023	0.1	0.1	21.5	1006	-0.2	99.8
	17/08/2023	0.1	0.0	20.8	1012	-0.3	99.9
	21/09/2023	0.2	0.0	21.0	983	0.3	99.8
	11/10/2023	0.2	0.0	20.2	1000	0.3	99.8
	11/10/2023	0.2	0.0	20.2	1000	0.3	99.8
	21/11/2023	0.1	0.0	20.9	1020	0.2	99.9
	21/11/2023	0.1	0.0	20.9	1020	0.2	99.9
	08/12/2023	0.1	0.0	21.0	990	0.2	99.9
	08/12/2023	0.1	0.0	21.0	990	0.2	99.9
	24/01/2024	0.1	0.0	20.7	1011	0.4	99.9
	24/01/2024	0.1	0.0	20.7	1011	0.4	99.9
	14/02/2024	0.4	0.1	20.6	996	0.2	99.5
	11/03/2024	0.2	0.1	20.9	998	-0.8	99.7
	18/04/2024	0.6	0.0	20.9	1011	-1.1	99.4
	16/05/2024	0.5	0.0	20.0	996	-0.2	99.5
	26/06/2024	0.6	0.1	20.1	1005	-0.1	99.3
	17/07/2024	0.5	0.1	20.2	1011	-0.3	99.4
	29/08/2024	0.3	0.0	20.9	1005	0.0	99.7
	23/09/2024	1.2	0.0	20.0	991	0.2	98.8
	14/10/2024	0.4	0.0	20.5	1008	0.0	99.6
	11/11/2024	0.4	0.0	20.8	1025	0.0	99.6
	10/12/2024	0.9	0.0	20.3	1025	0.0	99.1
	31/01/2025	0.1	0.0	20.8	1012	0.0	99.9
	26/02/2025	1.2	0.0	20.1	998	-0.1	98.8
	07/03/2025	0.1	0.0	21.2	998		99.9

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS016GM	14/03/2022	0.5	0.0	20.6	1010	0.0	99.5
	20/04/2022	0.4	0.0	19.7	1009		99.6
	19/05/2022	0.8	0.0	21.3	1009		99.2
	01/07/2022	0.4	0.0	21.4	1003		99.6
	20/07/2022	0.5	0.0	21.0	1006	-0.3	99.5
	25/08/2022	0.5	0.0	20.4	1011	0.2	99.5
	14/09/2022	0.5	0.0	20.1	996	0.0	99.5
	06/10/2022	0.8	0.1	20.2	1010	0.2	99.1
	11/11/2022	0.6	0.0	20.4	1008	0.0	99.4
	15/12/2022	0.6	0.0	21.1	1001	0.3	99.4
	04/01/2023	0.7	0.4	20.6	996	-0.2	98.9
	17/02/2023	0.2	0.0	19.9	1003	-0.5	99.8
	23/03/2023	0.5	0.1	20.4	980	-0.4	99.4
	10/04/2023	0.4	0.1	20.3	994	-0.5	99.5
	08/05/2023	0.6	0.1	20.7	1004	-0.3	99.3
	22/06/2023	0.6	0.1	20.2	1008	-0.4	99.3
	10/07/2023	0.5	0.1	21.6	1006	-0.3	99.4
	17/08/2023	0.7	0.1	20.4	1011	-0.4	99.2
	11/10/2023	1.3	0.0	20.0	999	0.3	98.7
	11/10/2023	1.3	0.0	20.0	999	0.3	98.7
	21/11/2023	3.7	0.0	20.9	1017	-2.2	96.3
	21/11/2023	3.7	0.0	20.9	1017	-2.2	96.3
	08/12/2023	0.8	0.0	20.6	992	0.2	99.2
	08/12/2023	0.8	0.0	20.6	992	0.2	99.2
	24/01/2024	0.7	0.0	20.4	1014	0.4	99.3
	24/01/2024	0.7	0.0	20.4	1014	0.4	99.3
	14/02/2024	0.7	0.1	20.5	996	0.2	99.2
	11/03/2024	0.7	0.0	19.6	997	-0.7	99.3
	18/04/2024	0.8	0.0	20.1	1007	-0.4	99.2
	16/05/2024	1.0	0.0	19.3	996	-0.6	99.0
	26/06/2024	0.7	0.1	20.4	999	-0.1	99.2
	17/07/2024	0.7	0.0	20.3	1011	-0.2	99.3
	29/08/2024	0.6	0.0	20.6	1005	0.0	99.4
	23/09/2024	0.7	0.0	20.4	991	0.1	99.3
	14/10/2024	0.6	0.0	20.3	1008	-0.1	99.4
	11/11/2024	0.7	0.0	20.5	1029	0.0	99.3
	10/12/2024	0.5	0.0	20.4	1024	-0.1	99.5
	31/01/2025	0.5	0.0	20.6	1011	0.2	99.5
	26/02/2025	0.5	0.0	20.8	997	-0.1	99.5
	07/03/2025	0.6	0.0	20.4	996	0.0	99.4

Note: Blank values indicate Not Recorded



Well	Date	Carbon Dioxide (% v/v)	Methane (%v/v)	Oxygen (%v/v)	Atmospheric Pressure (mBar)	Flow Rate (l/h)	Oxygen + Balance (% v/v)
PS017GM	14/03/2022	1.5	0.0	19.2	1010	0.1	98.5
	20/04/2022	1.8	0.0	18.1	1009	-1.9	98.2
	19/05/2022	1.9	0.0	20.8	1008		98.1
	01/07/2022	2.0	0.0	20.7	1003		98.0
	20/07/2022	1.2	0.0	20.7	1006	-0.2	98.8
	25/08/2022	1.4	0.0	19.9	1011	-0.1	98.6
	14/09/2022	1.4	0.0	19.6	997	2.2	98.6
	06/10/2022	1.9	0.1	19.5	1010	1.5	98.0
	11/11/2022	1.9	0.0	19.5	1008	-0.4	98.1
	15/12/2022	1.9	0.1	20.1	1000	0.4	98.0
	04/01/2023	1.5	0.3	19.6	995	-3.7	98.2
	17/02/2023	1.4	0.0	17.8	1003	-2.4	98.6
	23/03/2023	1.9	0.0	18.6	980	-0.7	98.1
	10/04/2023	1.5	0.1	18.5	995	-0.8	98.4
	08/05/2023	0.8	0.0	20.2	1004	-0.4	99.2
	22/06/2023	1.9	0.1	18.3	1008	-1.4	98.0
	10/07/2023	2.5	0.1	19.5	1008	-0.1	97.4
	17/08/2023	2.9	0.0	17.8	1011	-2.1	97.1
	21/09/2023	3.3	0.0	18.0	983	-2.0	96.7
	11/10/2023	3.4	0.0	19.5	999	-0.4	96.6
	11/10/2023	3.4	0.0	19.5	999	-0.4	96.6
	21/11/2023	2.8	0.0	17.8	1020	-2.5	97.2
	21/11/2023	2.8	0.0	17.8	1020	-2.5	97.2
	08/12/2023	3.2	0.0	17.1	988	-0.2	96.8
	08/12/2023	3.2	0.0	17.1	988	-0.2	96.8
	24/01/2024	1.8	0.0	17.7	1010	-0.7	98.2
	24/01/2024	1.8	0.0	17.7	1010	-0.7	98.2
	14/02/2024	1.9	0.1	18.4	994	0.0	98.0
	11/03/2024	1.5	0.0	18.4	997	-1.1	98.5
	18/04/2024	2.3	0.0	17.0	1006	-0.9	97.7
	16/05/2024	2.0	0.0	17.0	995	-1.6	98.0
	26/06/2024	2.7	0.0	16.7	1005	-1.6	97.3
	17/07/2024	2.7	0.0	17.7	1011	-0.1	97.3
	29/08/2024	2.5	0.0	19.0	1005	-0.9	97.5
	23/09/2024	2.1	0.0	19.3	990	-0.6	97.9
	14/10/2024	1.9	0.0	19.4	1007	-3.5	98.1
	11/11/2024	2.4	0.0	18.9	1026	-4.7	97.6
	10/12/2024	2.7	0.0	19.4	1024	-0.6	97.3
	31/01/2025	1.9	0.0	18.3	1012	-0.2	98.1
	26/02/2025	1.7	0.0	18.8	998	-1.3	98.3
	07/03/2025	2.0	0.0	19.1	996	-1.6	98.0

Note: Blank values indicate Not Recorded



Valencia Waste Management Ltd

Pilsworth South
Materials Recycling Facility

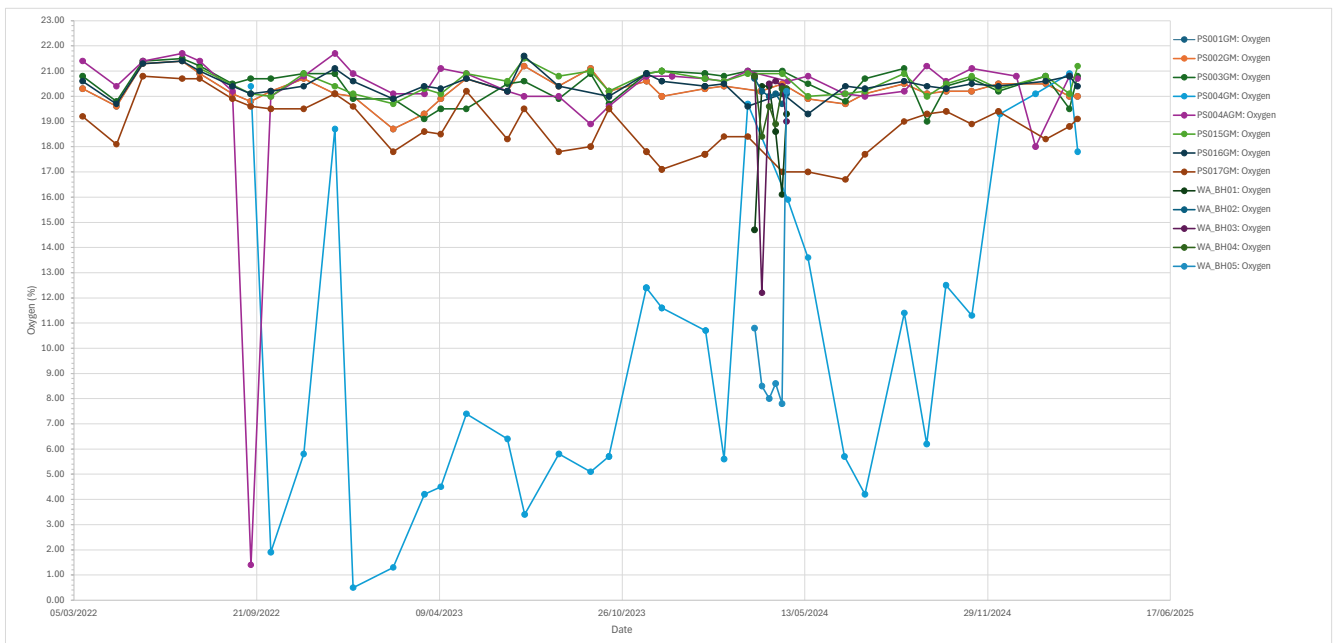
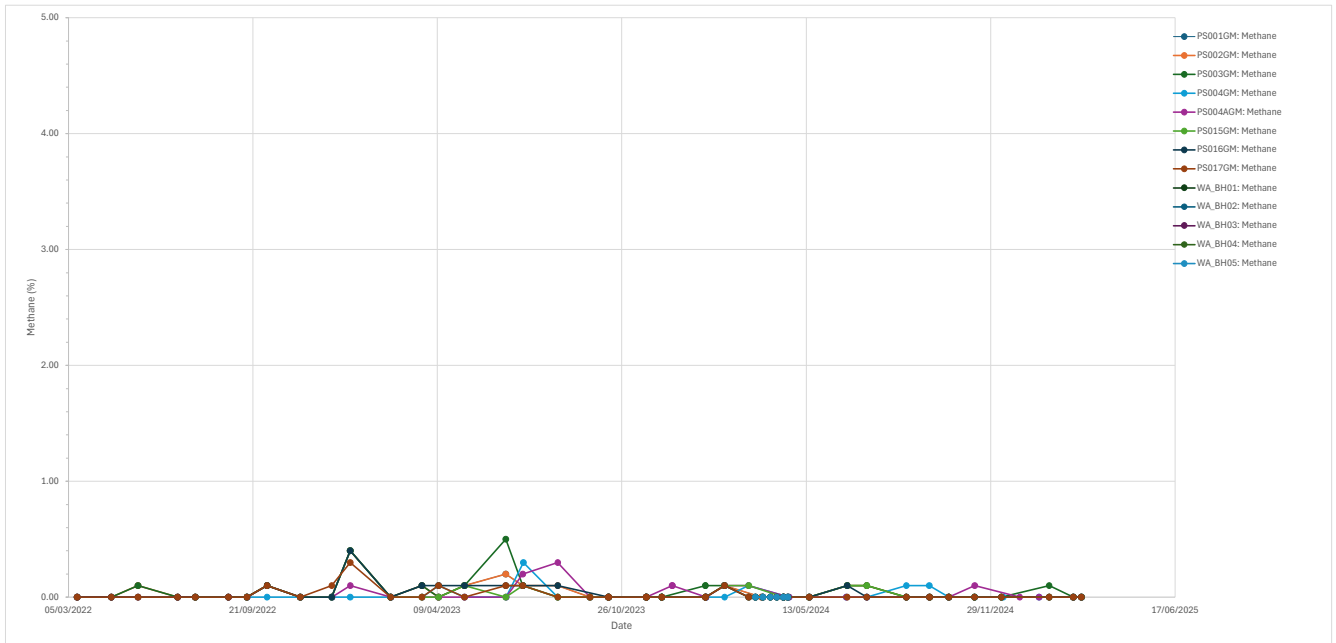
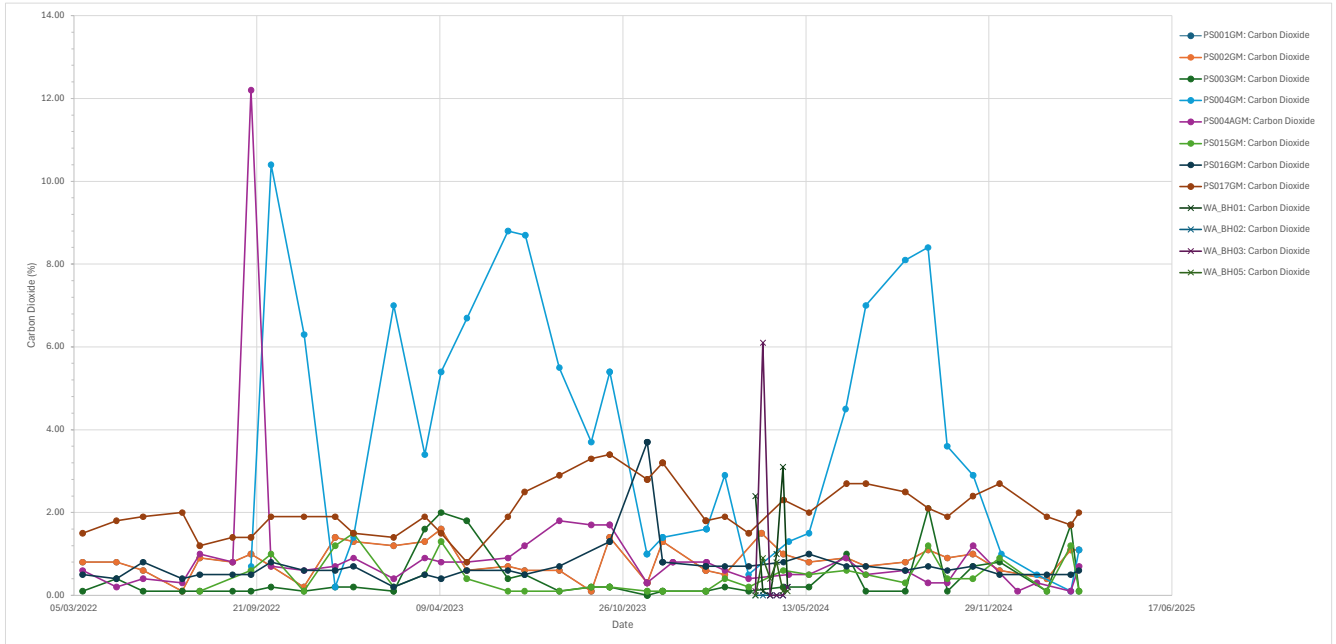
Ground Gas Risk Assessment Report
ECL.9595.R06.001 Rev -

May 2025

Appendix 4

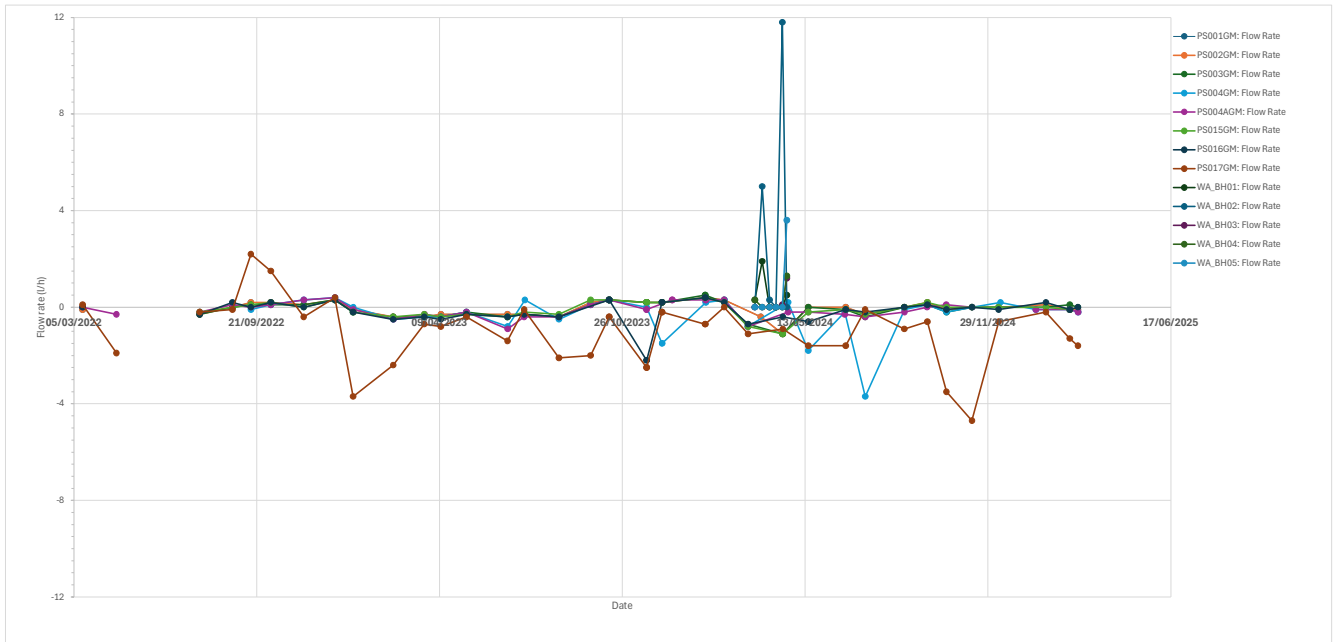
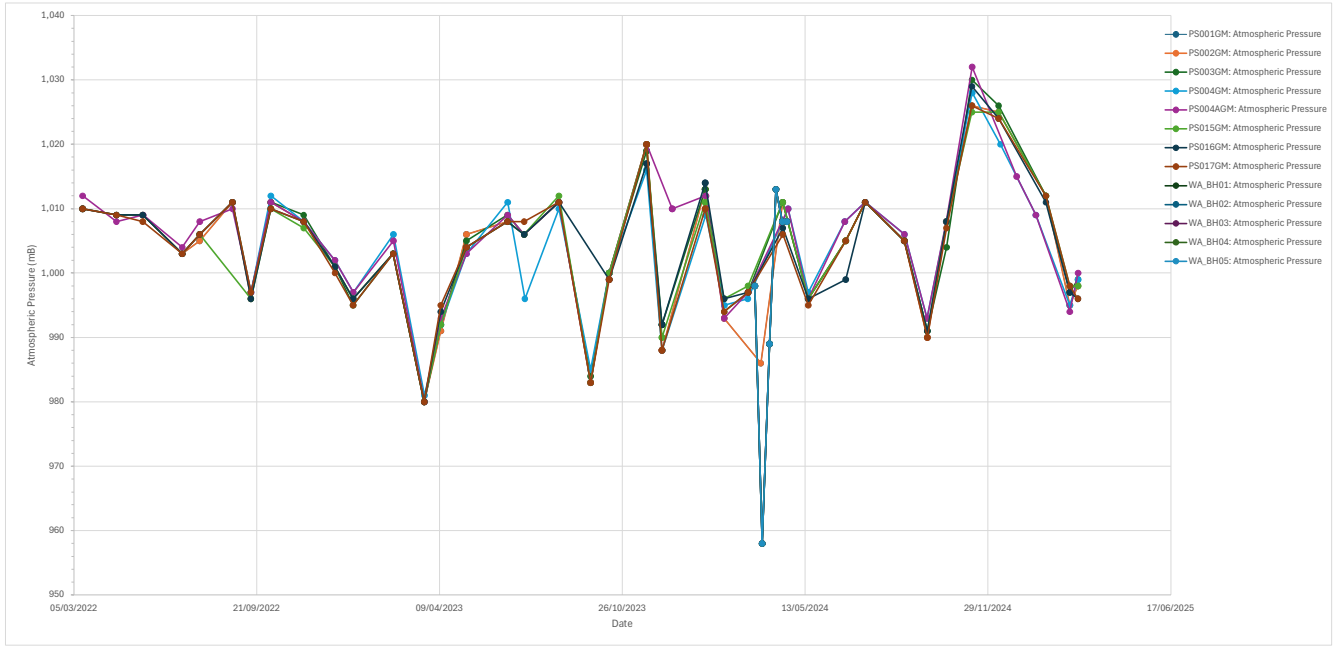
Gas Risk Assessment Plots

ECL, Plots of Gas Concentrations, Atmospheric Pressure and Flow Rates against Dates
ECL, Ternary Plot of Ground Gas Concentrations
ECL, Stoichiometric Assessment of Carbon Dioxide and Oxygen Gas Concentrations



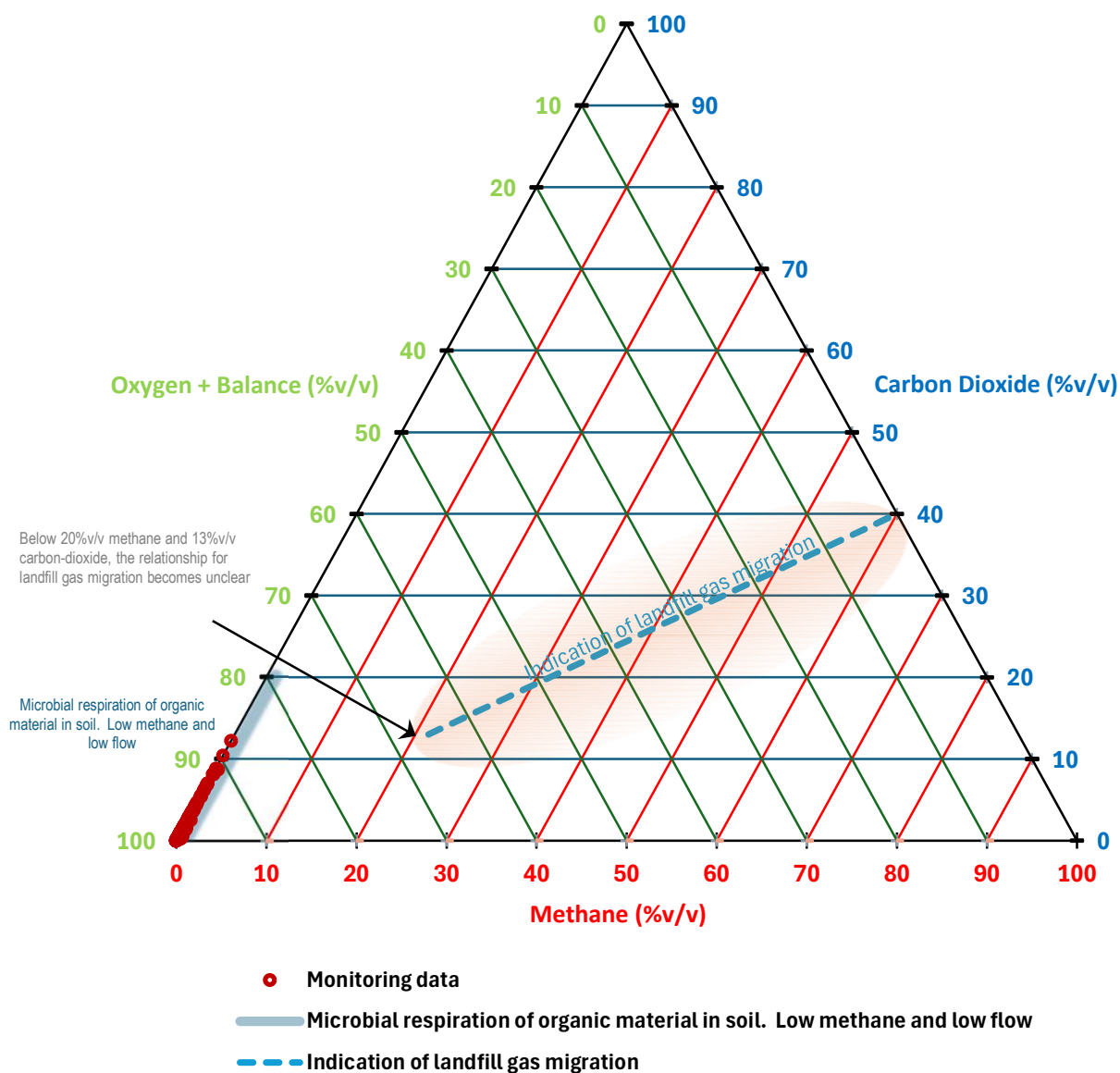
ECL.9595: Pitsworth South MRF

Gas Monitoring Summary Plots



Site:

Pilsworth South Materials Recycling Facility, Bury



Notes:

Ternary Plot of Ground Gas Concentrations

Based on Ground Gas Information Sheet No 1

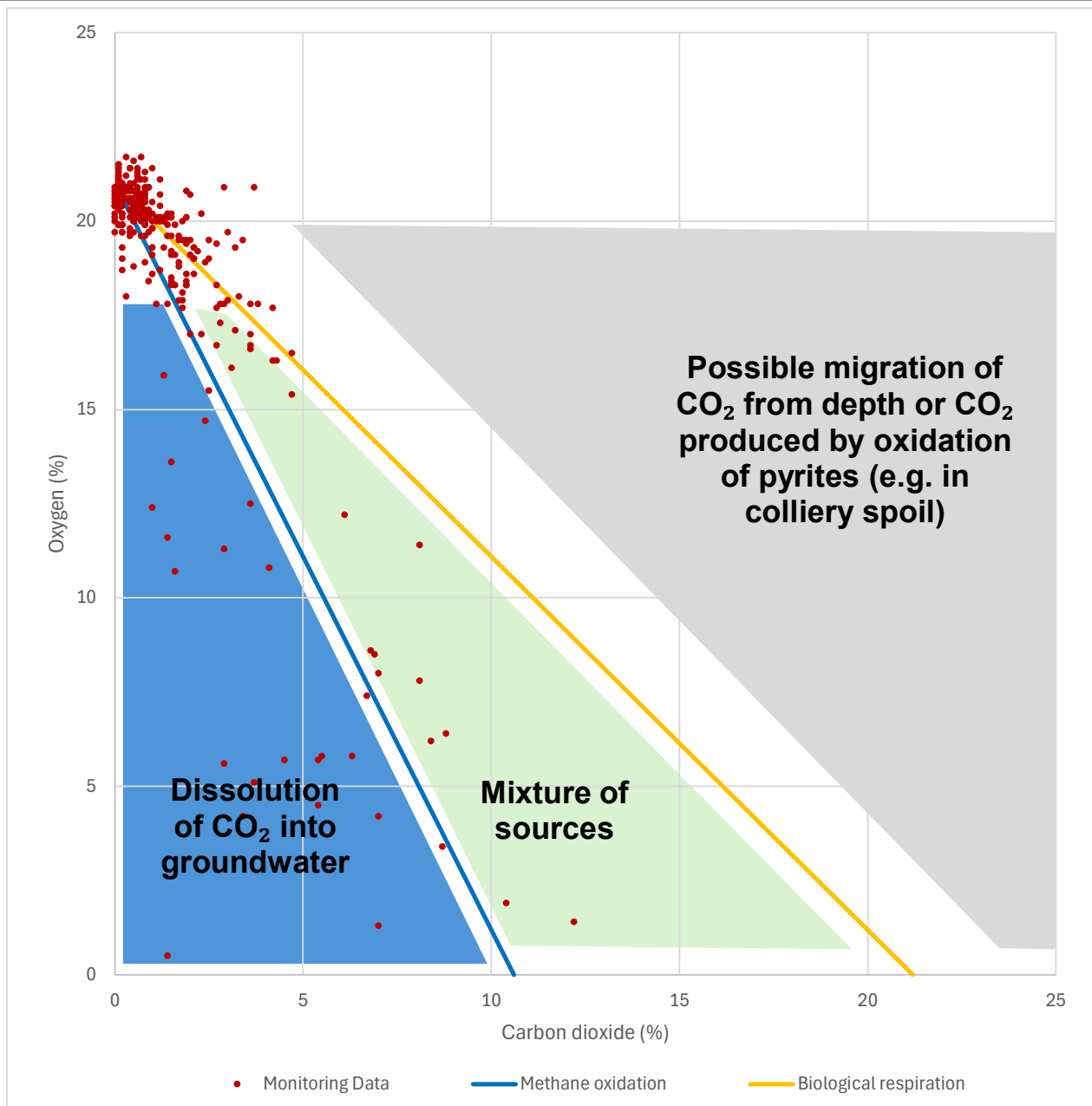
Using ternary plots for interpretation of ground gas monitoring results, Ambisense Limited and EPG Limited, 2018

Report:

ECL.9595

Site:

Pilsworth South Materials Recycling Facility, Bury



Notes:

Stoichiometric Assessment of Carbon Dioxide and Oxygen Gas Concentrations

Based on CL:AIRE, Good Practice for Risk Assessment of Coal Mine Emissions, 2021

Report:

ECL.9595