Recycling and recovery UK

Environmental Permit EPR/QP3999CD

Aldon Landfill Site

Review of the Approach to Perimeter Gas Compliance

Report Issue Form

Issue History

Issue	Description	Originated	Checked	Approved	Date
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1 Introduction

1.1 Introductory Statement

This Perimeter Gas Compliance Report has been prepared by SUEZ Recycling and Recovery UK Ltd ('SUEZ') for Aldon Landfill Site ('the Site') under Environmental Permit EPR/QP3999CD ('the Permit') held by Shropshire Waste Management Limited.

Aldon Landfill Site accepted waste from the 1960s to 1998 and has been operated and managed to present day under largely unchanged conditions that were detailed in a Waste Disposal Licence issued February 1994 during the filling of the final cells of the Site. Few – if any – environmental conditions were set at the Site prior to 1994 for what was a rural landfill, developed – as was typical for the time of filling through the 1960s to 1980s - without any requirement for active landfill gas management, with the Site relying on passive gas management techniques comprising a network of gas vents installed across the Site.

Having managed the Site into its third decade of aftercare, SUEZ has reviewed with the local Area Team at the Environment Agency options for regularising the Site's Environmental Permit to reflect a contemporary understanding of the Site's risk going forward from 2026. This includes the assessment of residual leachate management options at the site (reported under separate cover) and the adoption of a contemporary risk based approach to the assessment of residual landfill gas emission.

Following final low permeability capping of the Site between 1998 and 2000, increased concentrations of methane and carbon dioxide were observed in a number of perimeter wells predominantly located adjacent to the Central Area of the final capping. This situation has continued to 2026 and has been discussed at length with the Area Team at the Environment Agency as to what are appropriate actions to be taken by SUEZ to address the situation. It has been agreed that – in light of the adoption of contemporary, pragmatic risk based approaches to the assessment of perimeter gas concentrations by the Environment Agency in recent years - SUEZ should apply to formally vary the Site's permit to replace historical concentration based limits for gas compliance with risk based flux limits.

SUEZ completed a full review of the landfill gas risk assessment at the Site, which was submitted to the Environment Agency Area Office in October 2025 for review prior to a formal application being made to vary the Site's permit. Constructive and supportive commentary was returned by the Environment Agency in October 2025.

In producing this Review of the Approach to Perimeter Gas Compliance for Aldon Landfill Site, SUEZ has:

- Represented the environmental setting and regulatory history of the Site;
- Defined a contemporary Conceptual Site Model (CSM) for source, pathway, and receptor linkages;
- Carried out a data review and quantification of the residual risk posed by Aldon Landfill Site;

- Presented proposals for the appropriate update of perimeter gas compliance assessment at the Site; and,
- Proposed updated requisite surveillance for the Site including an updated Contingency Action Plan in the event of an adverse change in observed perimeter gas data sets.

1.2 Key Guidance Documents Supporting this Assessment

In completing this Review of the Approach to Perimeter Gas Compliance, SUEZ has followed Industry Guidance: Perimeter Soil Gas Emissions Criteria and Associated Management as presented in the ICOP (2011) and risk based approaches for gas management in the subsurface environment (BSI, 2007 and CIRIA C665, 2007 based on Wilson and Card, 1999), noting such an approach has been accepted by the Environment Agency in recent years to address residual gas emissions that cannot be regulated by simple concentration limits alone.

2 Site Setting and Regulatory History

2.1 Site Setting

The Site is centred on National Grid Reference SO 43100 80121, north west of Aldon Village, approximately 10km north west of Ludlow, Shropshire.

The Site was developed as a landfill within a steep sided valley, in a rural area dominated by rough grazing and arable land, with the valley floor falling steadily to the south east. The Site cap area is 10.1Ha. The layout of the Site and key management / monitoring wells with respect to leachate and groundwater monitoring are presented in Figure 1 and a plan showing the three main areas of the Site is provided in Figure 2. A full photographic record showing the state of the Site in late 2025 is provided in Appendix A.

The Site has subsequently been fully restored for grassland grazing and continues to be managed by SUEZ through its extended aftercare period. As detailed within this report, no active gas management systems have ever been present at the site, with passive gas control being implemented.

2.2 Site Regulatory History

No record is retained of the authorisations set in place for the filling of the Site through the 1960s up to 1994. In line with all operational and regulatory practice of the era, few – if any – conditions were set regarding the control of environmental emissions from the site.

Following the introduction of the Environmental Protection Act in 1990 and ahead of the introduction of the Waste Management Licensing Regulations on 1st May 1994, on the 15th February 1994, Aldon Landfill Site was issued a Waste Disposal Licence (WDL). Prior to February 1994, it is understood that the Aldon Landfill Site was operated under historical resolution agreements issued by Shropshire County Council. In late 1993, in line with government direction on waste disposal facility management by local authorities, operation of Aldon Landfill Site transferred from Shropshire County Council to newly formed private company Shropshire Waste Management Limited.

Since the February 1994 WDL permit, two further administrative permit variations have been issued for Aldon Landfill Site to date, the first on the 18th July 2005 in the form of a Waste Management License (WML) and the second on the 30th June 2016 to update the registered address for Shropshire Waste Management Limited.

The Site has continued to be operated in line with environmental obligations, set either in the Site's licence and/or the site's approved Monitoring and Management Plan (MMP) last updated in August 2018 (SUEZ, 2018).

Residual landfill gas generated at the Site is monitored in accordance with the MMP which requires that monitoring is conducted on a quarterly frequency, with Compliance Limits set at 1%v/v for methane, and 1.5%v/v carbon dioxide. The original WDL included Condition D10 which stated that monitoring of perimeter gas at these points shall continue until concentrations below the 1%v/v methane and 1.5% v/v carbon dioxide

limits are recorded continuously for 24 months on at least six-monthly intervals. The approach to controlling and managing gas generated in the Site was limited to Condition D6 which stated that *'venting chimneys shall be installed at 30m centres within each cell for controlling landfill gas'*. In both permit updates, in-waste gas control and management remained the same as the original WDL license. Passive gas management in the form of venting has continued to 2026.

The performance of the gas emissions from the site into the surrounding sub-surface environment has been reviewed at regular intervals over the past 30 years, with SUEZ having submitted formal reports to the Environment Agency in March 2013, October 2015, and January 2021. It has been accepted by both the Environment Agency Area Officers and SUEZ that, following capping of the site through the 1990s – the majority of which occurred after the issue of the Waste Disposal License in 1994:

- With the network of perimeter gas wells installed in 1990 (borehole logs provided in Appendix B), no background / baseline or historical data for ground gas concentrations at the Site existed before issue of the Site's Waste Disposal License.

- It is not practically possible to achieve the arbitrary concentration based limits for methane and carbon dioxide set in all 39 wells installed around the Site boundary.

- The on-going observations of elevated concentrations of methane and carbon dioxide observed in selected wells around the Site perimeter do not present any adverse unacceptable risk to the receiving environment. This is reflected in the current monitoring frequency of the perimeter network, which is undertaken at quarterly intervals.

- Due to the limited utilities connections at the site, and having due regard to the site design principles, it has never been practical nor possible to install an active gas control scheme at the Site.

- Having due regard to the age of the Site and its agreed (passive) management techniques during the Site's operational and now extended period of aftercare, there has never been any direction from the Environment Agency for SUEZ to submit a contemporary Gas Management Plan for the Site, reflecting the reliance and suitability of passive management techniques as being "appropriate measures" for residual gas management at the rural Site.

The above points are taken forwards in a full and contemporary review of the Site's performance as detailed in Section 3 onwards.

3 Defining the Conceptual Site Model for Perimeter Gas Risk in 2026

The following section defines the Conceptual Site Model (CSM) at Aldon Landfill Site and presents a contemporary understanding of the residual source, pathways, and receptors. Visualisation of the CSM for the residual risks associated with landfill gas, subdivided into the Northern, Central, and Southern Areas of the Site is presented in Figure 3.

The integrity of the monitoring infrastructure, a key component in the determination of the CSM, was subject to an extensive internal audit carried out in June 2025 (Appendix D). This audit found that of the 47 gas monitoring points, 4 groundwater monitoring points, 4 leachate monitoring points, and the subset of 7 uncapped in-waste gas vents, only two points indicated they were no longer fit for purpose based on blockages: perimeter gas monitoring points AL/01 and AL/17 which both recorded a total depth of approximately 0.7m. Of the 62 points audited, 97% were fully fit for purpose indicating that the monitoring network at Aldon Landfill Site remains in a highly fit for purpose state.

SUEZ retain in a contemporary digital format / database all environmental records at the site since 2004. The majority of records prior to 2004 are paper based.

3.1 Source

Aldon Landfill Site accepted a range of inert, non-hazardous, and putrescible wastes from the mid-1960s through to August 1998, with a thickness of up to 20m above Site base.

3.1.1 Landfill Gas Source Term

As these wastes have been present for 28 to >50 years since their deposition, the point of peak gas generation has long since passed, leaving a declining residual gas reserve in 2026.

No detailed site specific information is retained by SUEZ on the detail of the volumes and waste types accepted up to its closure in 1998 however, the landfill gas generation through time can be estimated. Waste input rates were limited to be (post 1994) 500 tonnes / day. The period of waste acceptance (1960s to 1998), total waste volume (~600,000 tonnes based on site geometry), and current methane concentrations (30 - 50%v/v) can be used to predict the historic, present and future rate of gas generation. It is estimated that at the point of closure, 450m^3/hr of landfill gas was being generated. In 2026 this rate has dropped to 40m^3/hr, a rate representative of a residual gas reserve producing approximately 9% of the peak emissions in 1998.

The Site continues to be managed by passive gas techniques which includes 35 uncapped vents in the Northern Area, 10 uncapped vents in the Southern Area, and 12 capped vents in the Central Area as shown on Figure 1. The network of passive vents across Phases 1 – 3 were installed in July 1994 and comprised a grid of vents at 30m centres. Each vent was formed from a 100mm diameter slotted HDPE pipe surrounded by gravel in a 250mm boring (Shropshire Waste Management, 1995). The network of vents in Phase 4 (Cells 3 and 4) comprised 600mm diameter stone chimneys built up from within the waste mass as waste was placed, again with a nominal spacing of 30m between vents at the time of filling.

Monitoring of gas composition has occurred regularly since 2022 onwards in the capped, central passive gas vents, returning methane concentrations that vary from 60 - 85%v/v and carbon dioxide concentrations which vary from 15 - 30%v/v (Appendix C). During 2017 to 2018, ad hoc monitoring of the gas vents returned the same gas composition and variability. From the 2017 ad hoc monitoring to present, there has been no evidence of upward or downward trends in gas concentrations.

It is noted that the observed range of concentrations reflect a 'super-concentrated' landfill gas quality which maybe associated with very low flows of landfill gas within the waste mass and the slow depletion of carbon dioxide resulting in increased concentrations of methane. Based on the age of waste at Aldon landfill, the expected methane concentrations observed in a dynamic environment would range from 30 - 50%v/v.

3.1.2 Landfill Design

The Site comprises four unlined/non-engineered Phases covering a capped area of 10.1Ha. Phases 1 to 3 are located in the 'Northern' Area and are composed of the oldest waste. It is presumed that this area was filled between the late 1960s and the mid 1980s before filling moved into Phase 4. Filling of Phase 4 occurred in four Cells (or stages). Cells 1 and 2 form the southern most area of the Site and were filled before the final area of filling in Cells 3 and 4 – referred to as the 'Central Area' of the site.

In line with the standards for waste disposal in the 1960s to 1990s, all four phases were built under the principles of passive management of leachate and gas with no engineered basal engineering or engineered basal drainage blankets/pipework constructed beneath the waste mass.

All phases have been capped to a range of engineering standards that were applicable at the time of Site restoration. Capping in the Northern (Phases 1 to 3) and Southern (Cells 1 and 2 of Phase 4) Areas of the Site consists of semi-engineered clay overlain by approximately 1m of restoration soils (confirmed by an extensive trial pit investigation, SITA, 2015). Capping of the Central Area between 1998 and 2000 consists of a Bentomat liner, overlain by between 0.5m and 1m of clays and restored using approximately 0.5m of restoration soils.

3.2 Pathway

The Site is partially underlain by the mudstones and siltstones of the Upper Ludlow Shales Group, which in-turn overlie interbedded limestones and mudstones of the Aymestry Limestone Formation which surrounds the Site. No superficial deposits are present. Regionally, the strata dip approximately 8° to the south east with a fault crossing the lower part of the Site in a north-east direction; down-throwing the north-west strata.

3.3 Receptors

In-line with Environment Agency guidance LFTGN03 (Environment Agency, 2004) no potential receptors for landfill gas have been identified within 250m of the waste mass. The nearest receptor identified is View Edge Farm which is 275m from the northern boundary of the Site.

During the review/report period to 2026, no vegetation die back was recorded around the perimeter gas wells indicating no impact to local agricultural land.

Consideration of “atmosphere” as a receptor (at a distance of 0m from the site boundary) is acknowledged and discussed below.

3.3.1 Receiving Atmospheric Impact at Aldon

As per the agreed, permitted principles of passive landfill gas management at Aldon Landfill Site, landfill gas reaches the atmosphere via three principal routes: via the gas vents, through the capping material, or through the nearby soils following transmission laterally though the ground (as shown in Figure 4).

The landfill gas generated by the biodegradation of putrescible organic matter in the waste has been exponentially decreasing with the current landfill gas generated approximately 9% of that at peak emission. This exponentially decreasing contribution to greenhouse gases per year is estimated to currently be 3,150 $tCO_2e/year^{-1}$ in 2026, approximately 9% of the produced during its peak in 1998 at 34,639 $tCO_2e/year^{-1}$.

Given the 28 year period since waste acceptance, the low residual gas yield, and the long-established passive management system, the Site’s contribution to local greenhouse gas emissions is considered to be minor in the context of peak emission and contemporary UK Landfill Standards. Gas generated beyond 2026 is expected to continue declining, with no indicators of changing gas generation behaviour or elevated risk requiring a change in management strategy.

Methane concentrations of approximately 40%v/v and flow rates of typically 0.1l/h contemporarily recorded in the Central Area capped gas vents equate to a daily total methane load of 0.69g of methane (with the standard methane density value of $720g/m^3$), a quantity too small for use of UK biofilters - which are designed to oxidise considerably larger methane loads of 14 to 16g m^{-2} per day^{-1} – and therefore considered of negligible local impact.

3.4 ‘Source-Pathway-Receptor’ Linkage Summary

Gas generated in Aldon Landfill Site can only migrate through the uncapped vents, upwards through the cap, or laterally through the unsaturated zone of the Aymestry Formation: it should be noted that the groundwater table is consistently below the base of the landfill, meaning all unsaturated waste sidewalls can act as a pathway for gas migration. As presented in the CSM (Figure 3), the pathways for landfill gas vary based on the capping present in the area.

Prior to the placement of capping layers and soils, the primary pathway for gas migration from the Site was through vertical movement into atmosphere through the uncapped surface of the waste mass. On placement of capping layers and soils, the pathways for gas migration changed as detailed below:

The Northern and Southern Areas containing the oldest waste have a network of 45 passive vents without an engineered capping barrier. Gas generated in these areas preferentially migrates vertically to atmosphere

through the network of uncapped vents. Where the clay capping soils were placed to a higher standard to achieve a lower permeability, there will have been a local increase in lateral flux to direct residual landfill gas to the perimeter of the Site. Here, the gas will pass directly into the unsaturated zone of the Aymestry Formation, and could be expected to be locally detected in the network of perimeter gas monitoring wells.

The Central Area, containing the last waste deposited at the site, has been capped using an engineered Bentomat Liner and includes a network of twelve capped passive vents. While gas generated in the Central Area will continue to be vented to atmosphere through the passive vents, the higher standard of low permeability capping placed across the Central Area will result (post capping) in a higher percentage of residual landfill gas moving laterally (rather than vertically) to the Site perimeter when compared to the influence and effects of the clay capping over the Northern and Southern Areas. This would result in the increased presence of landfill gas in the perimeter gas network on the western and eastern boundaries of the Central Area.

The evolution of the Site's Conceptual Site Model for landfill gas is supported by over 20 years of aftercare monitoring following Site restoration. With best estimate modelling of the remaining gas reserve in 2026 suggesting that >90% of the gas reserve in 1998 has now left the residual waste mass, flux rates for gas flow from the waste mass will have also declined from peak rates at the time of site closure.

4 Monitoring Data Review and Discussion

In-waste gas monitoring is carried out on a quarterly basis at the 12 capped passive gas wells located in the Central Area of Aldon Landfill Site. Perimeter monitoring is carried out at 39 boreholes (AL/01-AL/39), of which 8 monitor both deep and shallow intervals, for a total of 47 monitoring points. Boreholes logs detailing the install of these monitoring points in 1990 are provided in Appendix B.

4.1 In-Waste Gas Conditions

Six-monthly monitoring of the gas field commenced in 2022 with the most recent monitoring in December 2025. Graphical plots of methane and carbon dioxide concentrations have been provided in Figure 5.

Methane concentrations vary from 60-85%v/v whereas carbon dioxide concentrations vary from 15-30%v/v. Flow rates are typically very low at less than 0.5l/h with the exception of GW04, located on the western portion of the Central Area, which records flows between 3-8l/h. No upward or downward trends have been recorded since 2022 however, given the age of the waste mass, it is likely that flow rate and methane concentrations have gradually decreased since the 1998 peak gas production.

4.2 Perimeter Gas Conditions

Quarterly perimeter gas monitoring has been recorded since 2005 until the most recent monitoring in February 2026. The results of the extensive monitoring carried out over the 20 year period has been provided in Appendix E, with graphical plots of the methane and carbon dioxide concentrations provided in Figure 6, and the atmospheric pressure and Hazardous Gas Flow Screening Value (GSV) for each parameter provided in Figure 7.

Perimeter monitoring points around Aldon Landfill Site can be split into two groups, consisting of those points which have recorded consistent, methane rich conditions (18 points) above 1%v/v and reaching 40-60%v/v in AL/26, AL/37L, AL/38, and AL/39, and those that have recorded consistent methane depleted conditions (29 points) at less than 1%v/v.

Over the monitoring history, methane concentrations have remained stable in the majority (40 points) with 7 points recording a decreasing trend in methane conditions. Of these 7, only 1 point (AL/30) is considered to be representative of methane depleted conditions, the remaining 6 are present in the methane rich wells however, the decreasing trends are currently, and will continue to be for at least 10 years, considered methane rich.

The concentration of carbon dioxide in the majority of perimeter gas points has remained stable in the range of 0-30%v/v since 2006 with infrequent elevated concentrations. The majority of monitoring points have recorded ranges between 0-10%v/v however a minority fluctuate from 10-30%v/v: these points are also methane rich. No monitoring point has recorded an upward trend in carbon dioxide concentration with the majority consistently recording stable carbon dioxide concentrations. A minority of 5 points have recorded

decreasing trends (AL/04, AL/22, AL/23H, AL/23L, and AL/37H) in carbon dioxide. These same points also recorded a decreasing methane trend.

Since 2012, SUEZ have undertaken flow monitoring to assess the flux rates of gas from the Site which, when plotted graphically, shows the clear decrease from up to 3l/h in 2012 to less than 0.5l/h from 2016 to present. The graphical plotting of the combined flow rates with methane and carbon dioxide concentrations to produce GSV values also shows this clear trend in gas production to generally less than 0.5l/h for both gases.

4.3 Discussion

Aldon Landfill Site ceased the acceptance of landfill waste in 1998. While monitoring was undertaken around the Site perimeter in the 1990, all digital data retained by SUEZ dates from 2005 onwards. As a result, no pre-landfill background ground gas conditions are known for the surrounding area. In the absence of this, background data is best inferred from the network of 49 monitoring points around the perimeter of the Site with consideration of the CSM.

The source term has, and will continue to, naturally decline at a rate based principally on the age of the waste mass and the capping on the Site surface. The decline in landfill related gas has been observed from 2005 to 2026 most clearly in the monitoring points positioned around the Central Area (containing the youngest waste), indicating that the same decline may have already occurred in the majority of the older Northern and Southern Areas of the Site. As these points surrounding the Northern and Southern Areas are generally stable, it can be inferred that the current ground gas composition is the nearest to background conditions as can be expected given the age and design of the Site.

The positioning of methane rich monitoring wells is predominantly around the Central Area of Aldon Landfill Site, with the wells recording 40-60%v/v methane exclusively on this boundary further indicating the causal relationship between the gas point location and the gas composition in line with the CSM.

Additionally, it has been noted during previous investigations, that the exact distance of perimeter monitoring points from the waste mass is not known, but it is highly likely that the majority of the points fall closer than the recommended 20m stand-off from the waste mass (Environment Agency, 2004). The monitoring data doesn't therefore show any significant attenuation that we would observe, if the monitoring points were installed in accordance with contemporary Environment Agency guidance.

During the audit in June 2025, perimeter gas monitoring points AL/01 and AL/17 were found to not be in a fit for purpose state due to borehole blockages. Based on the extensive fit for purpose monitoring network across every Site boundary at Aldon Landfill Site and greater than 250m distance from any sensitive receptor, it is proposed to remove these two monitoring points from the monitoring network as their removal will not affect the assessment of overall environmental risk at the Site in 2026.

5 Proposals for an Approach for Updated Perimeter Gas Compliance

5.1 Overview

Aldon Landfill Site is now in a period of extended aftercare. The Conceptual Site Model for the site confirms that – as with many sites developed through the 1970s and 1980s – a degree of passive gas leakage will occur and that after 28 years of aftercare management, a regulatory approach based solely on traditional concentration limits is not an appropriate means to direct site management techniques nor any risk based regulation of the site.

In drawing on contemporary regulatory practices for site's such as Aldon Landfill Site, SUEZ has carefully considered two approaches to future regulation of the site that – if approved by the Environment Agency – could replace the current "concentration only" limits that have been set at the Site since 1994.

- **Approach A:** Appropriate Adoption of Risk Based Principles for Gas Compliance in the Perimeter Network around the site.
- **Approach B:** Appropriate Adoption of Risk and Concentration Based Principles for Gas Compliance in the Perimeter Network around the site.

Approach A is simpler compared to Approach B. However, Approach B presents a case for retention (where applicable) of selected concentration limits for gas compliance around the Site boundary.

SUEZ has a strong preference for the simplicity of approach offered through Approach A and this approach is presented in detail in the main body of this report (below). Approach A was also endorsed by the Environment Agency Area Team in Autumn 2025. However, full detail of Approach B is presented in Appendix F and Appendix G in order that the Environment Agency can consider the potential benefits of both approaches to ensuring that Aldon Landfill Site can be managed in a pragmatic and appropriate manner through the remainder of the Site's aftercare period.

5.2 Approach A: Hazardous Flow GSV based Action Levels and Compliance Limits

Approach A proposes the introduction of a Gas Screening Value (GSV) which is essentially a function of the gas concentration and flow rate. GSV based Action Level and Compliance Limits for methane, with the same GSV based Action Level for carbon dioxide, will enable the assessment of perimeter gas migration, based upon the risk associated with positive outward flow (migration) of gas from the site. This is particularly useful in the case of dilute and disperse sites.

The use of GSVs is deemed appropriate based on the lack of receptors within 250m of the Site boundary, a principle also followed in the ICOP guidance. In introducing GSV based limits, reference is made to guidance prepared for assessing risks from hazardous ground gases on brownfield land development sites (CIRIA C665, 2007 and BSI, 2019).

The method of characterising risk uses a calculated GSV taking account of both the concentration and flow of gas from a borehole. In BS8485:2015 the concept of hazardous gas flow rate (Qhg) is used, which is synonymous with the GSV approach.

The GSV is calculated by multiplying the flow rate of a specific hazardous gas from a monitoring point by the concentration:

$$GSV_{hg} = \frac{C_{hg}}{100(\%)} * q$$

GSV_{hg} is the hazardous gas flow rate, also referred to as the Gas Screening Value (l/h);
C_{hg} is the concentration of a specific hazardous gas (%), and;
q is total gas flow from a monitoring point (l/h).

Subsequently, the actual risk to receptors from the potential migration of methane and/or carbon dioxide is assessed through comparison of the calculated GSV in Table 1.

Table 1. Hazard Potential based upon Hazardous Gas Flow Rate (GSV)

Hazard Potential	GSV (l/h)
Very Low	< 0.07
Low	≥ 0.07 < 0.7
Moderate	≥ 0.7 < 3.5
Moderate to High	≥ 3.5 <15
High	≥ 15 <70
Very High	≥ 70

The limits proposed in Approach A that could be introduced at Aldon Landfill Site are provided in Table 2.

Table 2. Approach A: Hazardous Gas Flow Rate (GSV) Action Level and Compliance Limits

Monitoring Point	Methane (GSV) (l/h)		Carbon Dioxide (GSV) (l/h)
	Action Level	Compliance Limit	Action Level
AL/02H, AL/02L, AL/03, AL/04, AL/05, AL/06, AL/07H, AL/07L, AL/08, AL/09, AL/10, AL/11, L/12H, AL/12L, AL/13, AL/14, AL/15, AL/16, AL/18, AL/19H, AL/19L, AL/20, AL/21, AL/22, AL/23H, AL/23L, AL/24, AL/25, AL/26, AL/27, AL/28H, AL/28L, AL/29, AL/30, AL/31, AL/32, AL/33H, AL/33L, AL/34, AL/35, AL/36, AL/37H, AL/37L, AL/38, AL/39	0.07	0.5	0.07

A GSV calculated below 0.7l/h is considered to be within or below the ‘low risk’ category and GSVs at 0.7l/h or above are classified as a ‘moderate risk’ or higher. In the aim of being conservative in regards to ground gas risk, SUEZ propose a methane Compliance Limit of 0.5l/h, a more conservative limit which by the guidance is lower than even a moderate risk. It should be noted that this British Standard evaluates risks posed at the receptor rather at the Site perimeter where gas readings are taken. As there are no receptors within 250m from the Site boundary, the use of the above flow values is therefore considered to be very conservative. An action level of 0.07l/h for both methane and carbon dioxide is deemed to be appropriate as any value below this is considered to be in the very low risk category.

6 Requisite Surveillance

6.1 Monitoring Regime

The current perimeter gas monitoring regime is undertaken in accordance with the MMP (SUEZ, 2018), as detailed in Table 3.

Aside from the removal of two unfit for purpose wells, AL/01 and AL/17, no changes in the number of monitoring points or monitoring frequency has been proposed.

Table 3. Proposed Gas Monitoring Schedule

Monitoring Point	Frequency	Parameters
AL/02H, AL/02L, AL/03, AL/04, AL/05, AL/06, AL/07H, AL/07L, AL/08, AL/09, AL/10, AL/11, L/12H, AL/12L, AL/13, AL/14, AL/15, AL/16, AL/18, AL/19H, AL/19L, AL/20, AL/21, AL/22, AL/23H, AL/23L, AL/24, AL/25, AL/26, AL/27, AL/28H, AL/28L, AL/29, AL/30, AL/31, AL/32, AL/33H, AL/33L, AL/34, AL/35, AL/36, AL/37H, AL/37L, AL/38, AL/39	Quarterly	Methane, Carbon dioxide, Oxygen, Atmospheric pressure, flow, meteorological data, vegetation dieback

Although SUEZ propose the continuation of quarterly perimeter gas monitoring at the network of 37 wells, further discussion on opportunities for the rationalisation of the number and frequency of monitoring at these points is welcomed for the remainder of the Site's long established stable aftercare management period.

6.2 Updated Contingency Actions for Breaches of Action Levels and Compliance Limits

The current Contingency Actions for perimeter gas Action Levels and Compliance Limits in place at the Site are provided in Table 4.

Table 4. Current Perimeter Gas Contingency Action Plan

Contingency Action	Response Time	Responsibility
Confirm equipment calibration	48 Hours	Environment Assistant
Notify the Environment Agency and Site Manager	72 Hours	Environment Assistant
Assess the risk to receptors within 250m of the elevated gas reading	1 Week	Environment and Industrial Risk Advisor
Submit a report to the Environment Agency containing all perimeter gas data and conduct a risk assessment	Annually	Risk Team

In order for the Contingency Actions to remain appropriate for the proposed Action Levels and Compliance Limits in this review, updated Contingency Actions in the event of an Action Level exceedance for both Approach A and Approach B are provided in Table 5 and Contingency Actions in the event of an Compliance Limit exceedance are provided in Table 6.

Table 5. Proposed Contingency Action for Methane or Carbon Dioxide Action Level Exceedance

Contingency Action	Response Time
Inform the Area Operations Team	24 Hours
Record internally	48 Hours
Confirm calibration and QA procedures for equipment used	48 Hours
Complete gas trend analysis	1 Week

Table 6. Proposed Contingency Action for Methane Compliance Limit Exceedance

Contingency Action	Response Time
Inform the Area Operations Manager	24 Hours
Confirm calibration and QA procedures for equipment used	48 Hours
Inform the Environment Agency	72 Hours
Assess the potential origins of the change in data and risk status	1 Week
Complete repeat monitoring visit	2 Weeks
Update the Environment Agency	1 Month

In the event that GSV values return to below the associated Action Level or Compliance Limit, contingency actions will cease.

6.3 Reporting and Review

In updating both the gas and (in parallel) leachate management techniques / compliance arrangements (discussed under separate cover), SUEZ will submit an annual monitoring review for the Site to the Environment Agency to confirm the stability of emissions to the environment (as reflected in gas and groundwater quality) each year for 3 years after variation of the permit and to report to the Environment Agency time series graphs of key monitoring data sets obtained at the Site. In addition, SUEZ will submit a full Hydrogeological Risk Assessment Review scheduled for 2032.

7 Summary

Aldon Landfill Site was first developed as a landfill in the 1960s and ceased accepting waste in 1998. The Site was developed on the basis of a reliance on passive gas management techniques and this has remained the case through to 2026.

Following final capping of the site between 1998 and 2000, increased concentrations of methane and carbon dioxide were observed in a number of perimeter wells predominantly located adjacent to the area of the final capping.

This situation has continued to 2026 and has been discussed at length with the Area Team at the Environment Agency. It has been agreed that – in light of the adoption of contemporary, pragmatic risk based approaches to the assessment of perimeter gas concentrations by the Environment Agency in recent years - SUEZ should apply to formally vary the Site's permit to replace historical concentration based limits for gas compliance with risk based flux limits.

In supporting this permit variation application, SUEZ has produced this detailed review of the Site's perimeter gas performance. The approach taken in writing this report has been to:

- Review the Site history and design principles during the development of the Site and then during its aftercare period;
- Review of the past and current approaches to the regulation of gas emissions at the Site's perimeter;
- Update the Conceptual Site Model for landfill gas flow into the receiving environment;
- Data review and quantification of the residual risk posed by the landfill at the Site boundary;
- Present proposals for appropriate update of the perimeter gas compliance assessment; and,
- Present an updated Requisite Surveillance for the Site including an updated Contingency Action Plan in the event of adverse change in observed perimeter gas data sets and revised reporting / review of data sets obtained at the Site.

In light of the findings of this report, the need to remove the historic arbitrary limits introduced in 1994 is clear as these limits – set against the site's Conceptual Model for gas management and control - have been and will remain unachievable at all perimeter gas wells. In line with the updated understanding of the pat and residual Conceptual Site Model and with now 28 years of monitoring since waste acceptance ceased, new risk based contemporary limits are proposed to regulate the Site for the remaining extended period of passive, management aftercare.

If approved by the Environment Agency, both SUEZ and the Environment Agency would benefit from the revised approach to perimeter gas compliance at the Site as this adoption is a more representative site specific risk-based compliance regime that reflects actual environmental impact, supports better regulatory outcomes, and enables the reallocation of both Environment Agency and SUEZ resources on sites which could pose a risk to receptors. While this has been recognised by both SUEZ and the Environment Agency at Area Level, SUEZ welcomes discussion with the Environment Agency (NPS) on any alternate options beyond those considered in this report to replace arbitrary compliance limits at the site in light of the on-going monitoring and management challenge that will continue at the site for decades ahead through the second half of the site's aftercare period.

8 References

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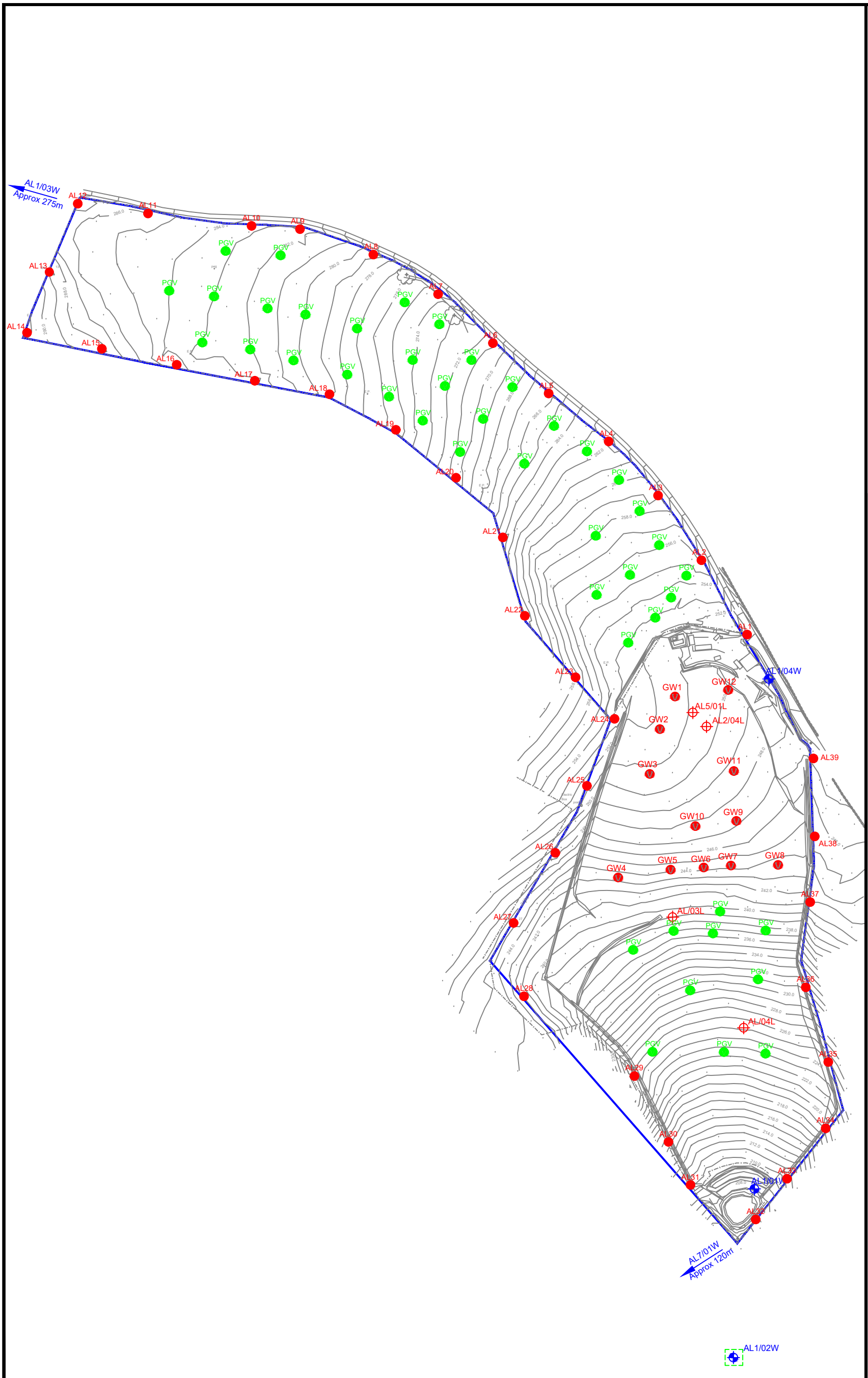
Recycling and recovery UK

Figures

Figure 1. Aldon Monitoring and Extraction Point Plan (MEPP)



Notes

1. Reproduced from the Ordnance Survey Map with the permission of the Controller of His Majesty's Stationary Office, Crown Copyright and Database Rights 2025 Ordnance Survey AC0000808122/100004910.

- PPC Boundary and Licence Boundary WML 479
- Groundwater Monitoring Point
- Gas Monitoring Point
- Leachate Monitoring Point
- Surface Water Monitoring Point
- GW1 — Gas Vent
- PGW — Passive Gas Vent

Rev	subject	date

suez

Darwen Resource Recovey Park, Lower Eccleshill Road, Darwen, BB3 0RP
Tel:(01254)819700, Fax:(01254)819749, Email: richard.bisset@suez.co.uk

Site: Aldon Landfill Site

Title: Site Monitoring Plan

Scale: 1:2500 on A3

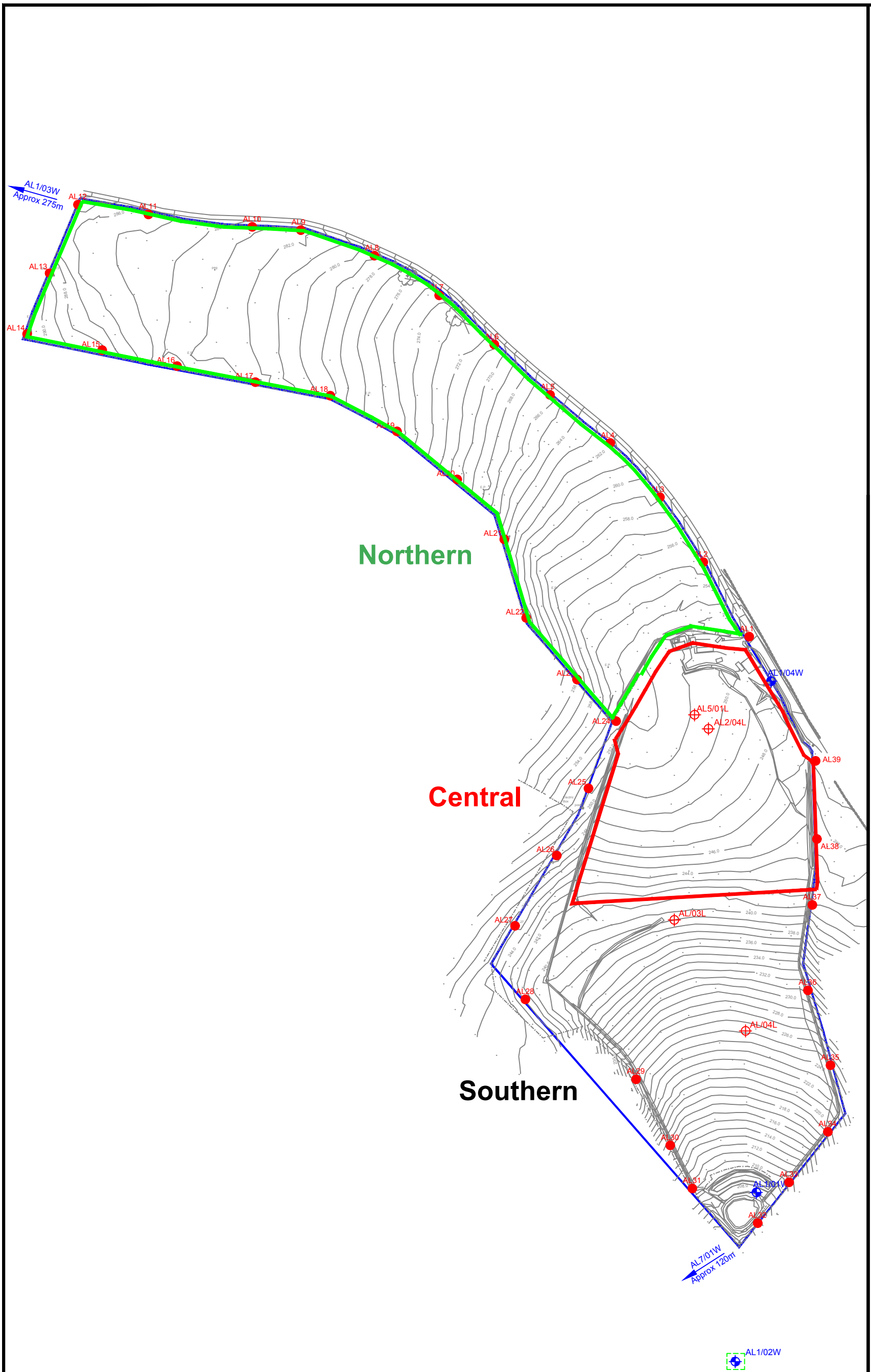
Date: March 2026

Drawing Ref: Ald-P4-0326-01

Drawn by: RB

Checked by: TW

Figure 2. Aldon Landfill Areas



Notes

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- PPC Boundary and Licence Boundary WML 479
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Rev	subject	date

suez

Darwen Resource Recovey Park, Lower Eccleshill Road, Darwen, BB3 0RP
Tel:(01254)819700, Fax:(01254)819749, Email: richard.bisset@suez.co.uk

Site
Aldon Landfill Site

Title
Site Monitoring Plan

Scale
1:2500 on A3

Date
June 2018

Drawing Ref
Ald-P4-0618-01

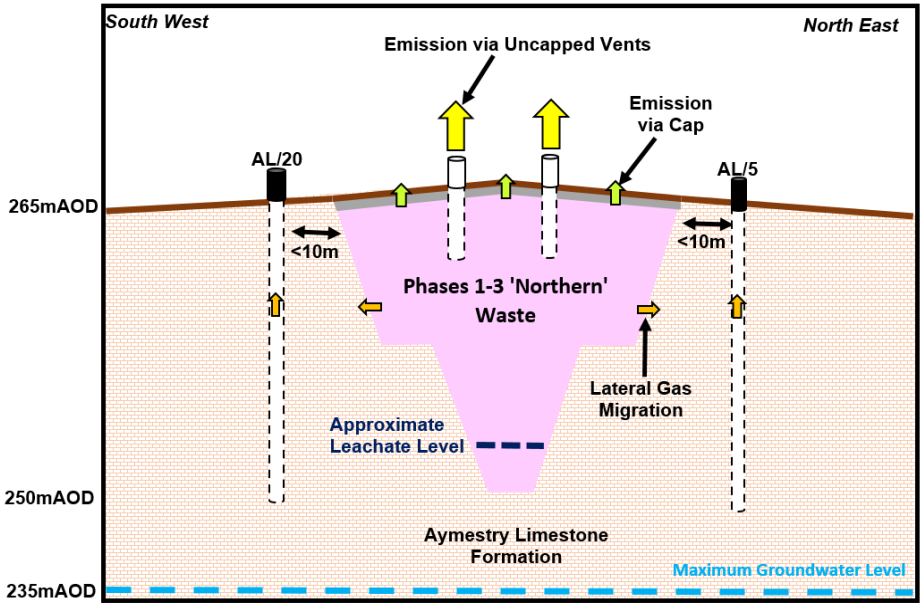
Drawn by
RB

Checked by
EW

Figure 3. Conceptual Site Model

Aldon Landfill Conceptual Site Model for gas generation and emission management

Northern Section



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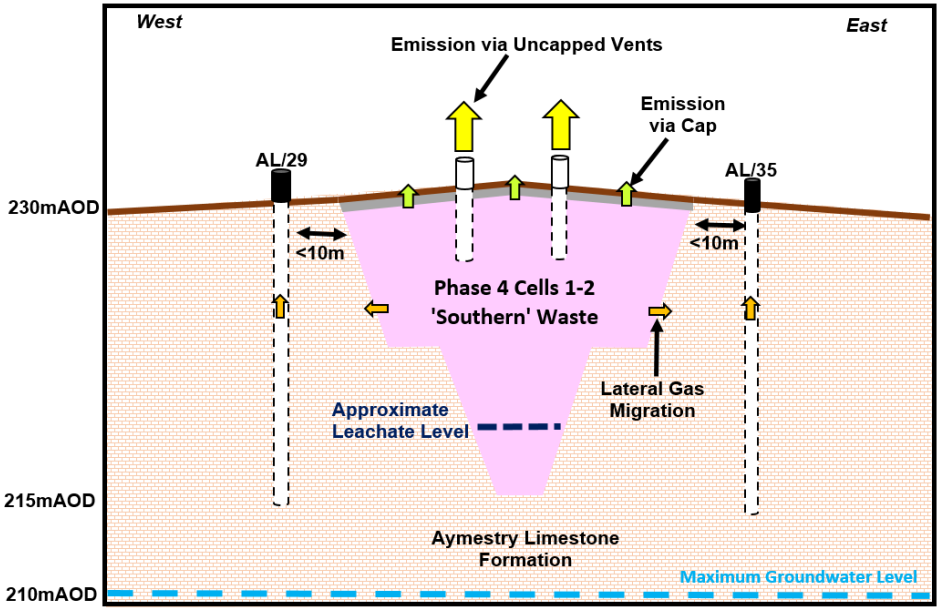
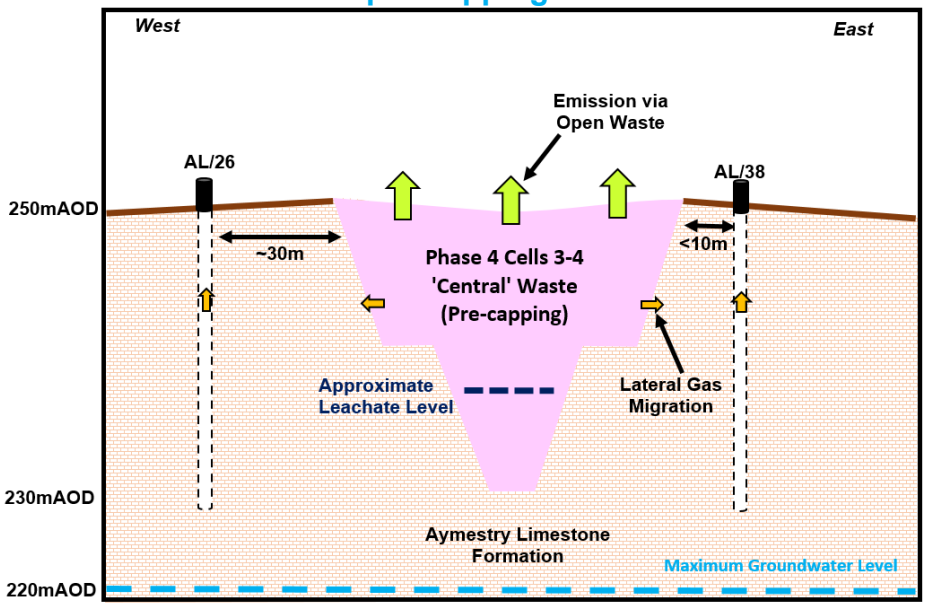
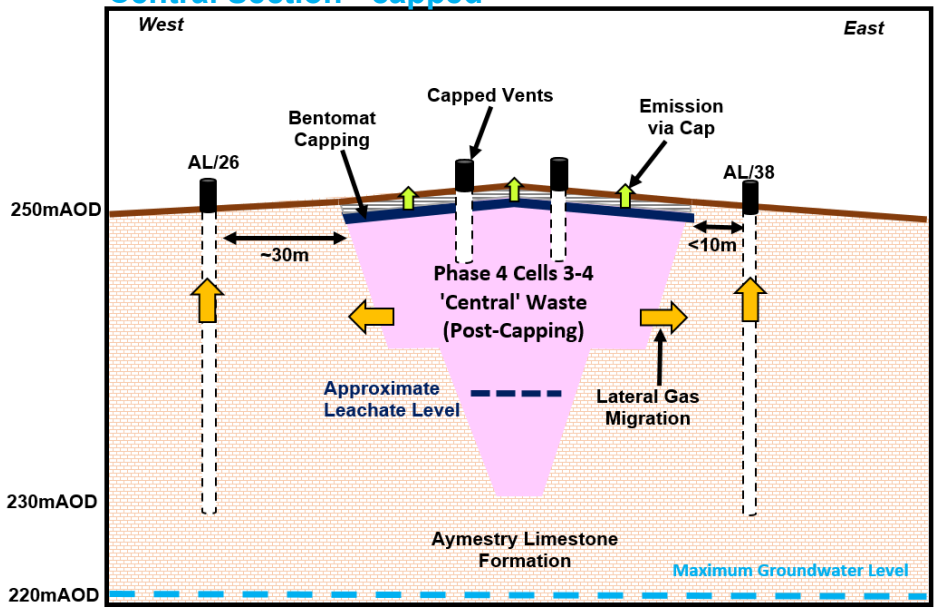


Central Section - pre-capping



Central Section - capped



Aldon Landfill Conceptual Site Model for gas generation and emission management

Aldon Landfill Key Information:

Date of first license: WDL issued 15th February 1994

Start of filling: 1960s

End of filling: 1998

Surface area: 10.1Ha

Basal and sidewall engineering type: non-engineered

Gas control: passive vents only

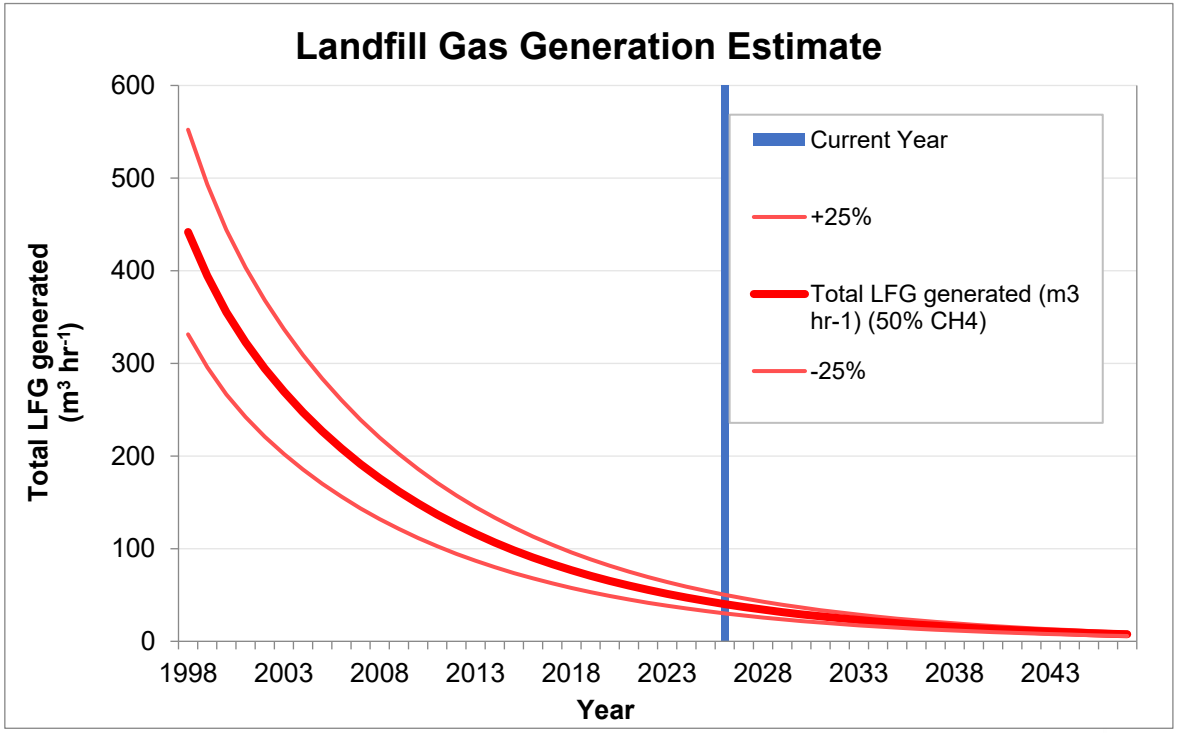
Estimated zone of influence (gas): <50m from waste mass edge

Waste type: non-hazardous

Waste thickness: up to 20m

Aquifer status: Secondary A

Geology: Aymestry Limestone Formation



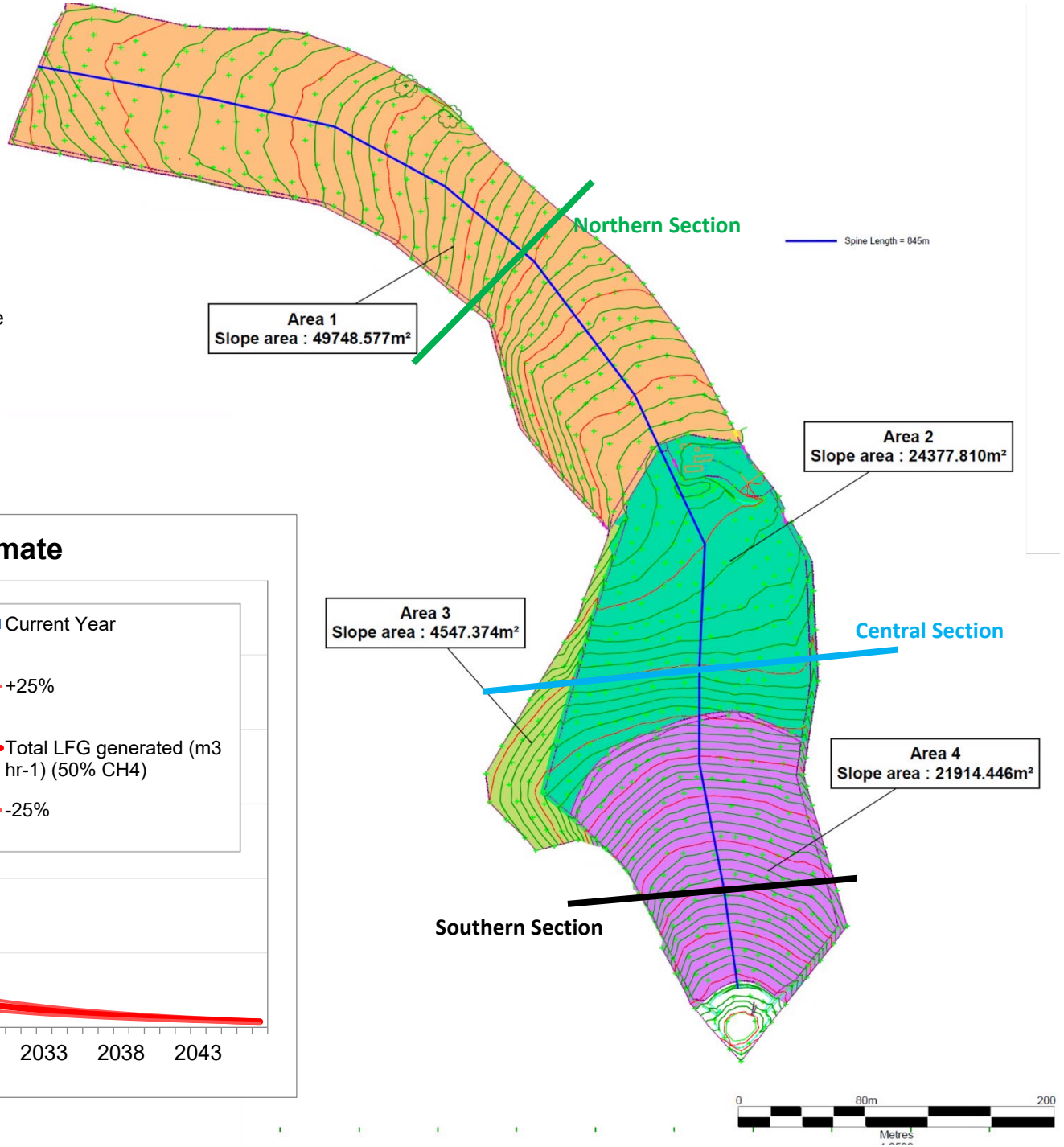
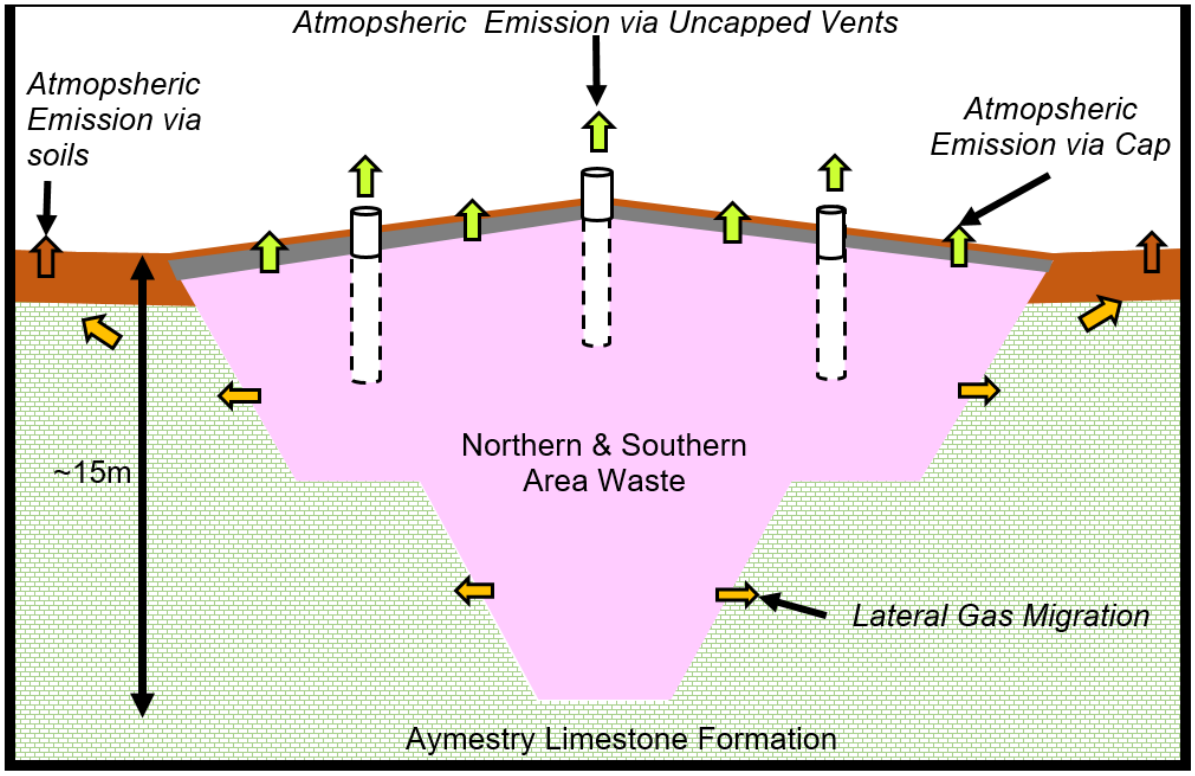
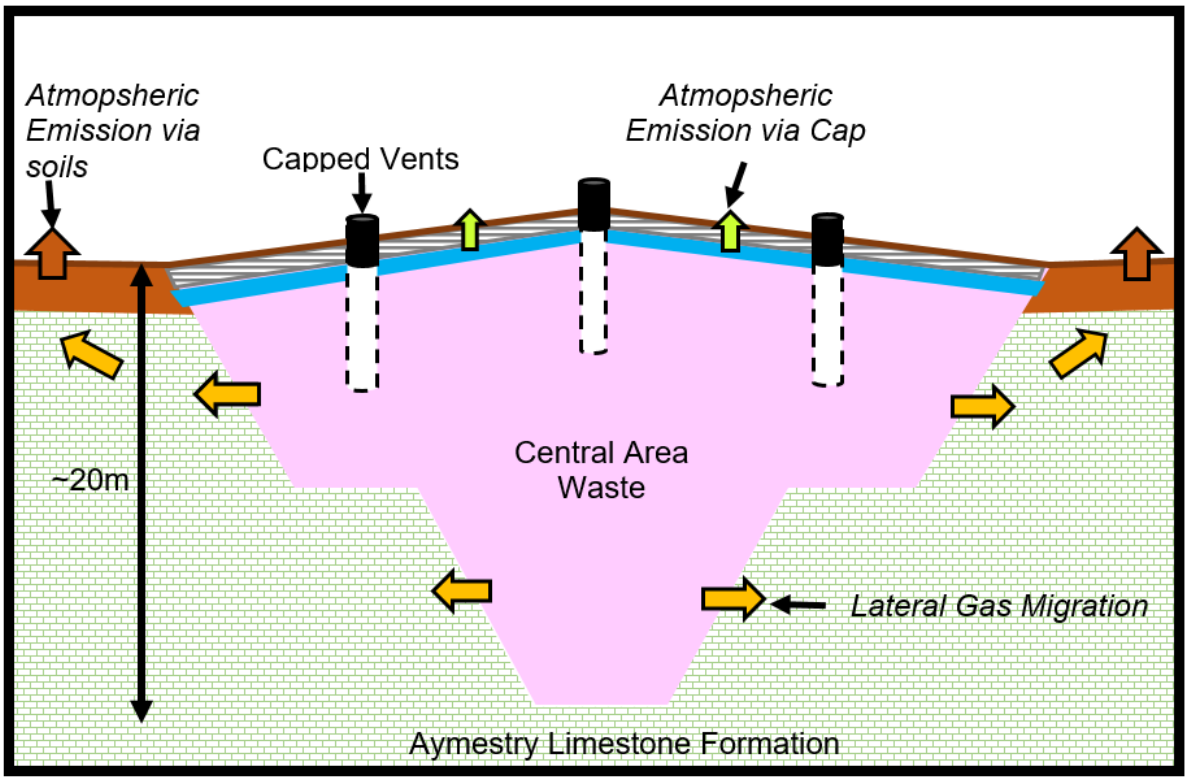


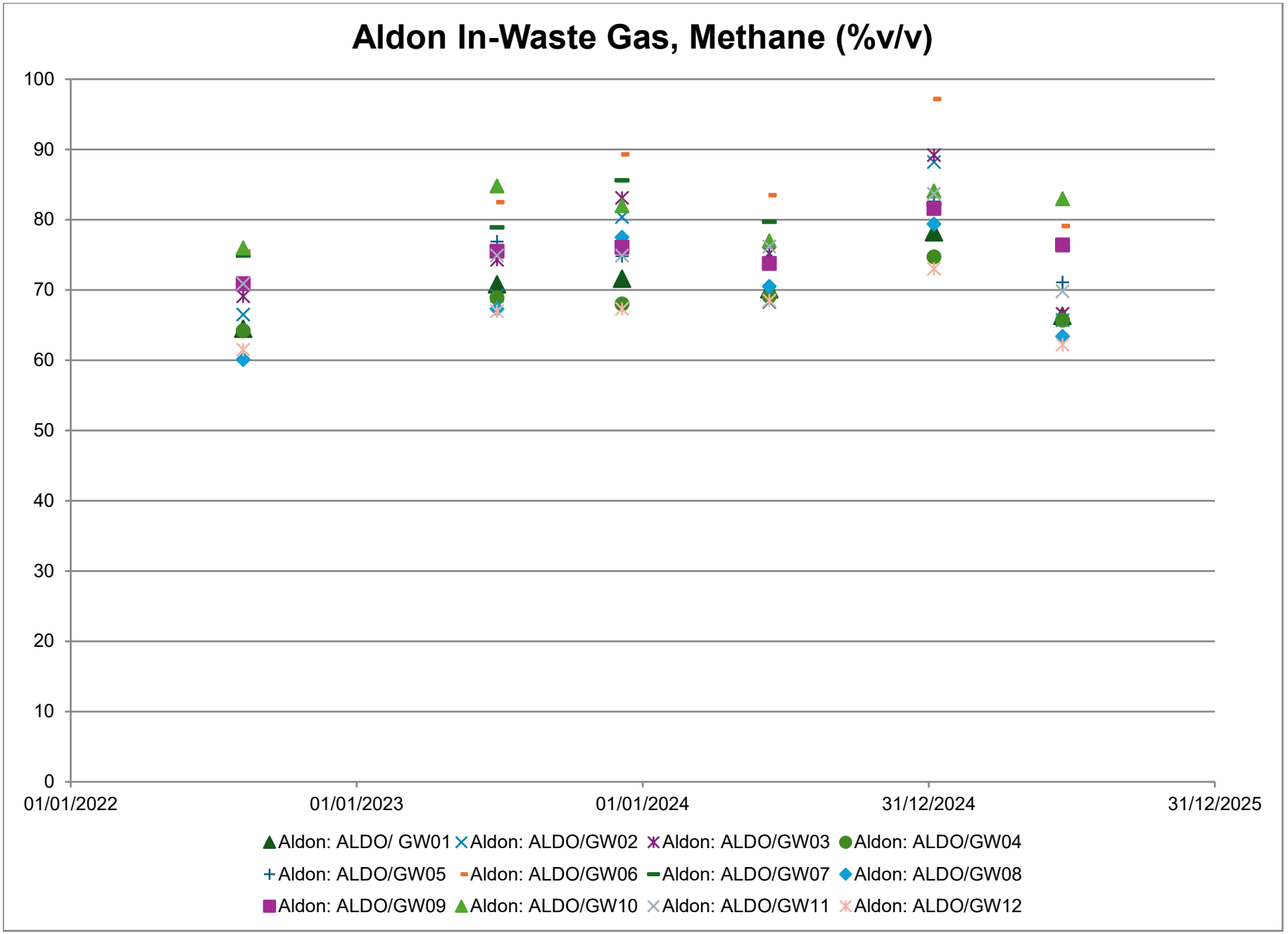
Figure 4. Emission to Atmosphere





Note. Perimeter Gas Boreholes have been removed from the above figure for clarity of gas pathway illustrations.

Figure 5. In-Waste Gas Graphs


Aldon In-Waste Gas, Methane (%v/v)
100
90
80
70
60
50
40
30
20
10
0
01/01/2022
01/01/2023
01/01/2024
31/12/2024
31/12/2025
Aldon: ALDO/ GW01
Aldon: ALDO/GW02
Aldon: ALDO/GW03
Aldon: ALDO/GW04
Aldon: ALDO/GW05
Aldon: ALDO/GW06
Aldon: ALDO/GW07
Aldon: ALDO/GW08
Aldon: ALDO/GW09
Aldon: ALDO/GW10
Aldon: ALDO/GW11
Aldon: ALDO/GW12

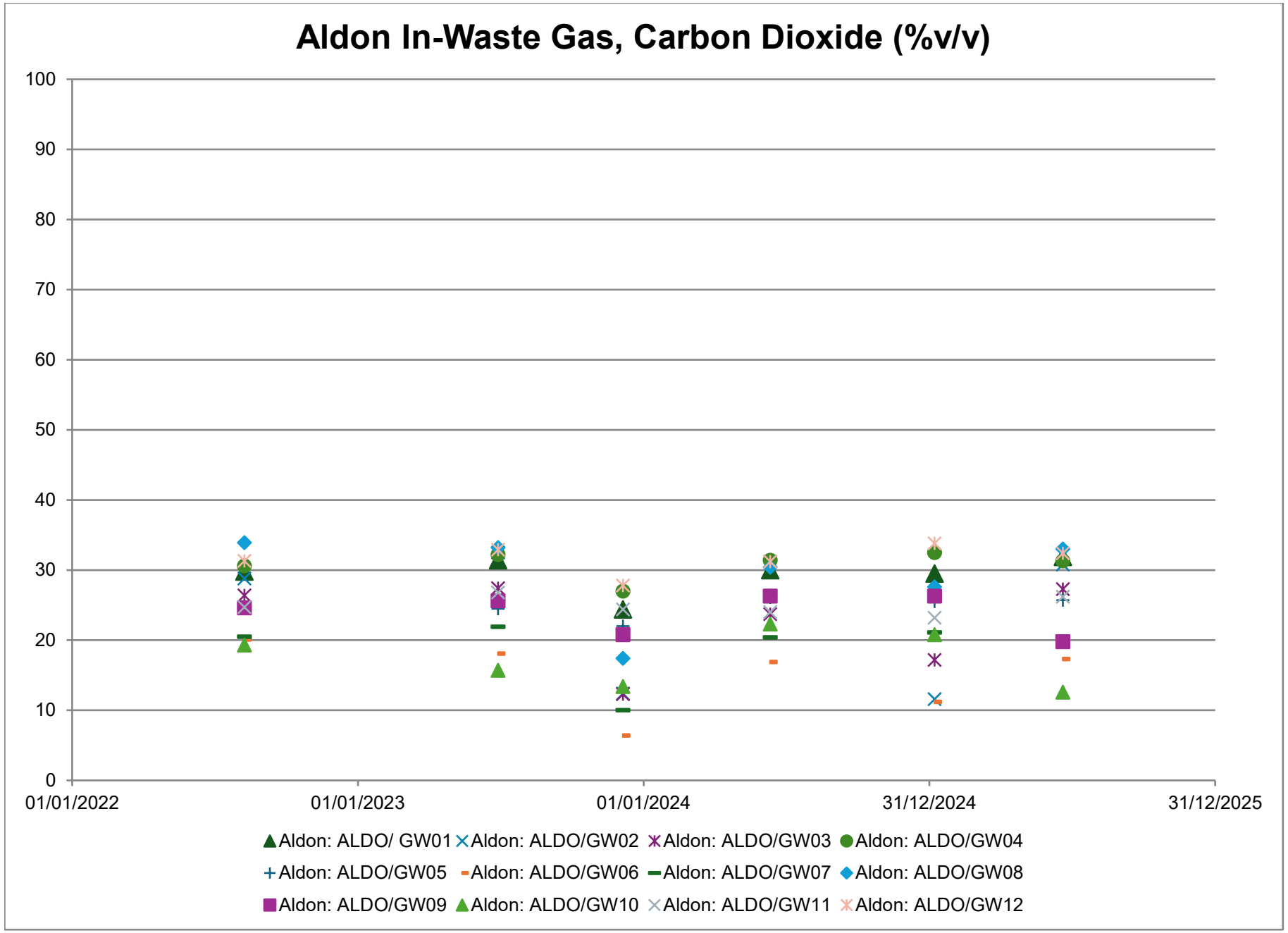
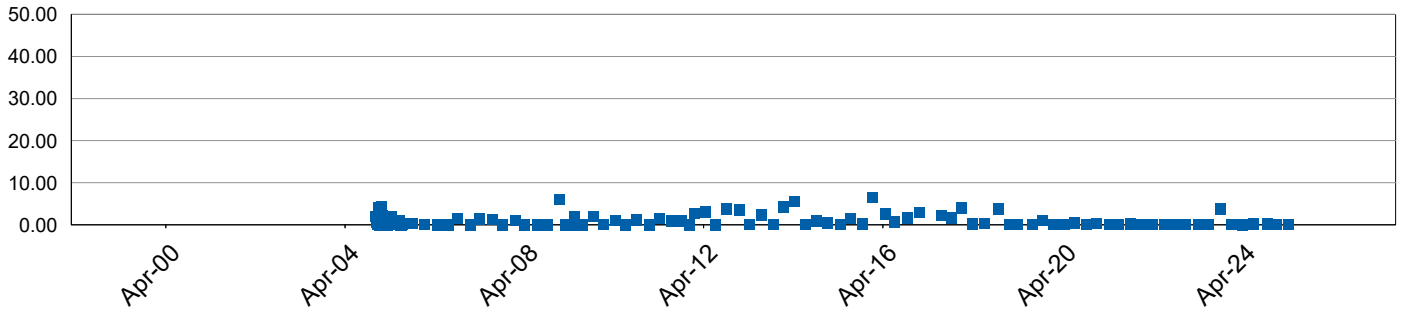

Aldon In-Waste Gas, Carbon Dioxide (%v/v)
100
90
80
70
60
50
40
30
20
10
0
01/01/2022
01/01/2023
01/01/2024
31/12/2024
31/12/2025
Aldon: ALDO/ GW01
Aldon: ALDO/GW02
Aldon: ALDO/GW03
Aldon: ALDO/GW04
Aldon: ALDO/GW05
Aldon: ALDO/GW06
Aldon: ALDO/GW07
Aldon: ALDO/GW08
Aldon: ALDO/GW09
Aldon: ALDO/GW10
Aldon: ALDO/GW11
Aldon: ALDO/GW12

Figure 6. Perimeter Methane and Carbon Dioxide Concentration Graphs

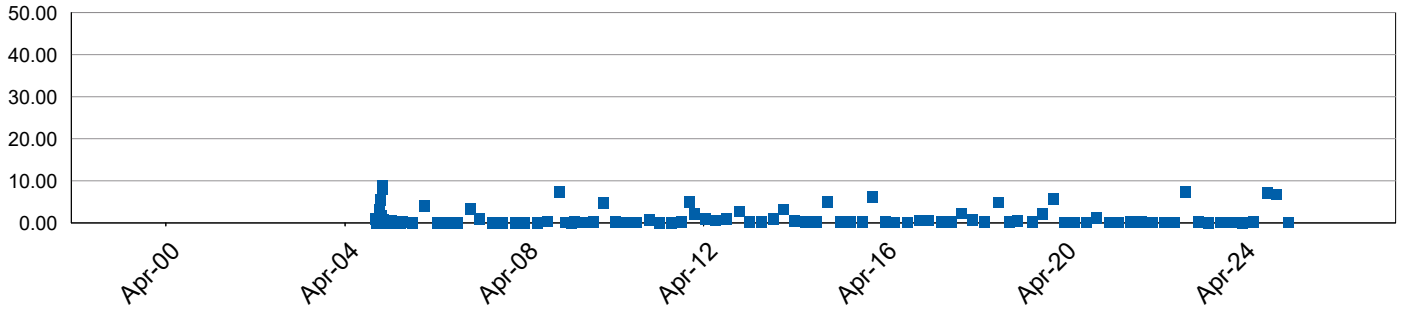
Carbon Dioxide (% v/v) No Limit Applies

AL/01



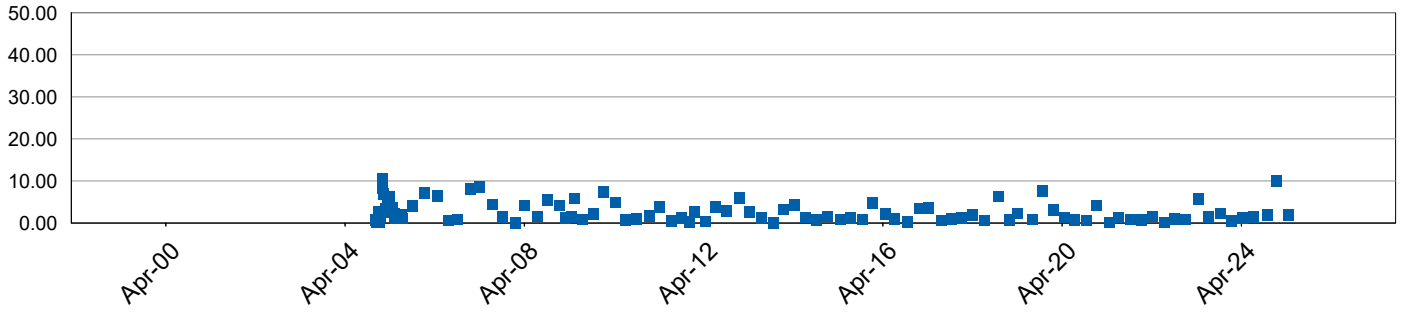
Carbon Dioxide (% v/v) No Limit Applies

AL/02(H)



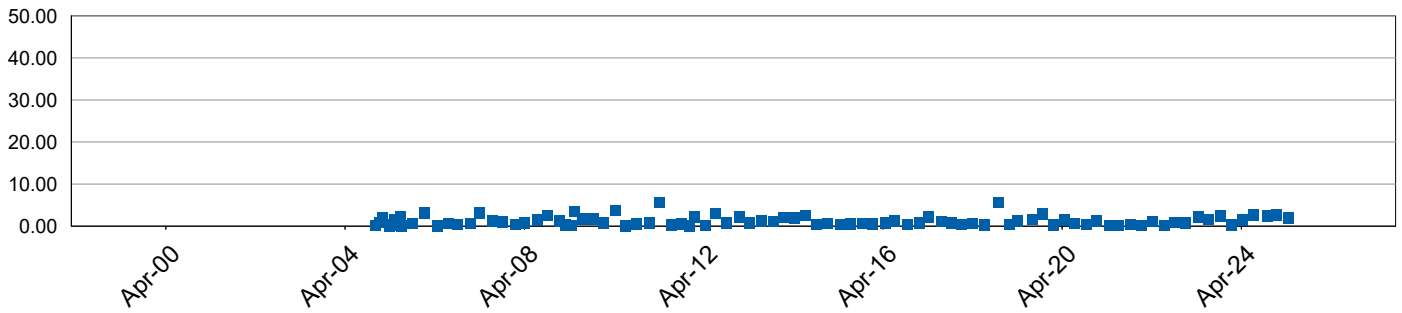
Carbon Dioxide (% v/v) No Limit Applies

AL/02(L)



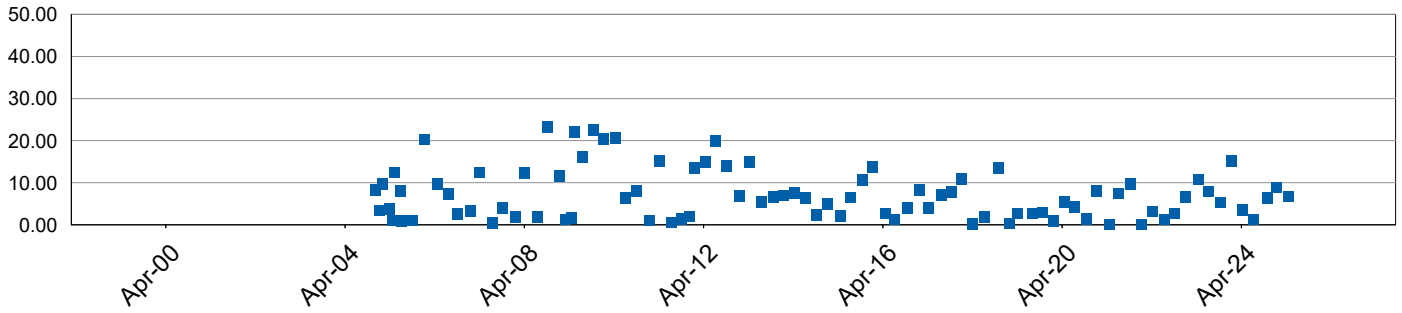
Carbon Dioxide (% v/v) No Limit Applies

AL/03



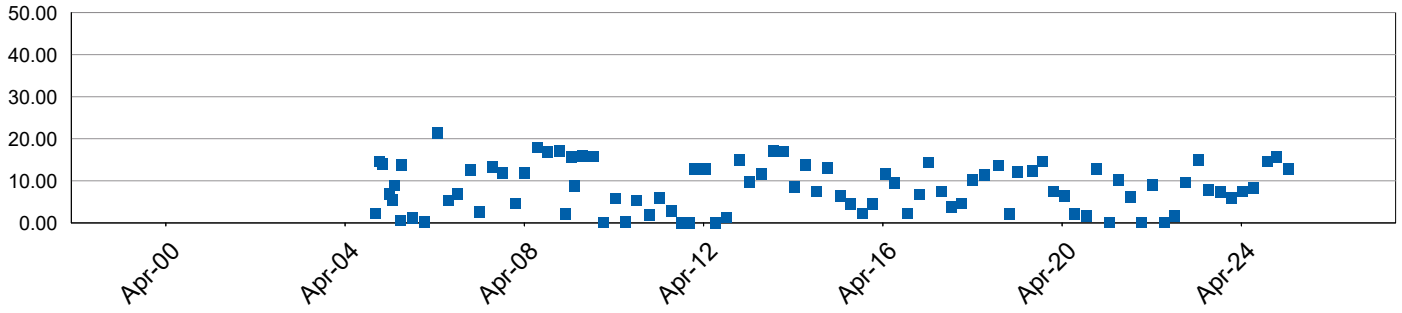
Carbon Dioxide (% v/v) No Limit Applies

AL/04



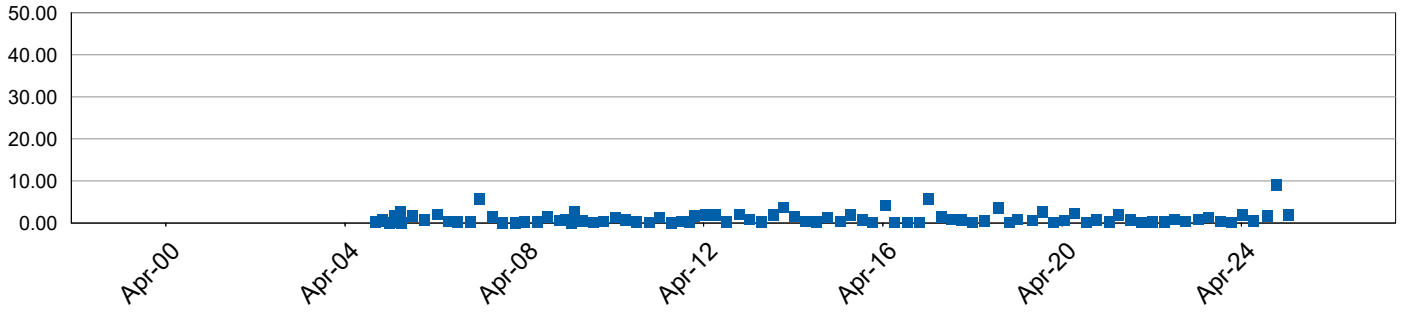
Carbon Dioxide (% v/v) No Limit Applies

AL/05



Carbon Dioxide (% v/v) No Limit Applies

AL/06



Carbon Dioxide (% v/v) No Limit Applies

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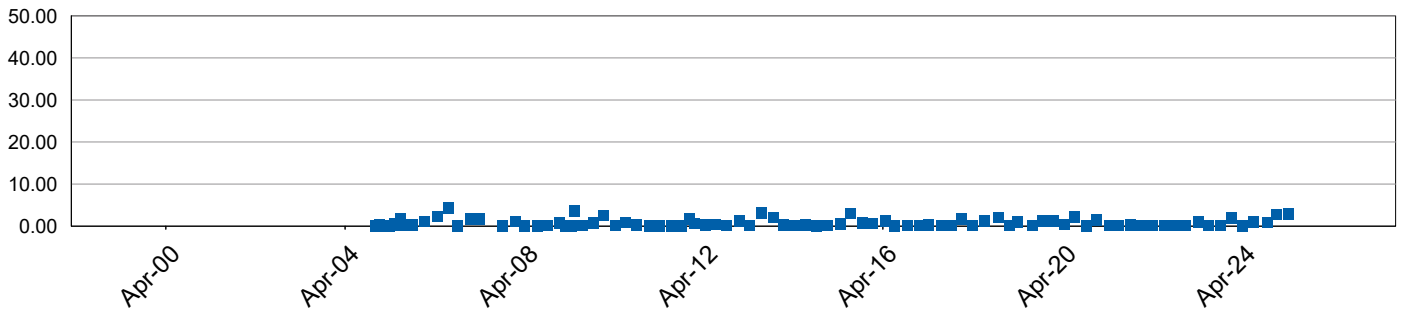

Carbon Dioxide (% v/v) No Limit Applies

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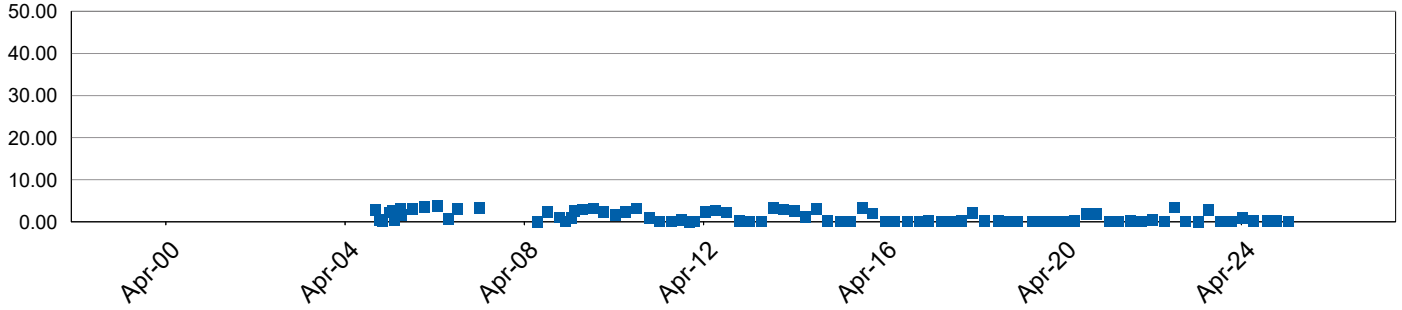
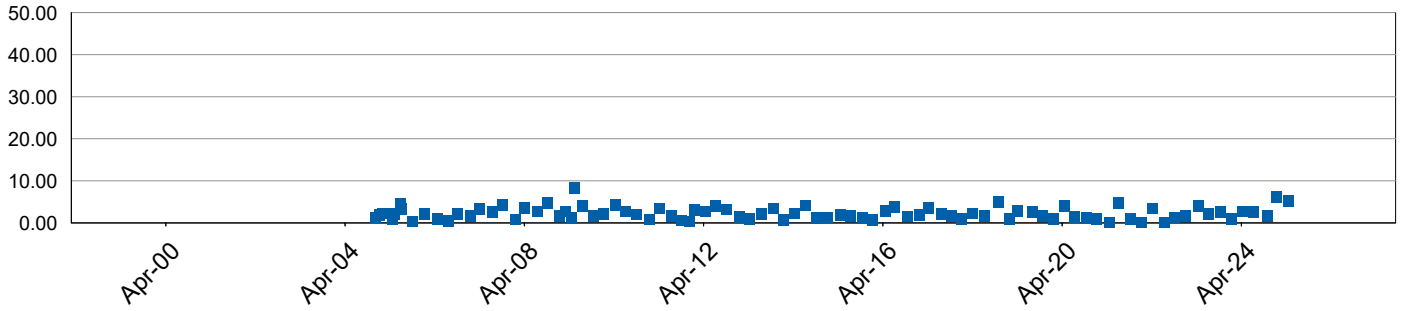


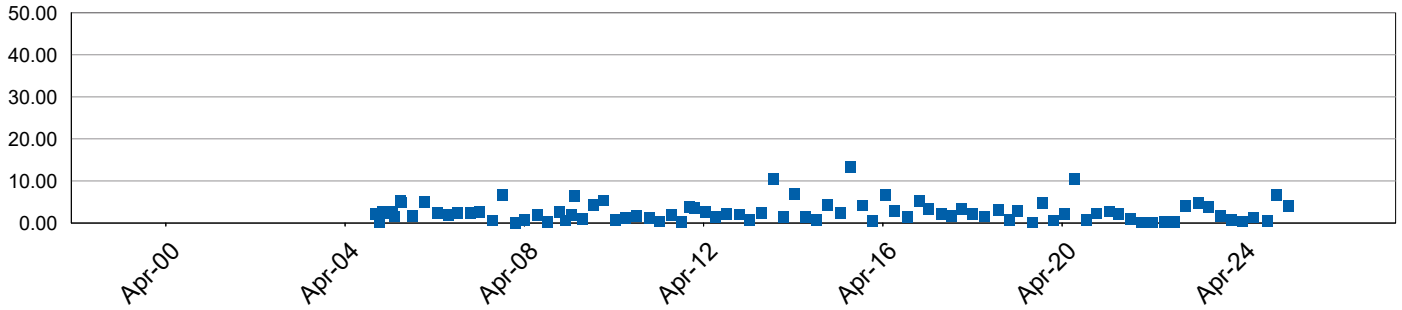
Carbon Dioxide (% v/v) No Limit Applies

AL/08



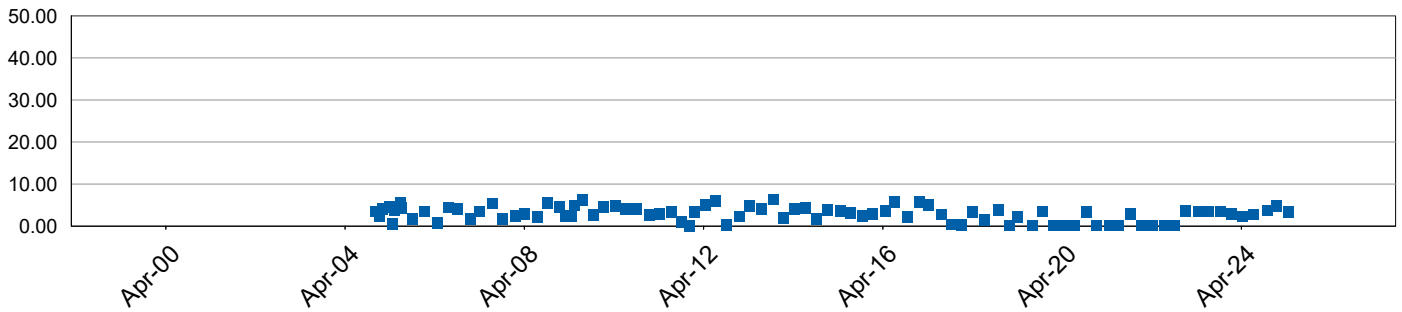
Carbon Dioxide (% v/v) No Limit Applies

AL/09



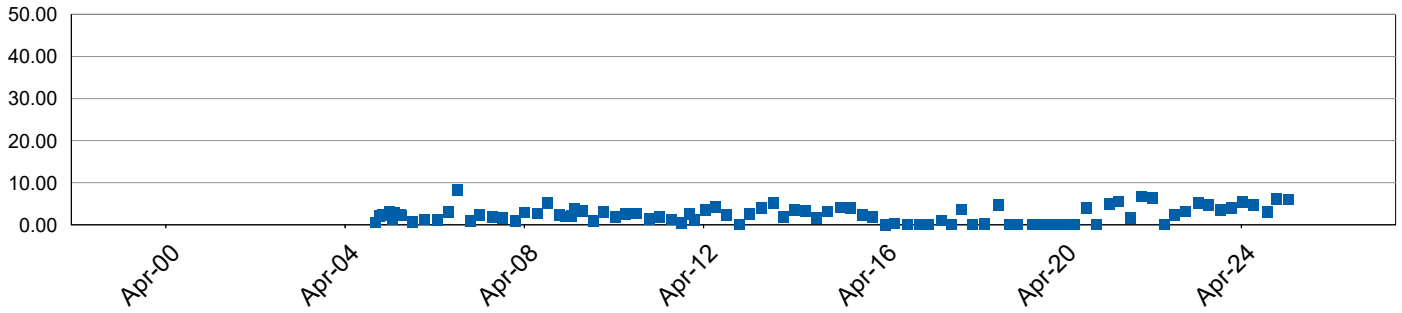
Carbon Dioxide (% v/v) No Limit Applies

AL/10



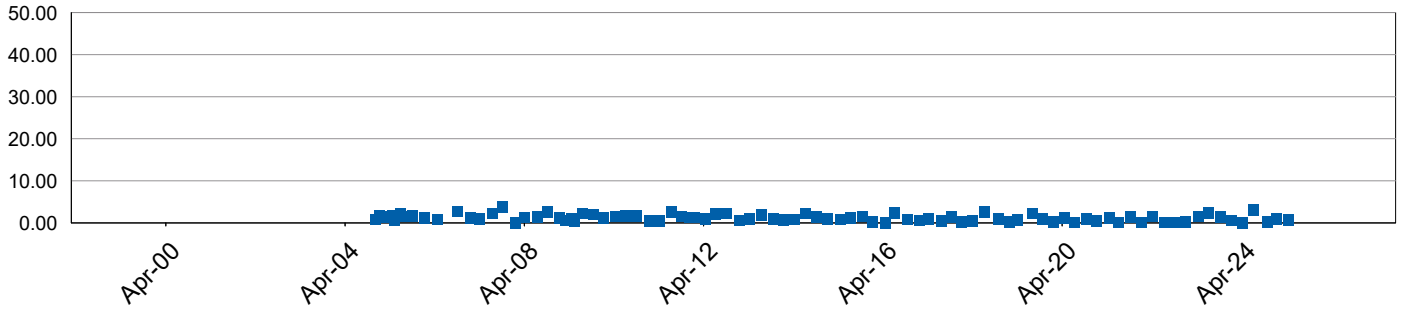
Carbon Dioxide (% v/v)
AL/11

No Limit Applies



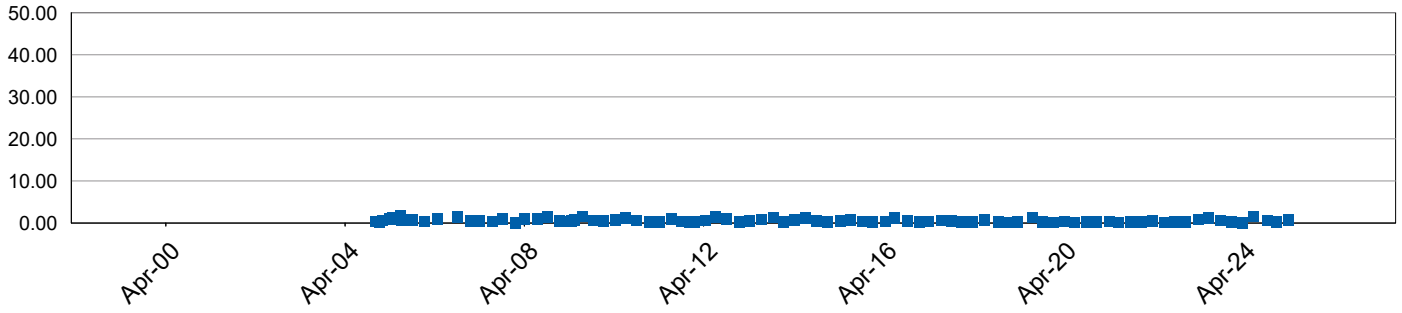
Carbon Dioxide (% v/v)
AL/12(H)

No Limit Applies



Carbon Dioxide (% v/v)
AL/12(L)

No Limit Applies



Carbon Dioxide (% v/v)
AL/13

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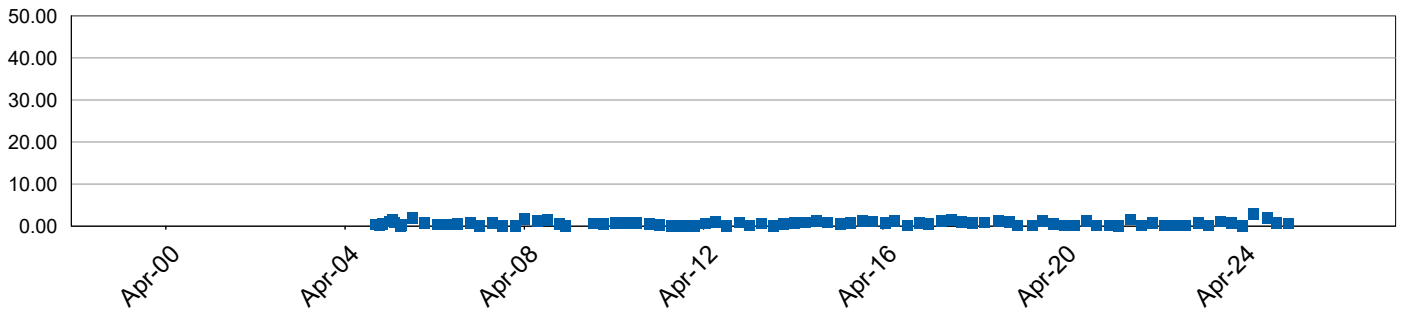
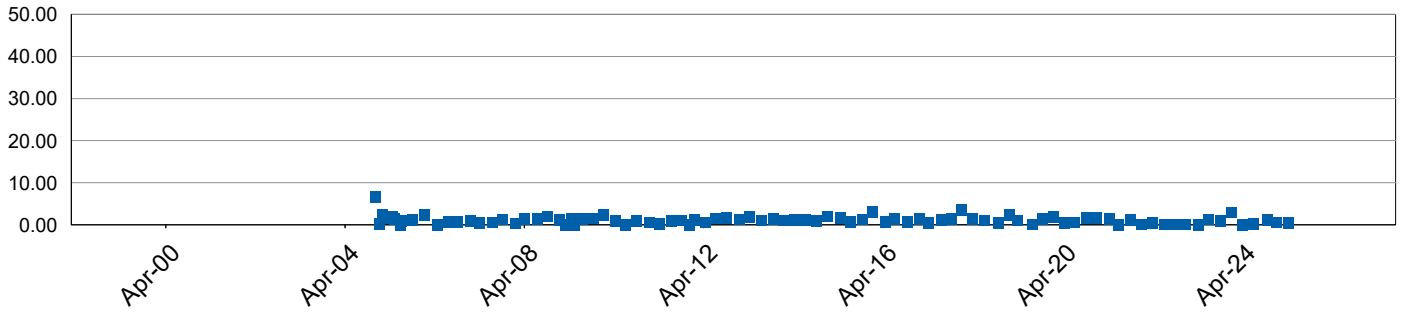


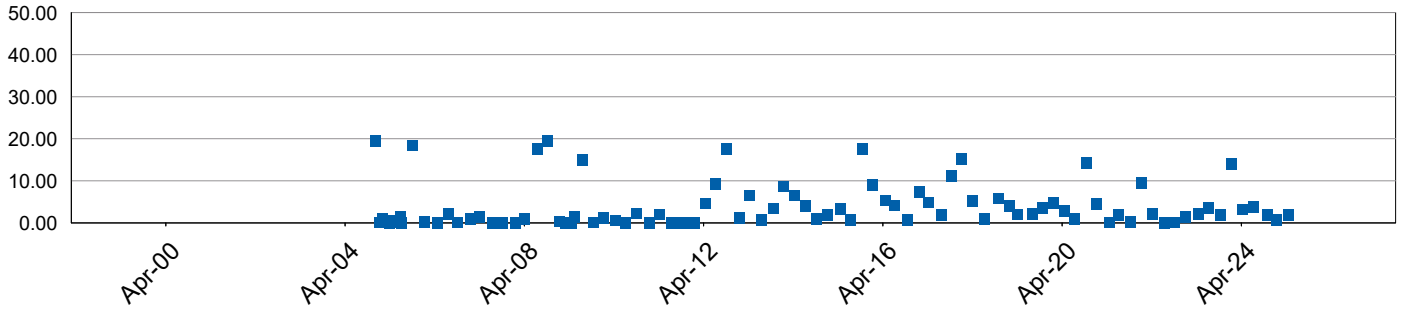
Carbon Dioxide (% v/v) No Limit Applies

AL/14



Carbon Dioxide (% v/v) No Limit Applies

AL/15



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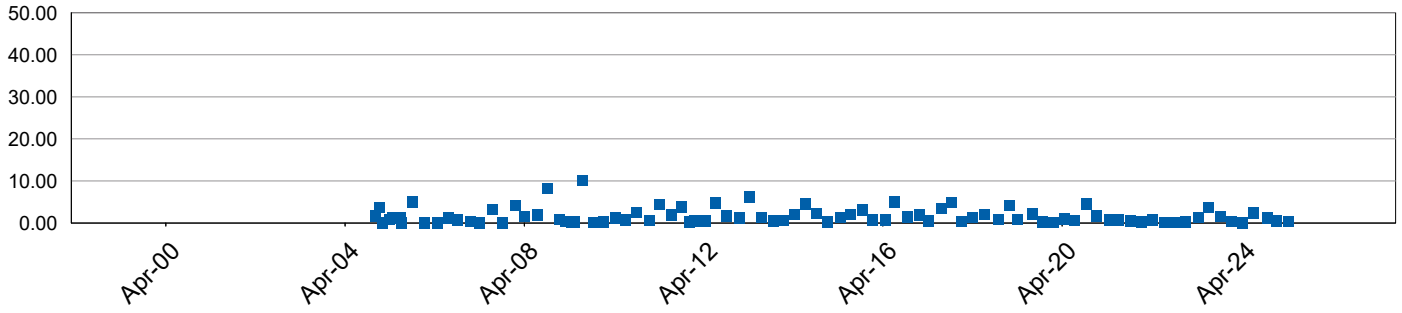

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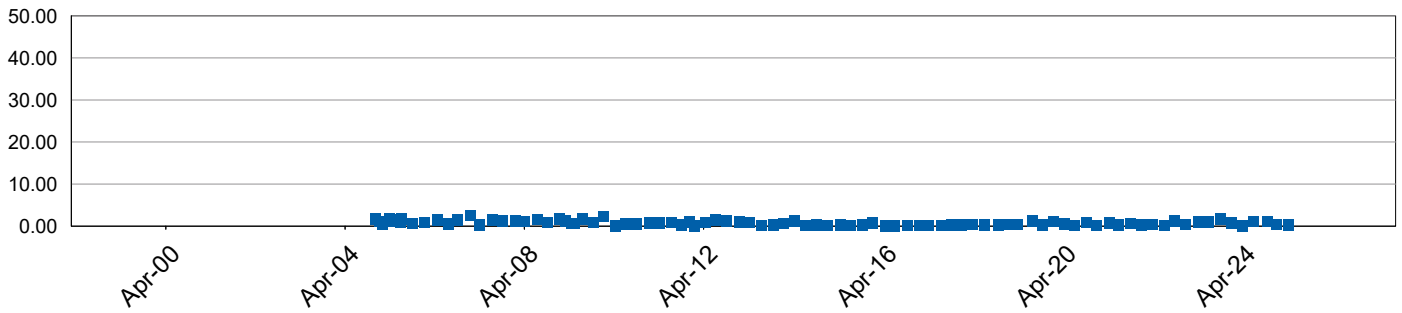

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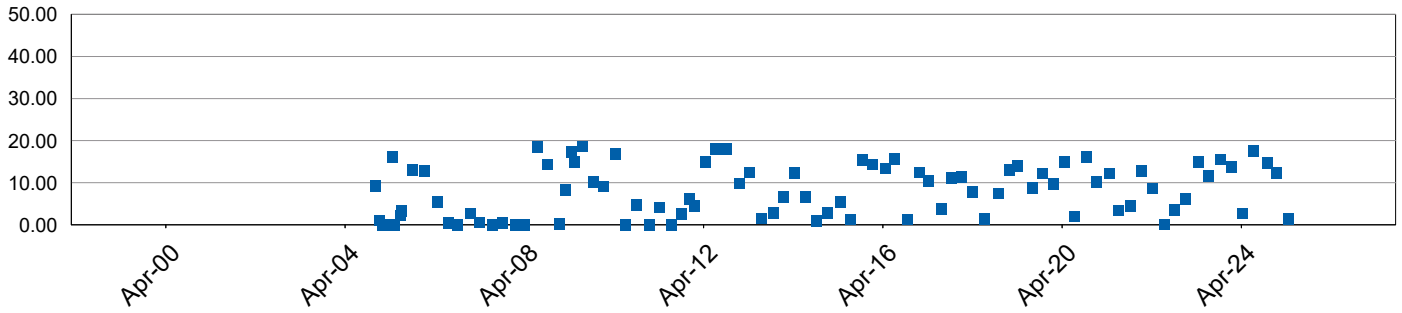

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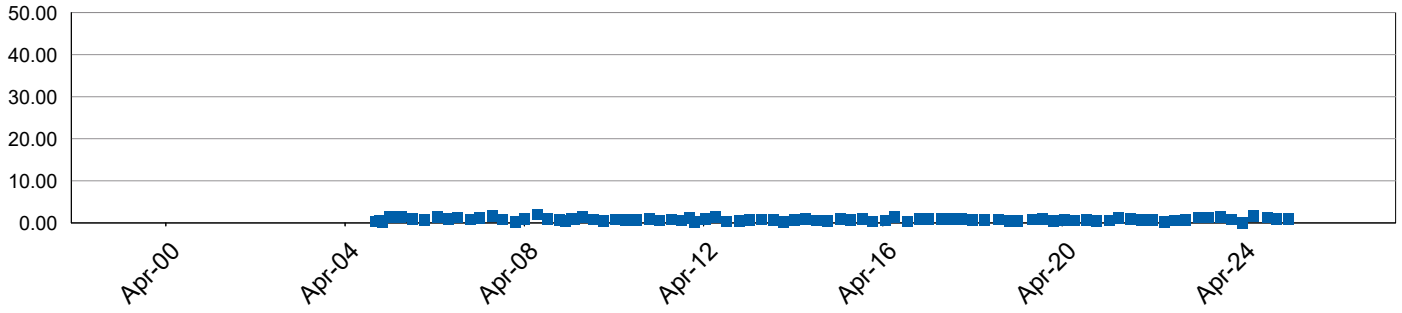
AL/19(H)



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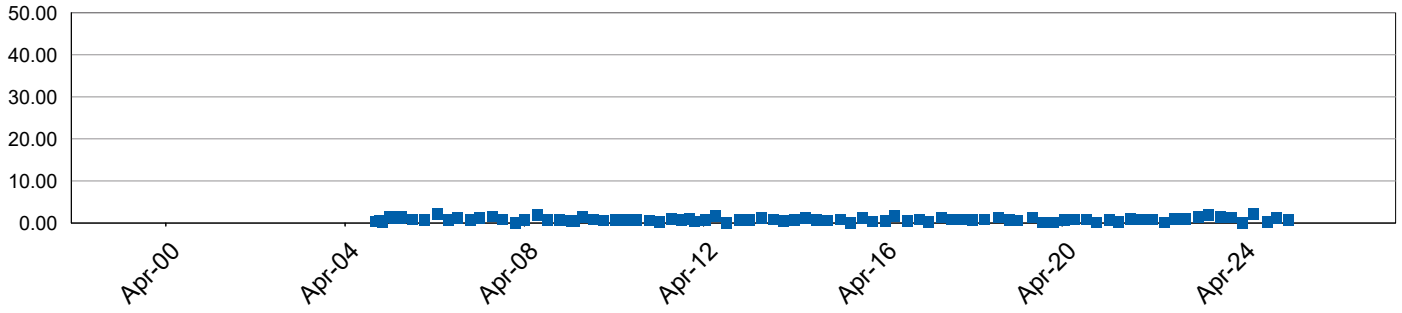

Carbon Dioxide (% v/v) No Limit Applies

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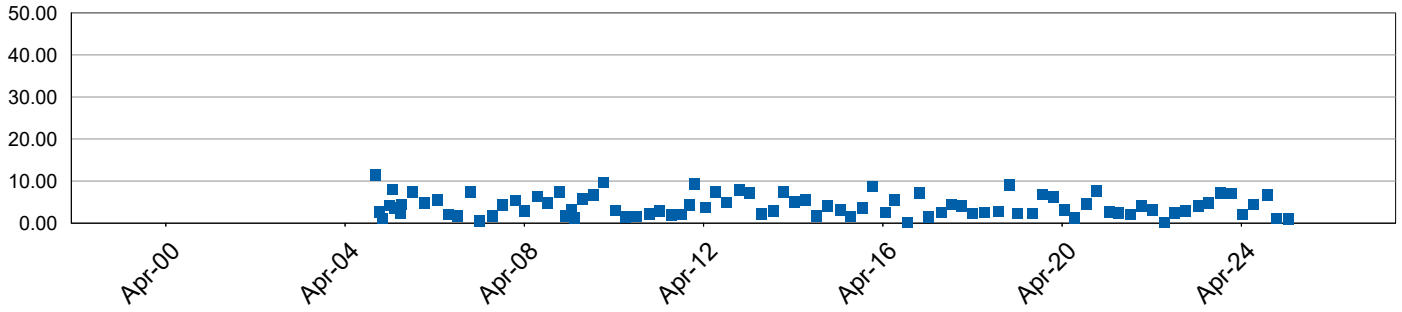
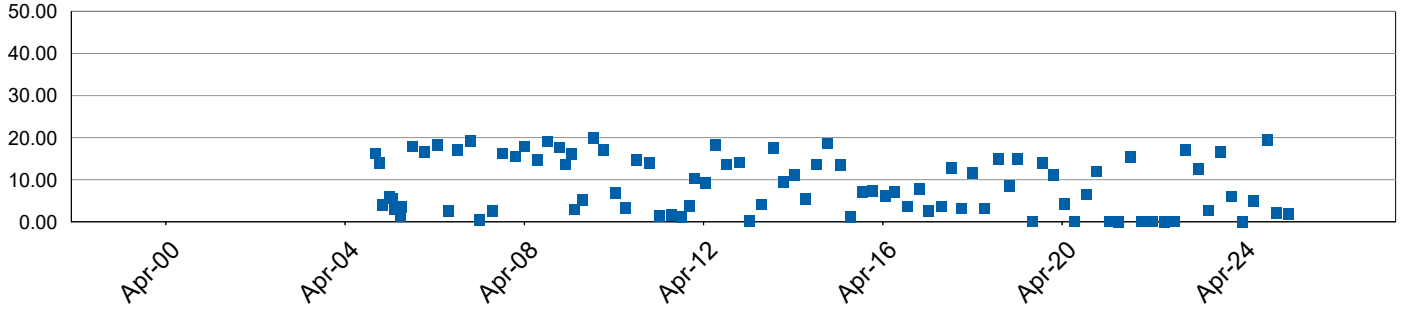


Carbon Dioxide (% v/v) No Limit Applies

AL/21



Carbon Dioxide (% v/v) No Limit Applies

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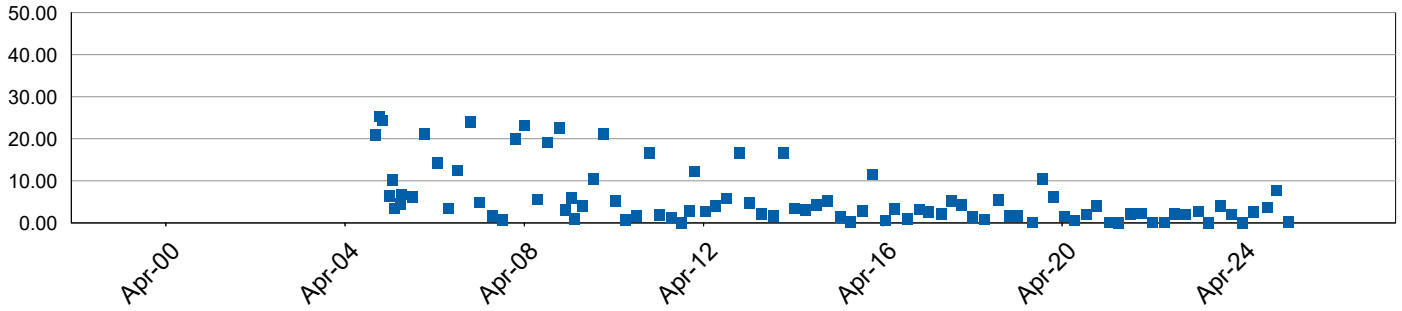
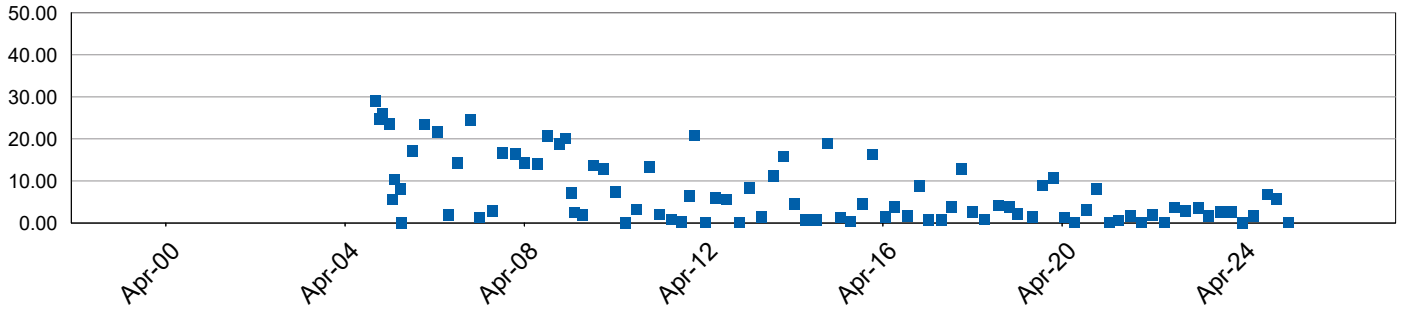


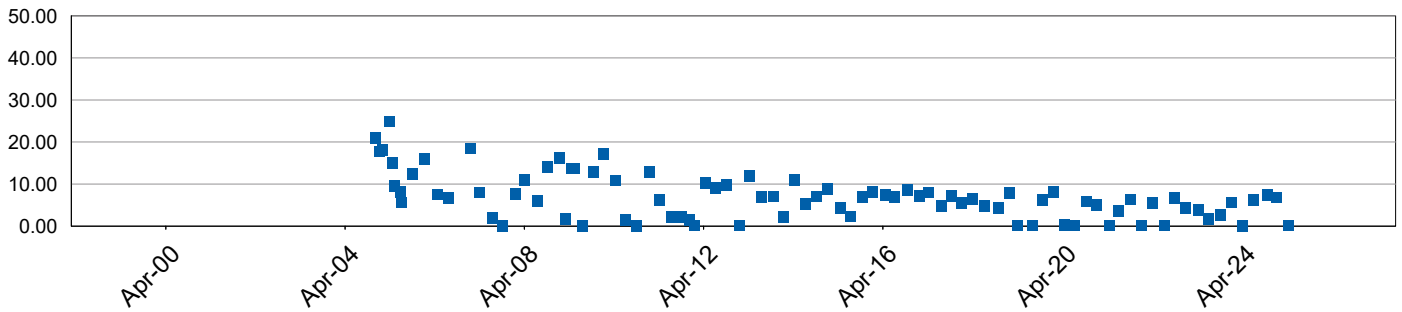
Carbon Dioxide (% v/v) No Limit Applies

AL/23(H)



Carbon Dioxide (% v/v) No Limit Applies

AL/23(L)



Carbon Dioxide (% v/v) No Limit Applies

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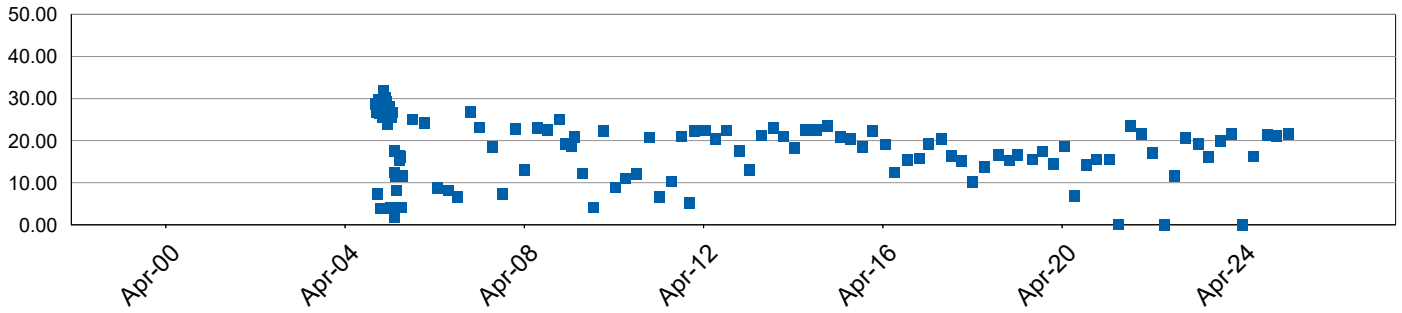

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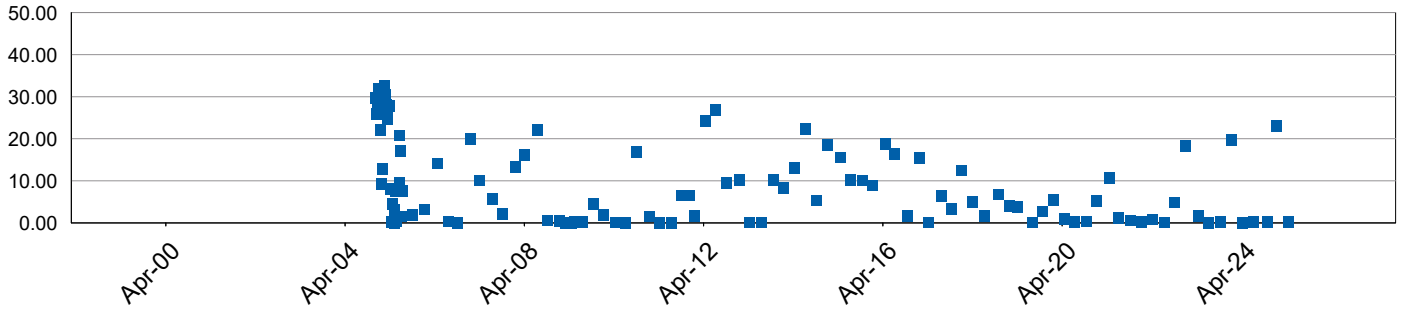
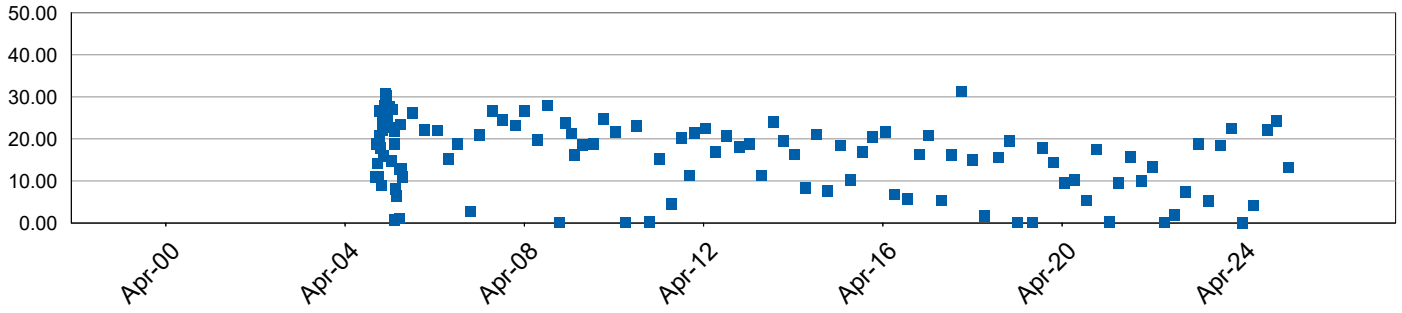
AL/25



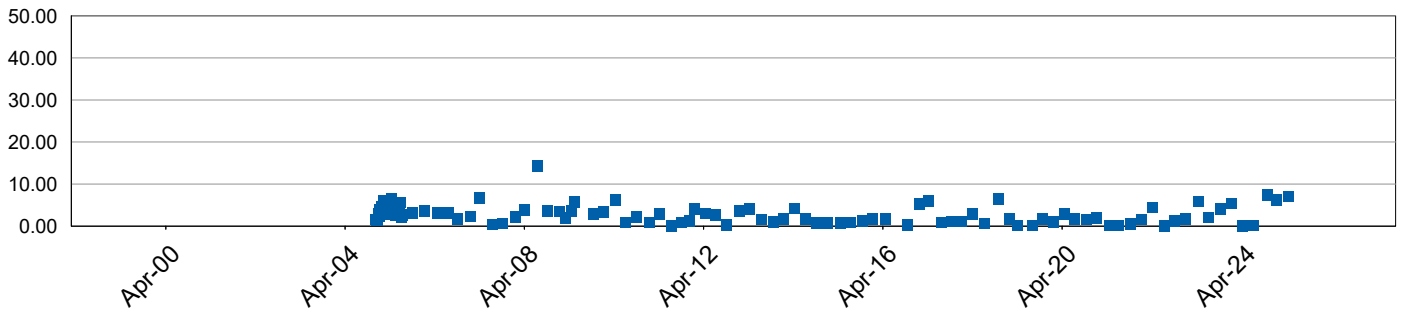
Carbon Dioxide (% v/v) No Limit Applies

AL/26



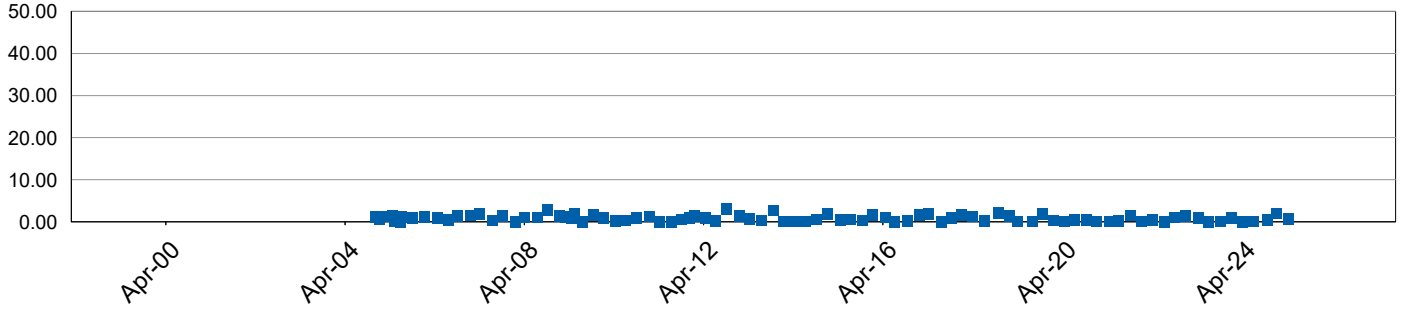
Carbon Dioxide (% v/v) No Limit Applies

AL/27



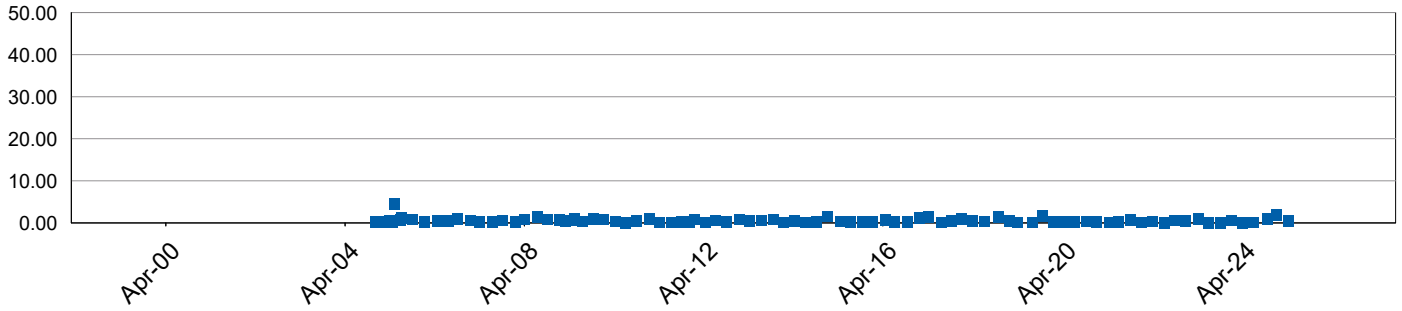
Carbon Dioxide (% v/v) No Limit Applies

AL/28(H)



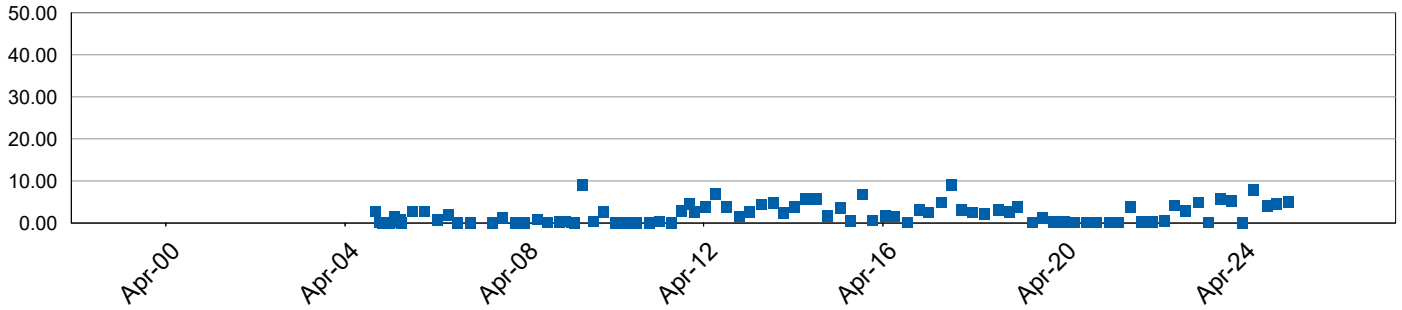
Carbon Dioxide (% v/v) No Limit Applies

AL/28(L)



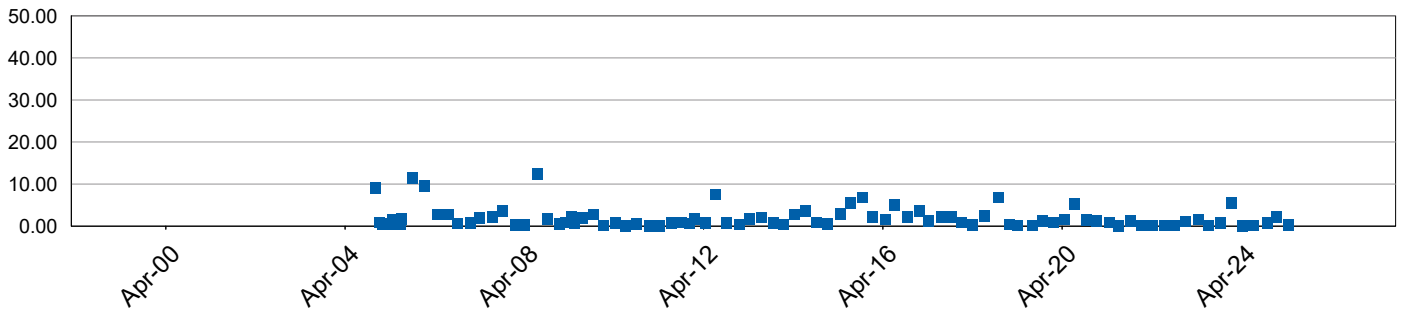
Carbon Dioxide (% v/v) No Limit Applies

AL/29



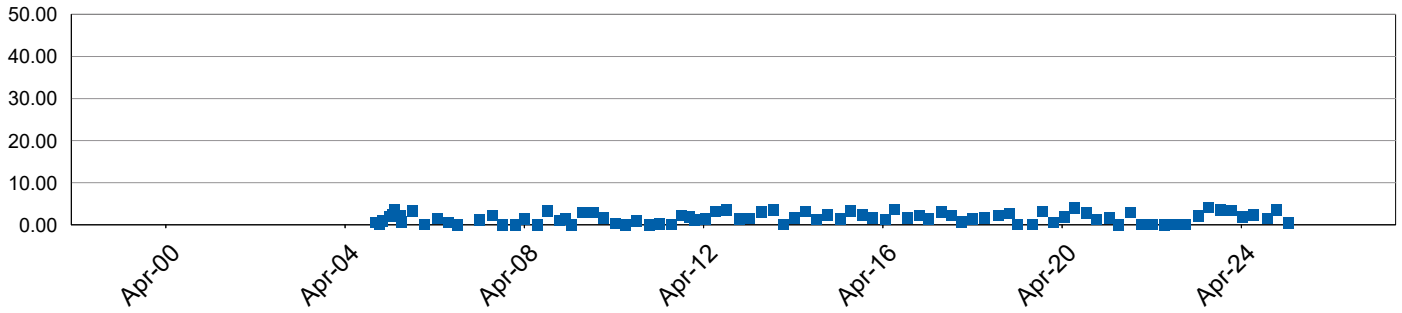
Carbon Dioxide (% v/v) No Limit Applies

AL/30



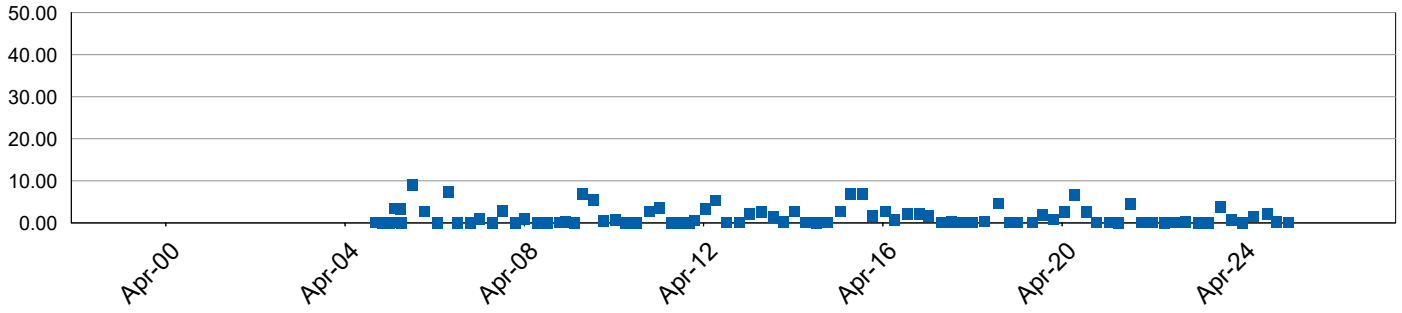
Carbon Dioxide (% v/v)
AL/31

No Limit Applies



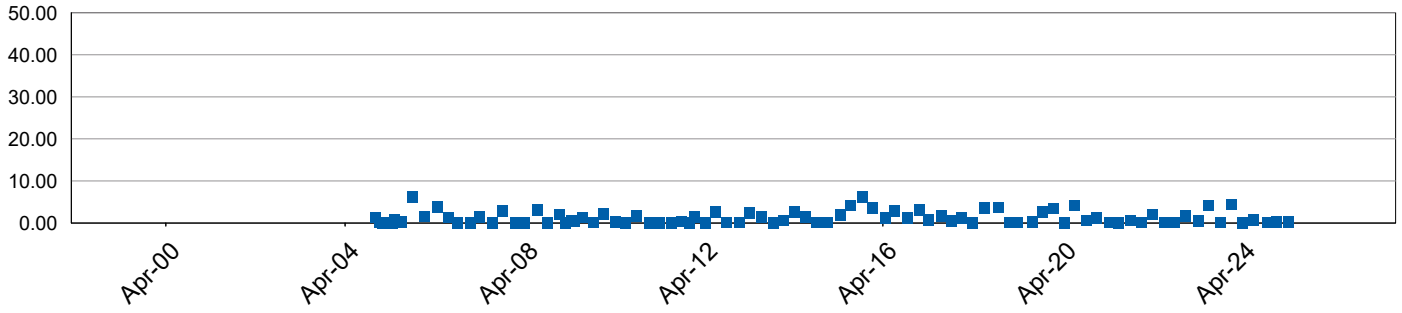
Carbon Dioxide (% v/v)
AL/32

No Limit Applies



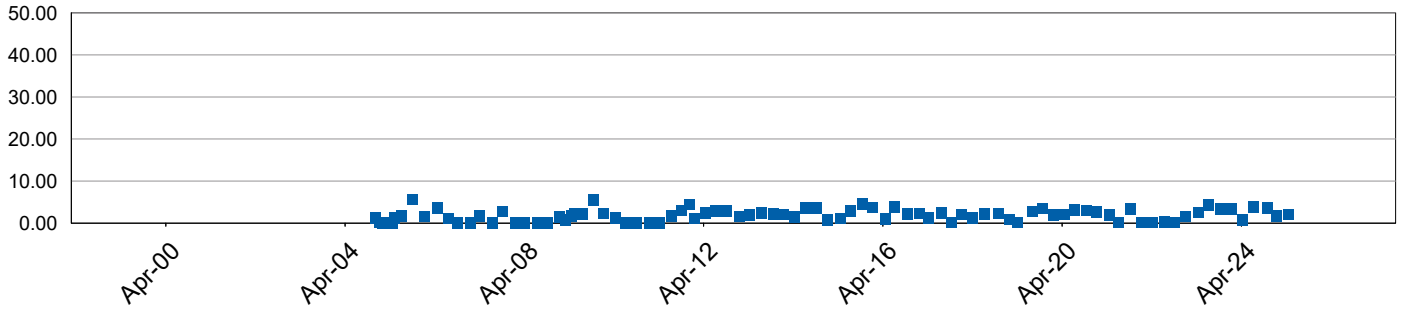
Carbon Dioxide (% v/v)
AL/33(H)

No Limit Applies



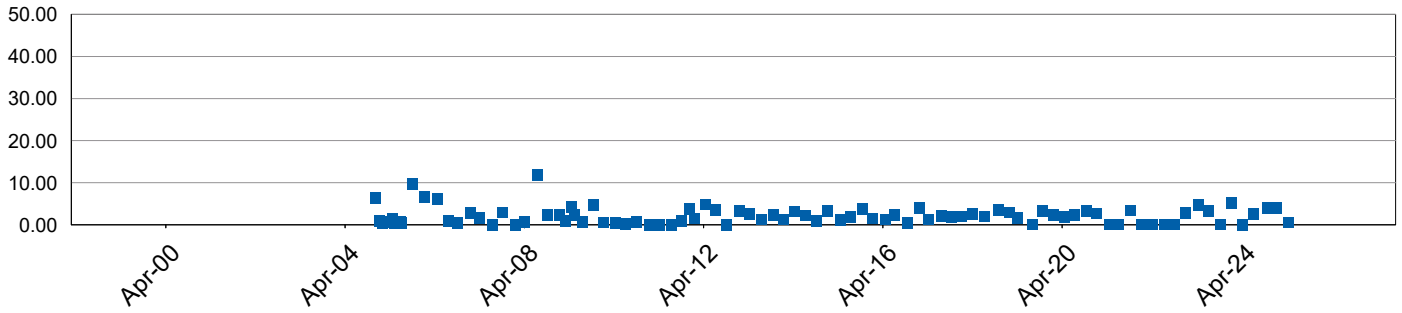
Carbon Dioxide (% v/v)
AL/33(L)

No Limit Applies



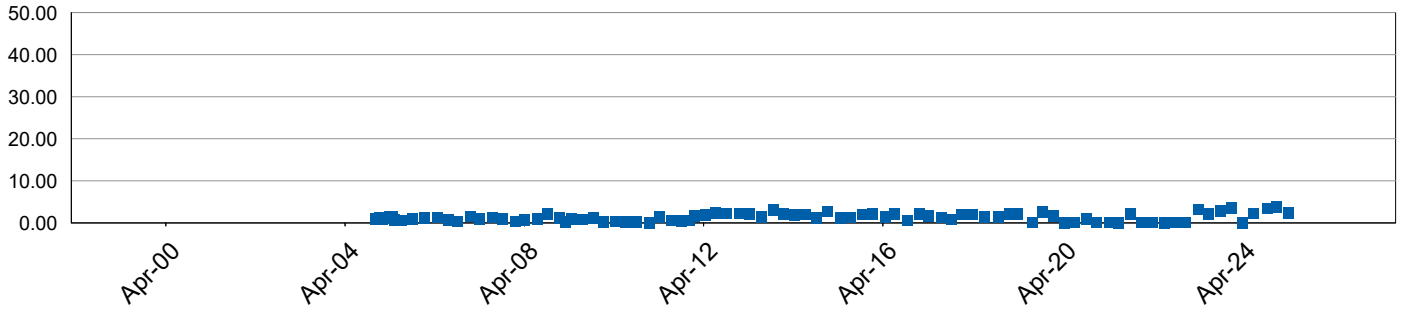
Carbon Dioxide (% v/v) No Limit Applies

AL/34



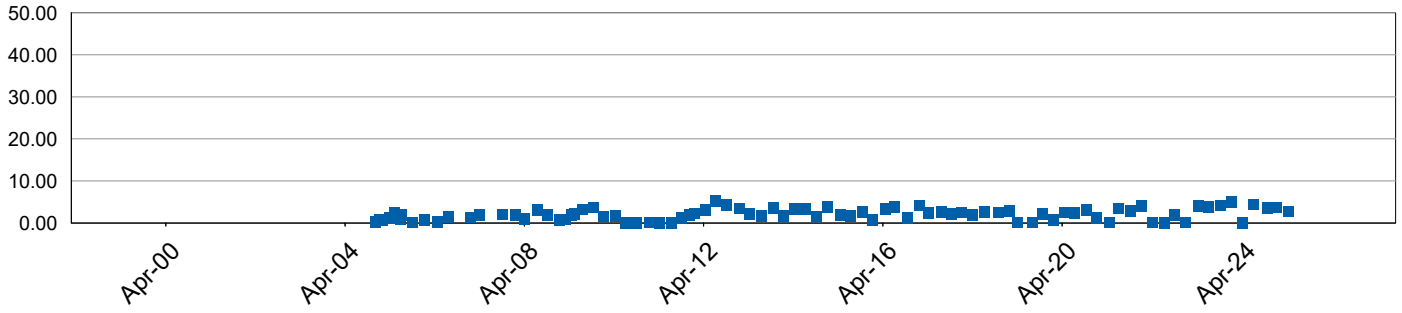
Carbon Dioxide (% v/v) No Limit Applies

AL/35



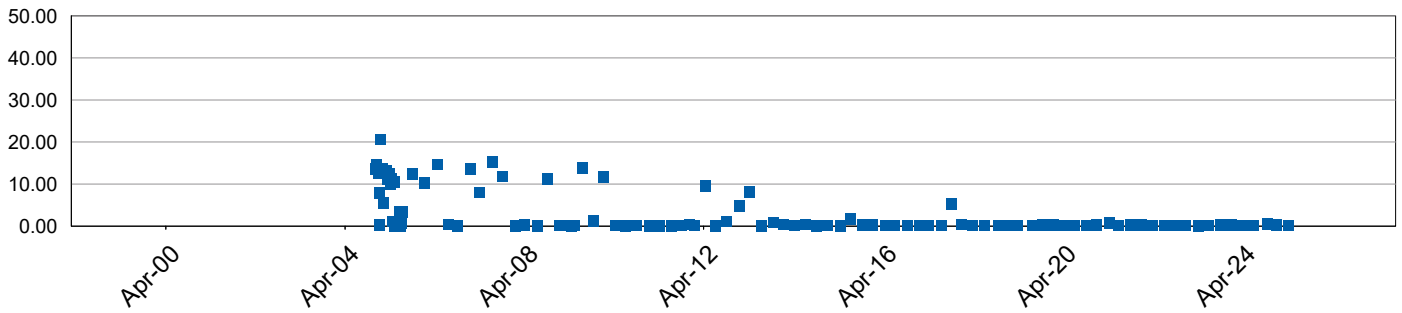
Carbon Dioxide (% v/v) No Limit Applies

AL/36



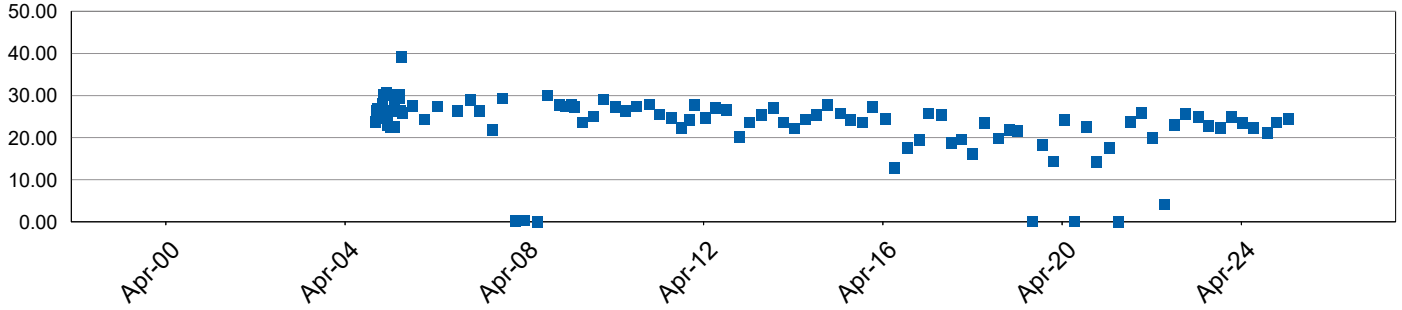
Carbon Dioxide (% v/v) No Limit Applies

AL/37(H)



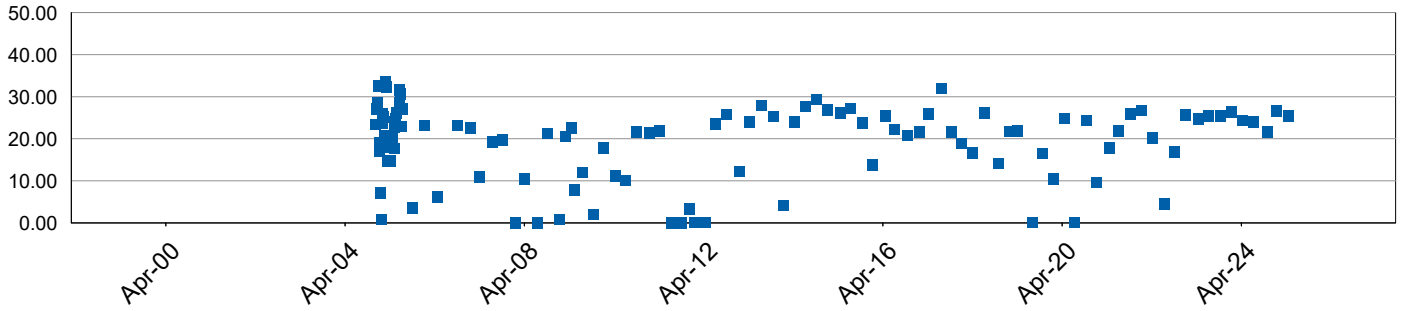
Carbon Dioxide (% v/v) No Limit Applies

AL/37(L)



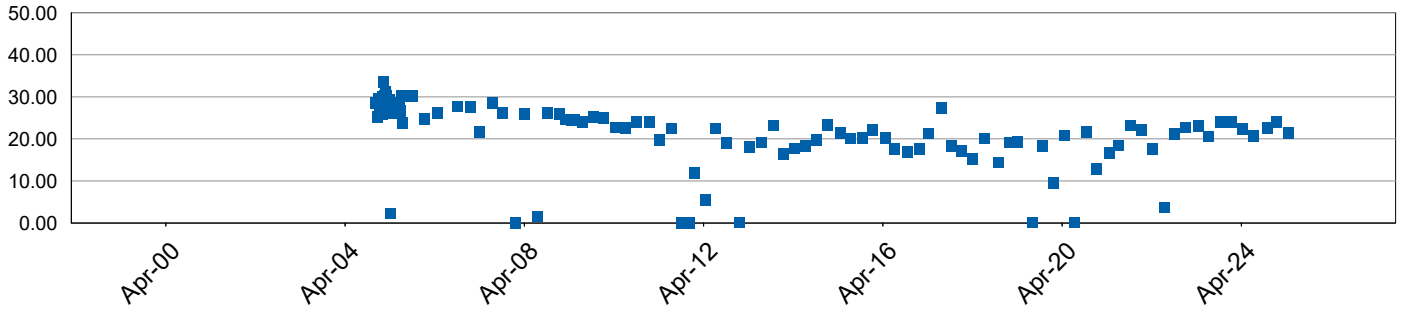
Carbon Dioxide (% v/v) No Limit Applies

AL/38



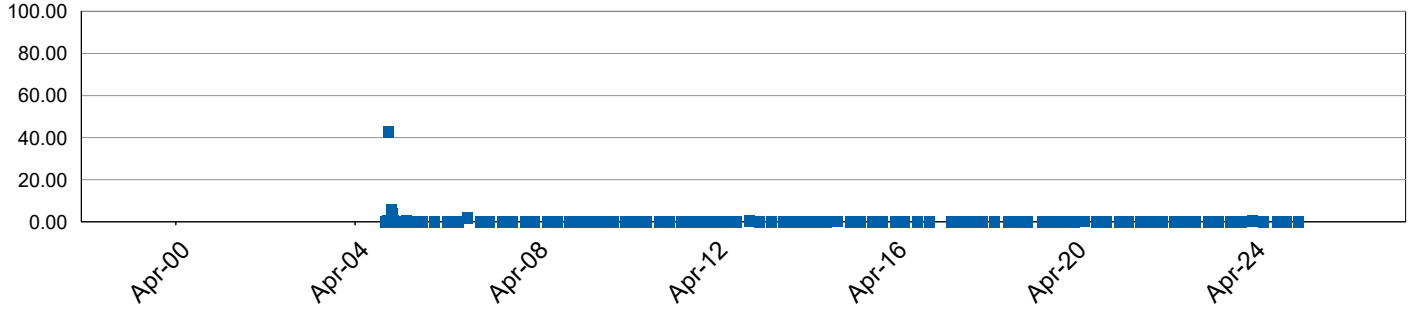
Carbon Dioxide (% v/v) No Limit Applies

AL/39



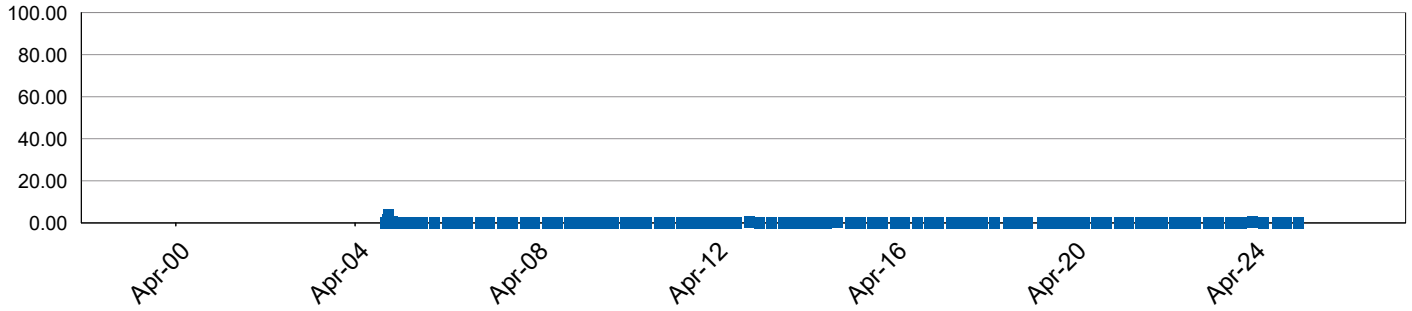
Methane (% v/v)
AL/01

No Limit Applies



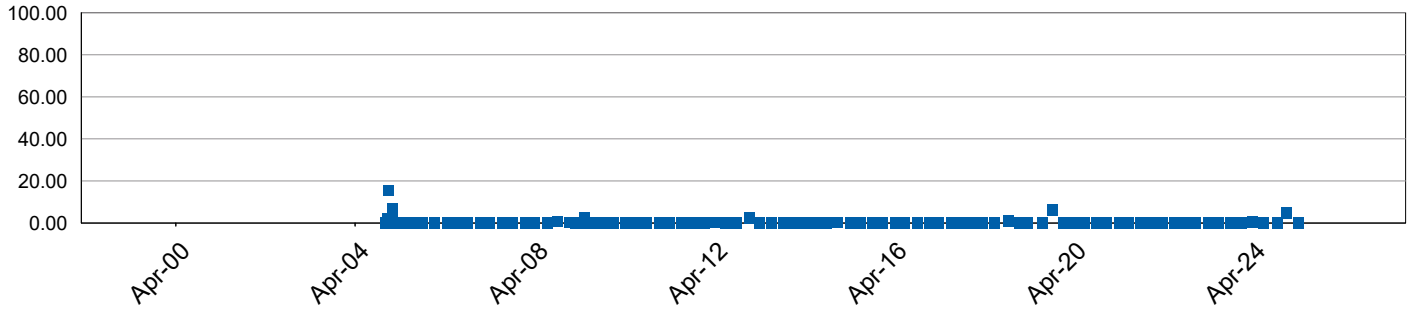
Methane (% v/v)
AL/02(H)

No Limit Applies



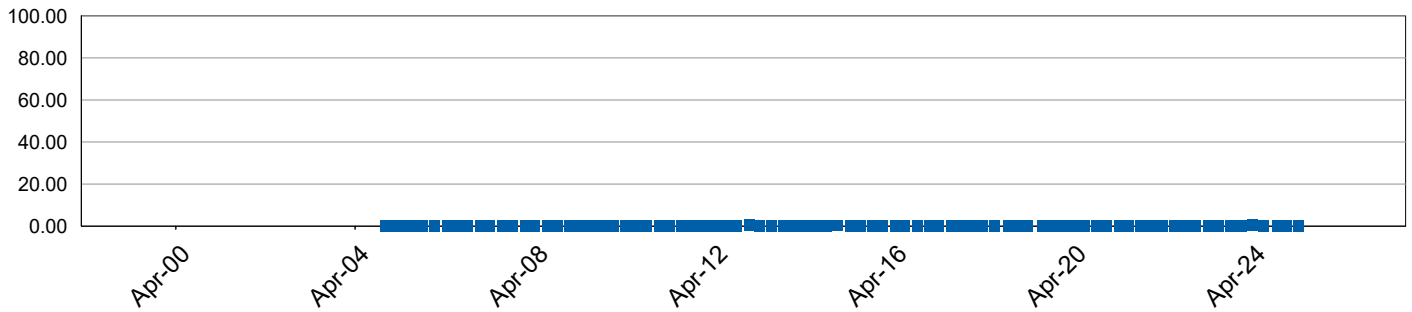
Methane (% v/v)
AL/02(L)

No Limit Applies



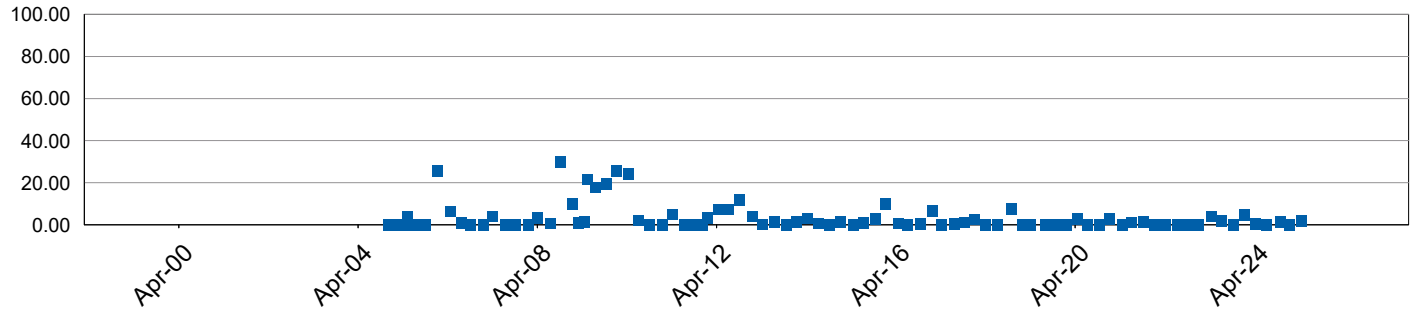
Methane (% v/v)
AL/03

No Limit Applies



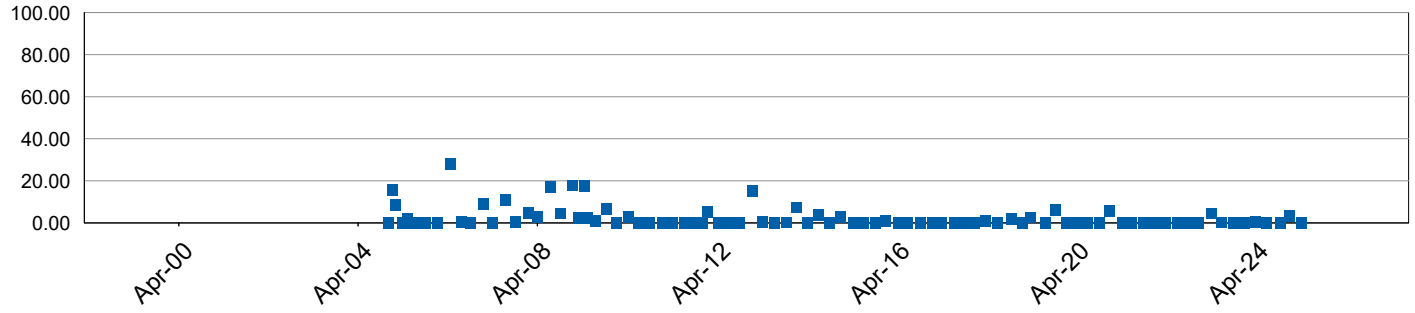
Methane (% v/v)
AL/04

No Limit Applies



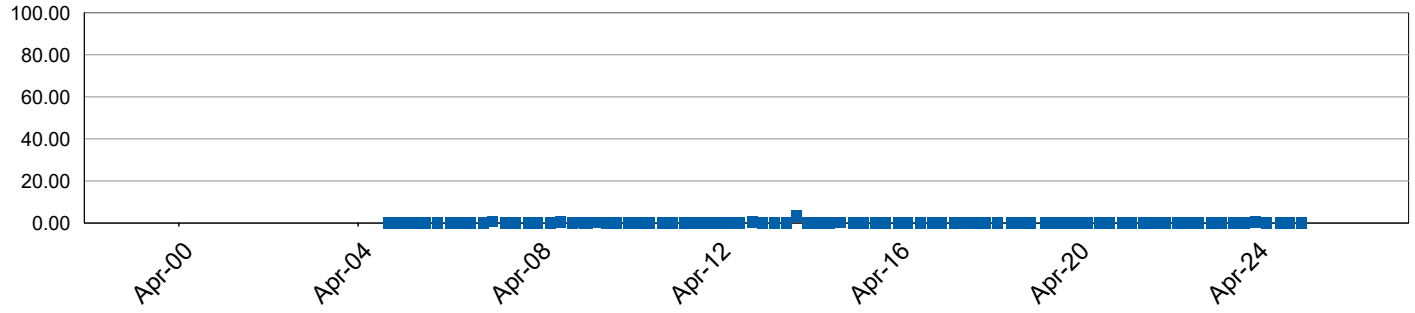
Methane (% v/v)
AL/05

No Limit Applies



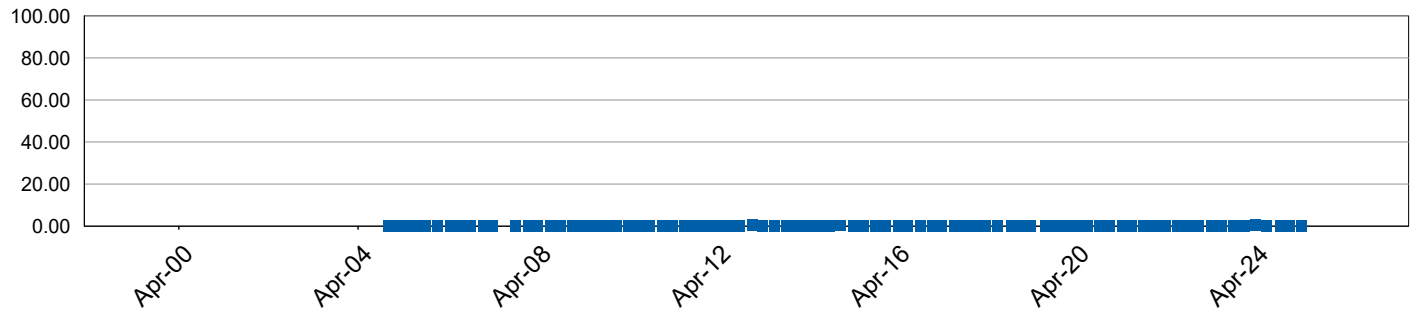
Methane (% v/v)
AL/06

No Limit Applies



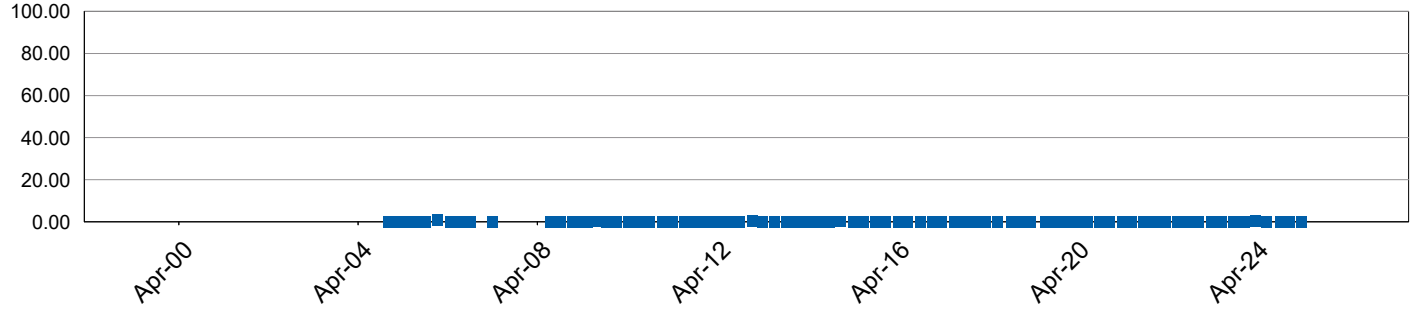
Methane (% v/v)
AL/07(H)

No Limit Applies



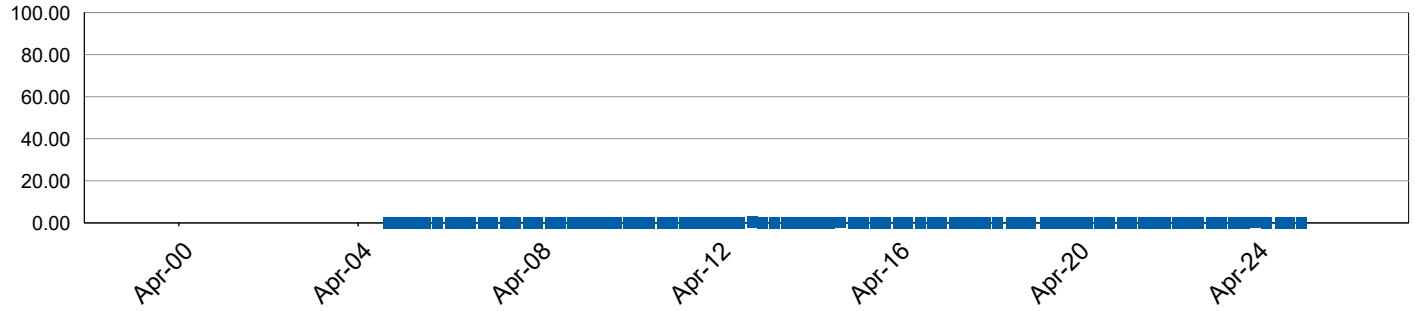
Methane (% v/v)
AL/07(L)

No Limit Applies



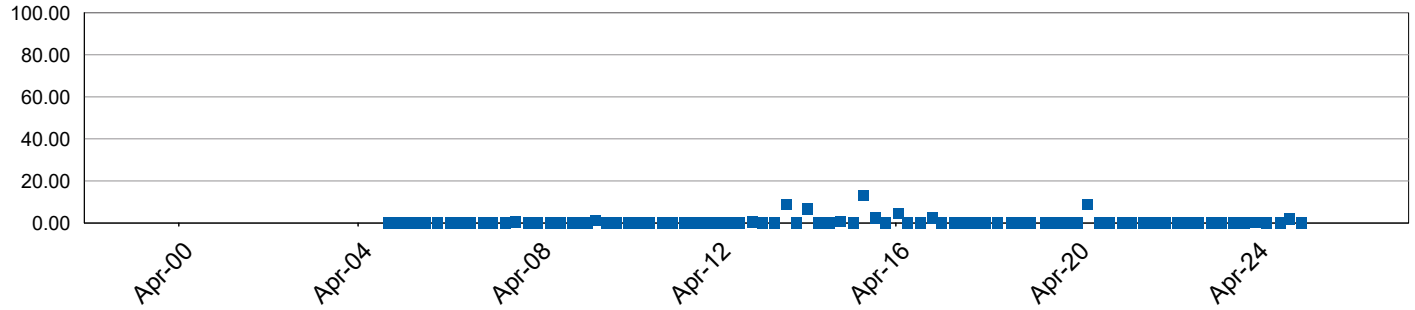
Methane (% v/v)
AL/08

No Limit Applies



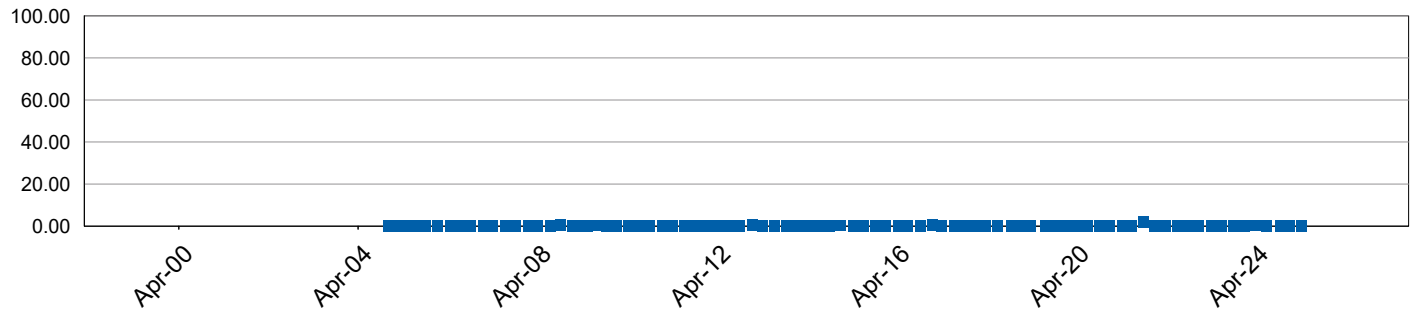
Methane (% v/v)
AL/09

No Limit Applies



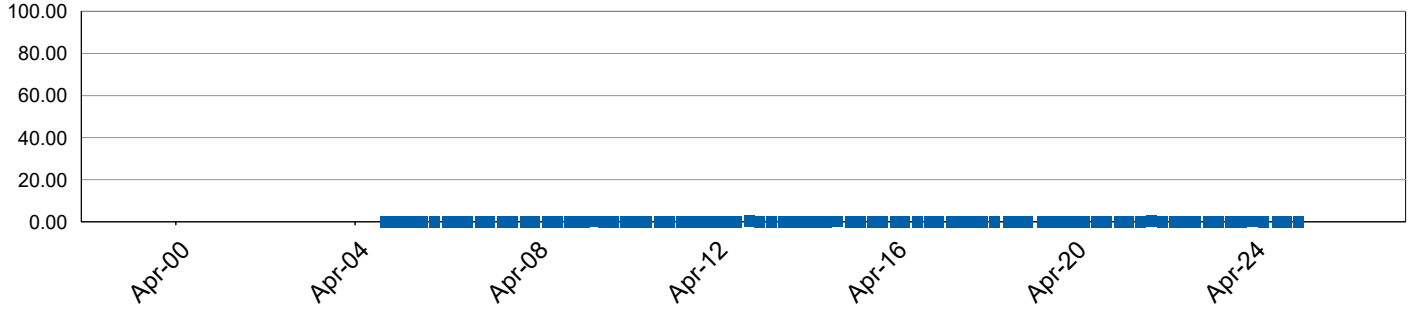
Methane (% v/v)
AL/10

No Limit Applies



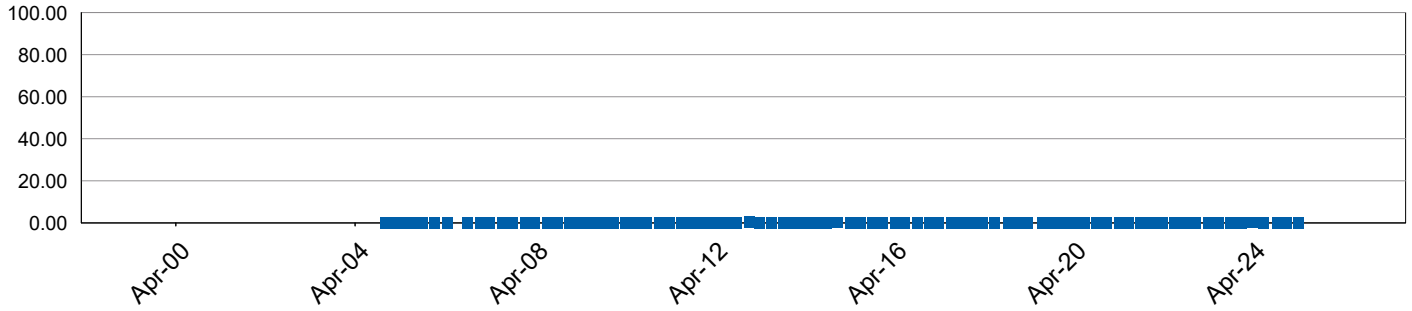
Methane (% v/v)
AL/11

No Limit Applies



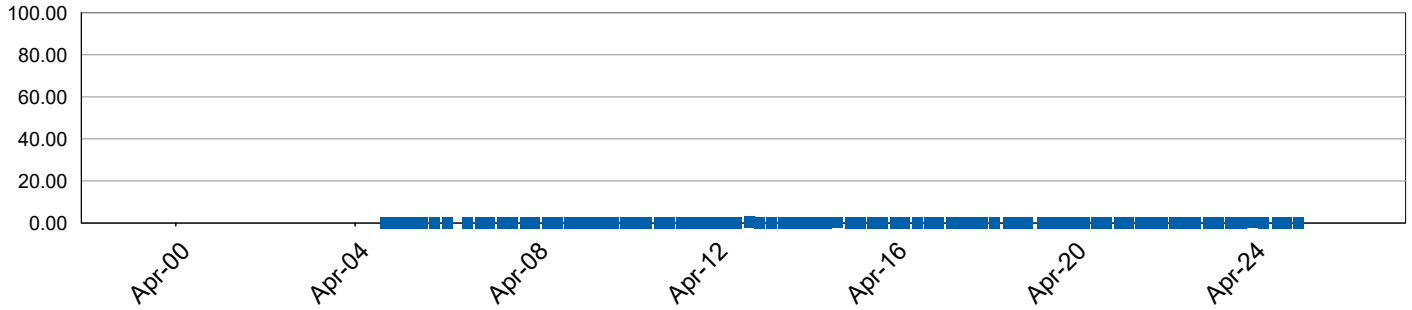
Methane (% v/v)
AL/12(H)

No Limit Applies



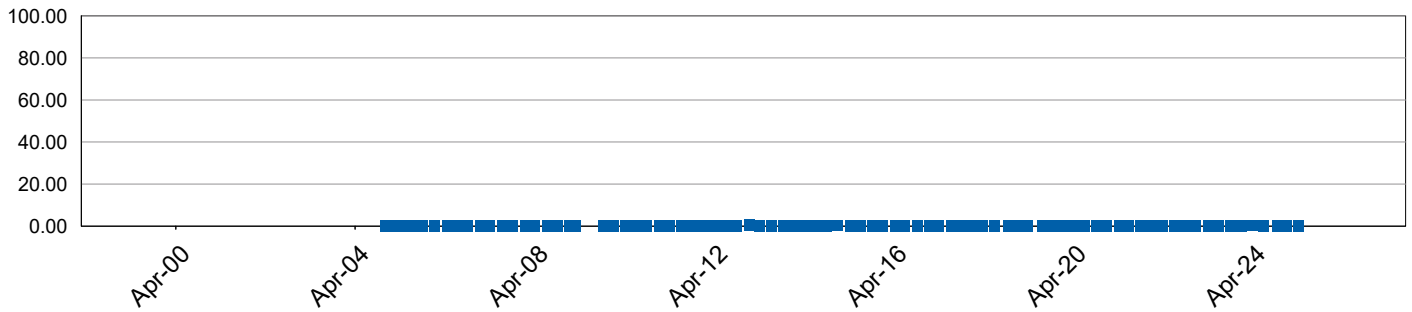
Methane (% v/v)
AL/12(L)

No Limit Applies



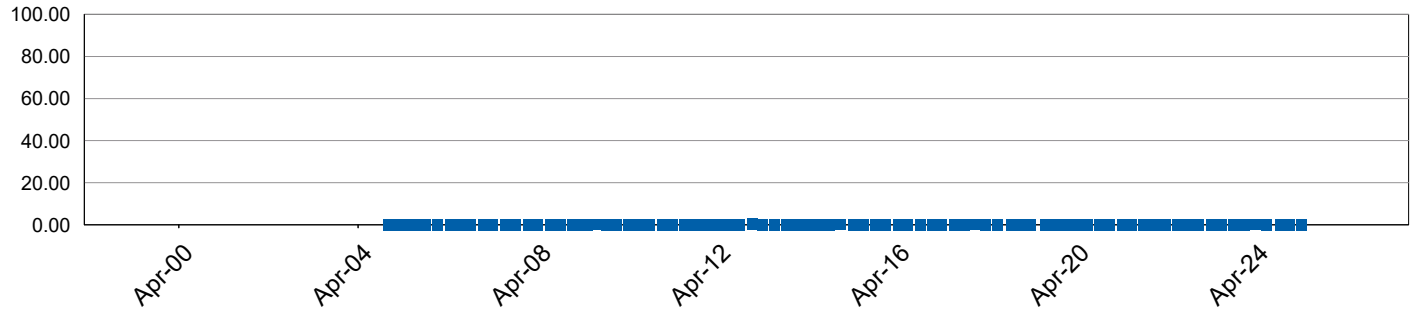
Methane (% v/v)
AL/13

No Limit Applies



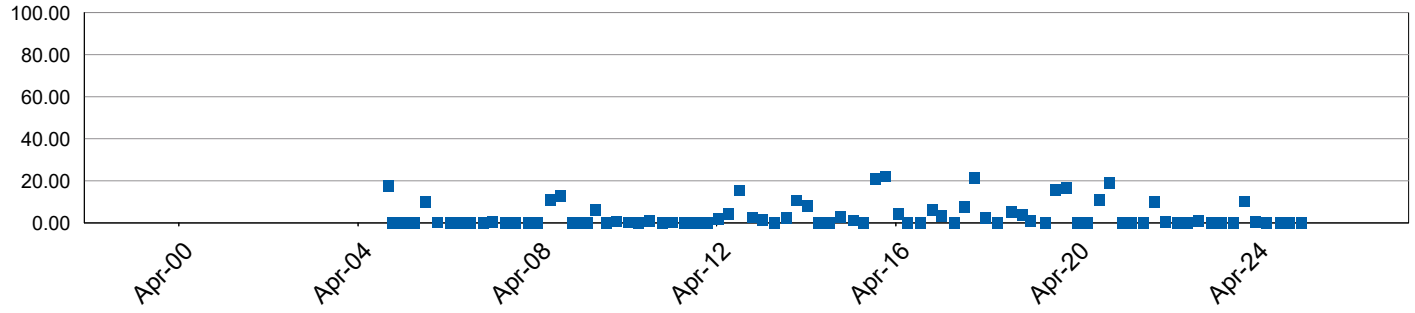
Methane (% v/v)
AL/14

No Limit Applies



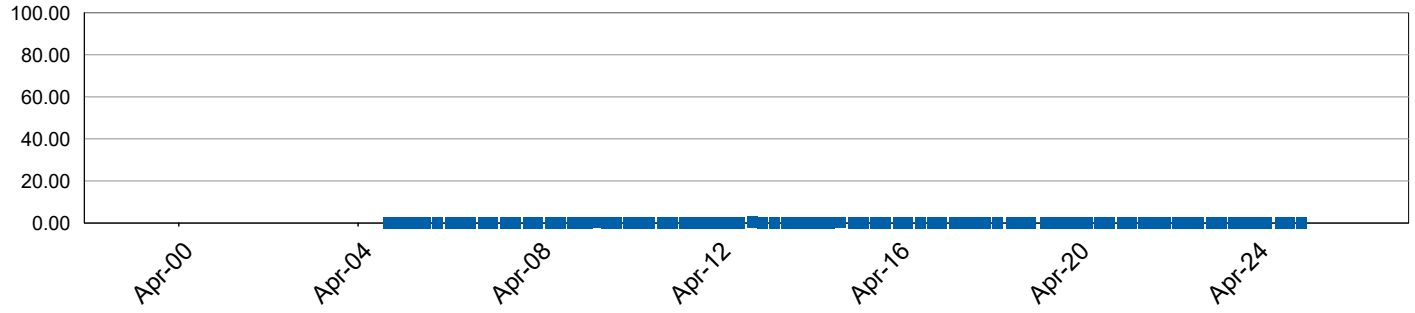
Methane (% v/v)
AL/15

No Limit Applies



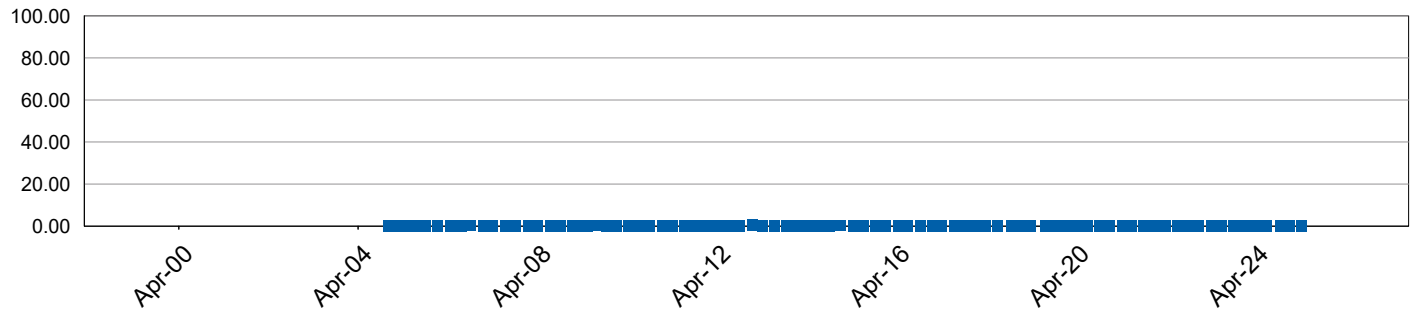
Methane (% v/v)
AL/16

No Limit Applies



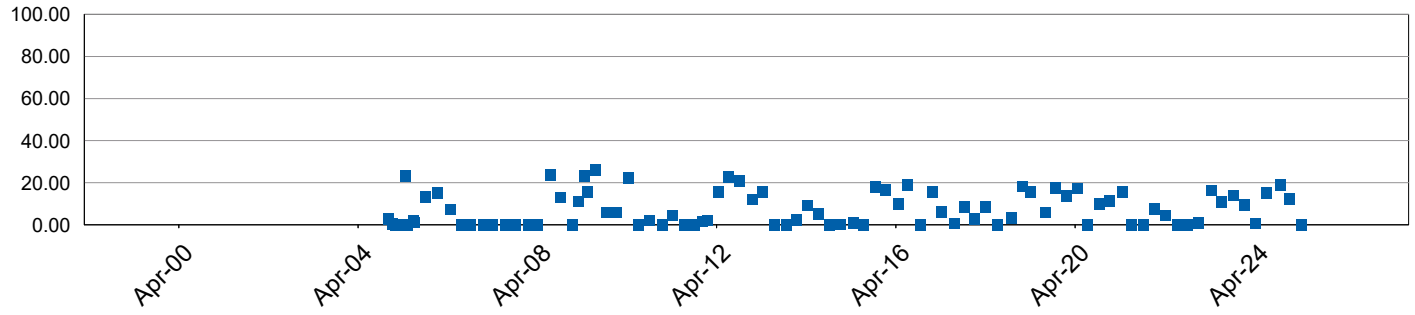
Methane (% v/v)
AL/17

No Limit Applies



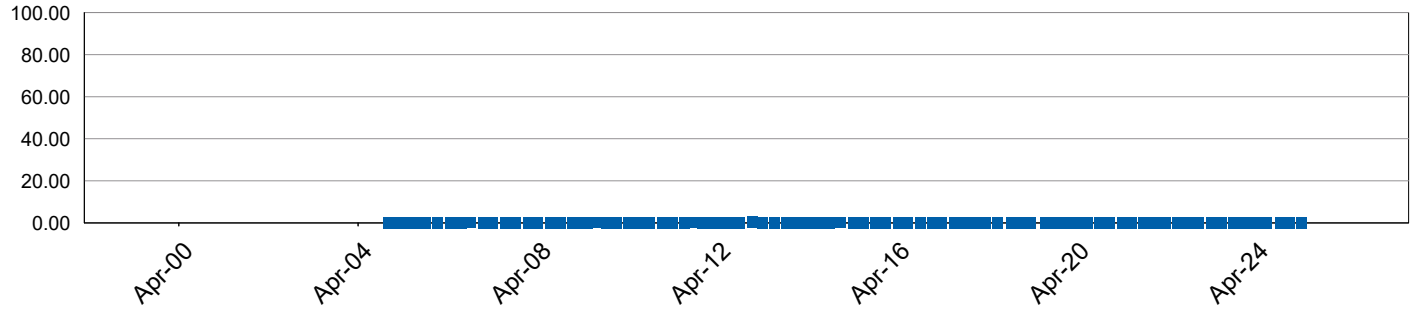
Methane (% v/v)
AL/18

No Limit Applies



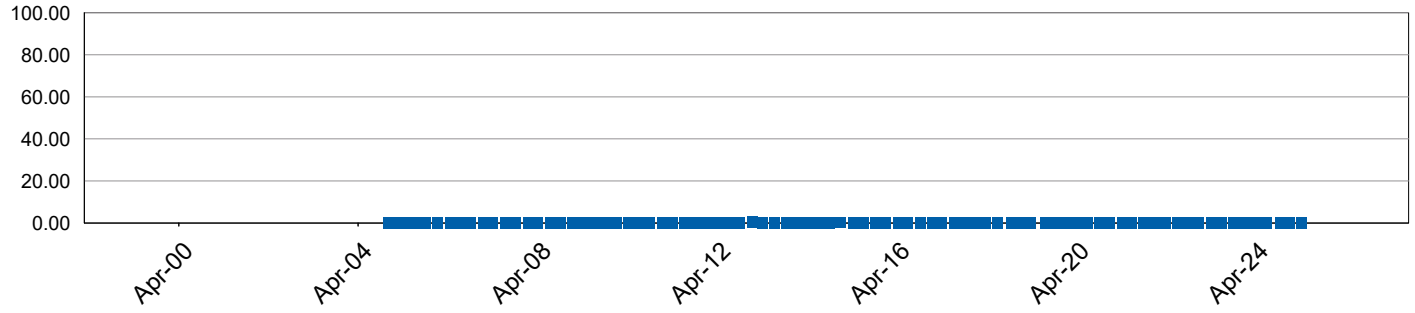
Methane (% v/v)
AL/19(H)

No Limit Applies



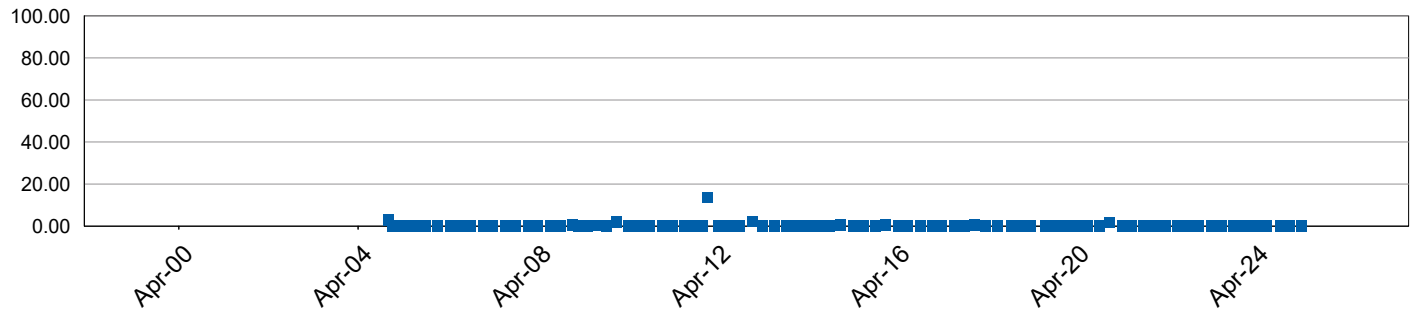
Methane (% v/v)
AL/19(L)

No Limit Applies



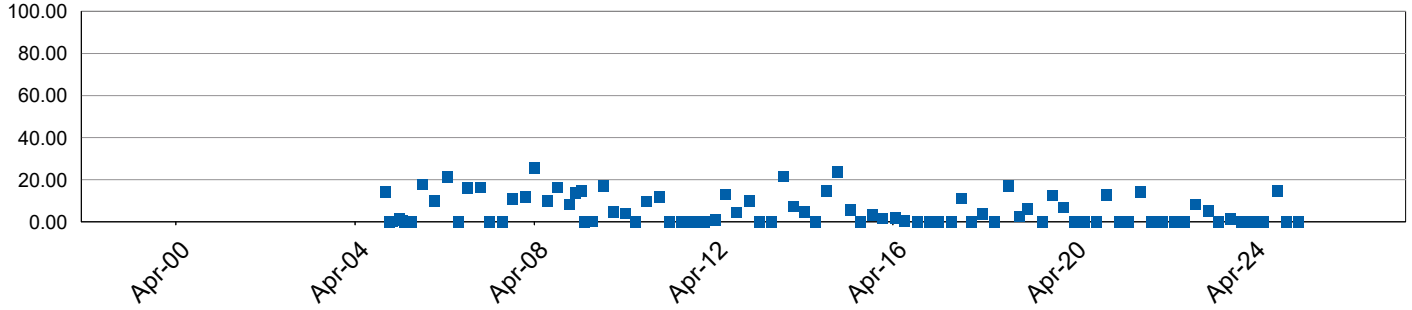
Methane (% v/v)
AL/20

No Limit Applies



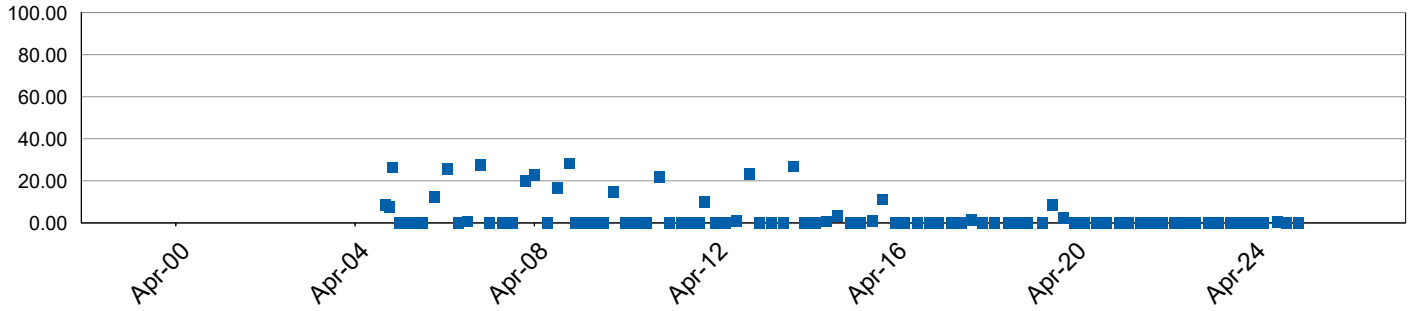
Methane (% v/v) No Limit Applies

AL/21



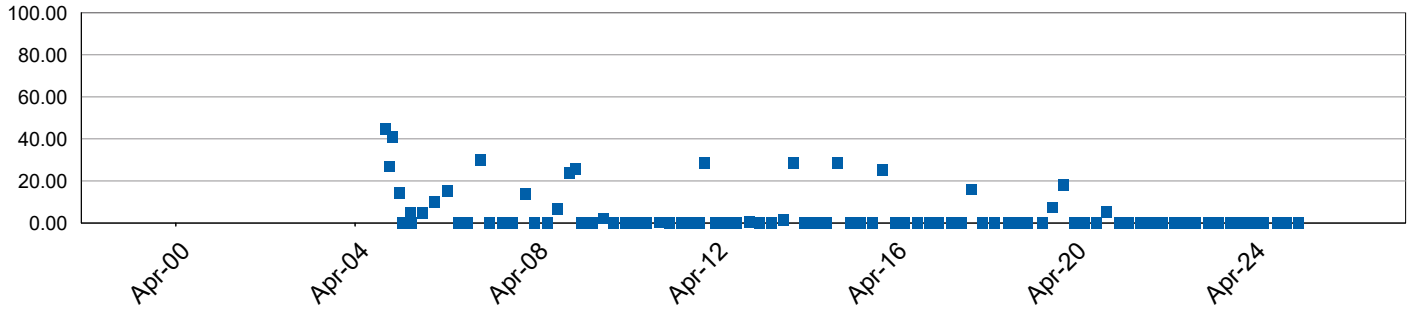
Methane (% v/v) No Limit Applies

AL/22



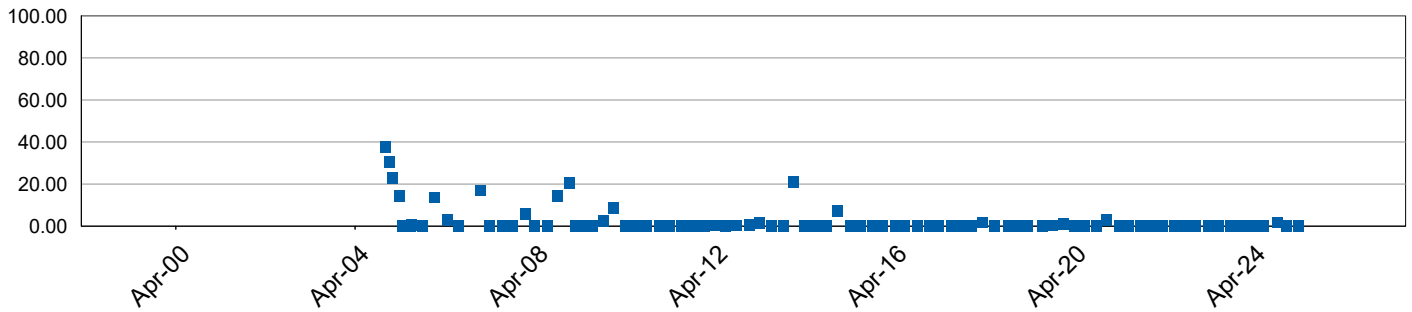
Methane (% v/v) No Limit Applies

AL/23(H)



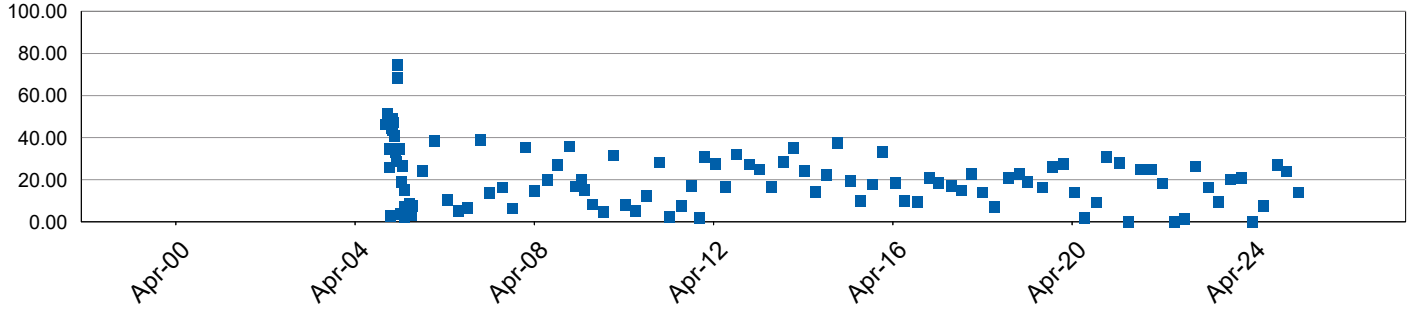
Methane (% v/v) No Limit Applies

AL/23(L)



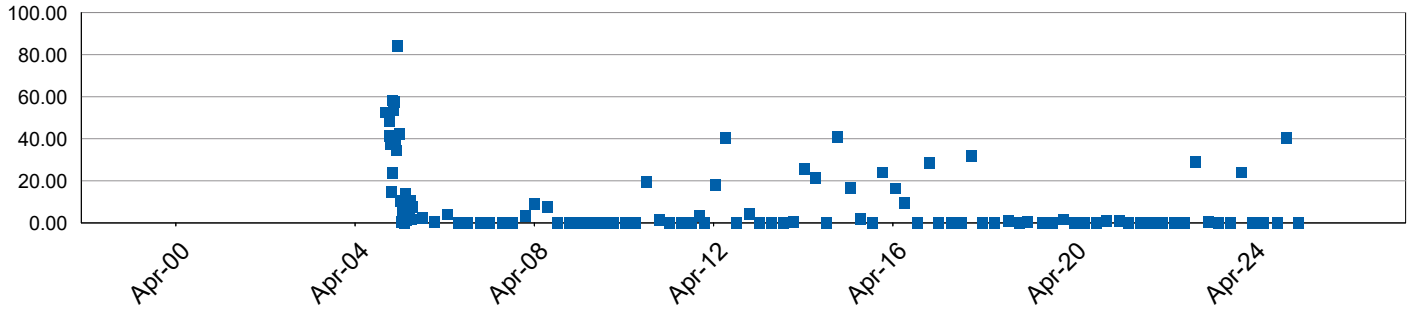
Methane (% v/v) No Limit Applies

AL/24



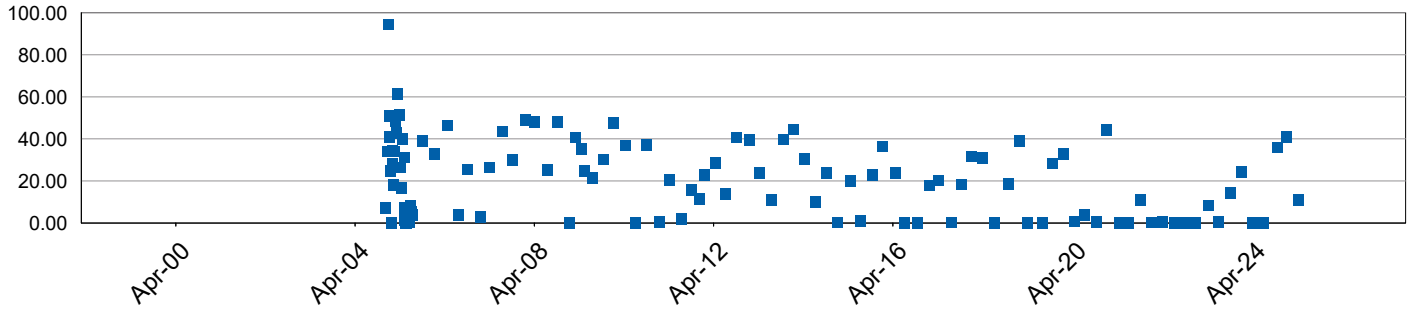
Methane (% v/v) No Limit Applies

AL/25



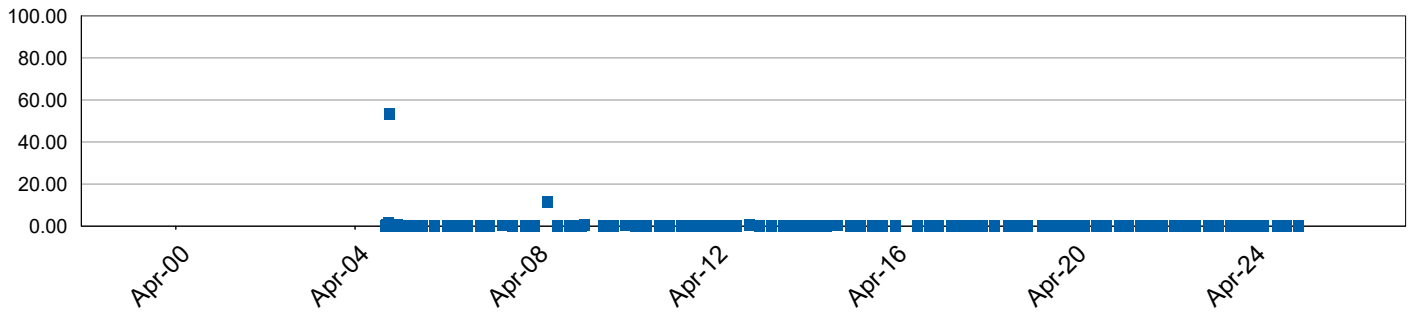
Methane (% v/v) No Limit Applies

AL/26



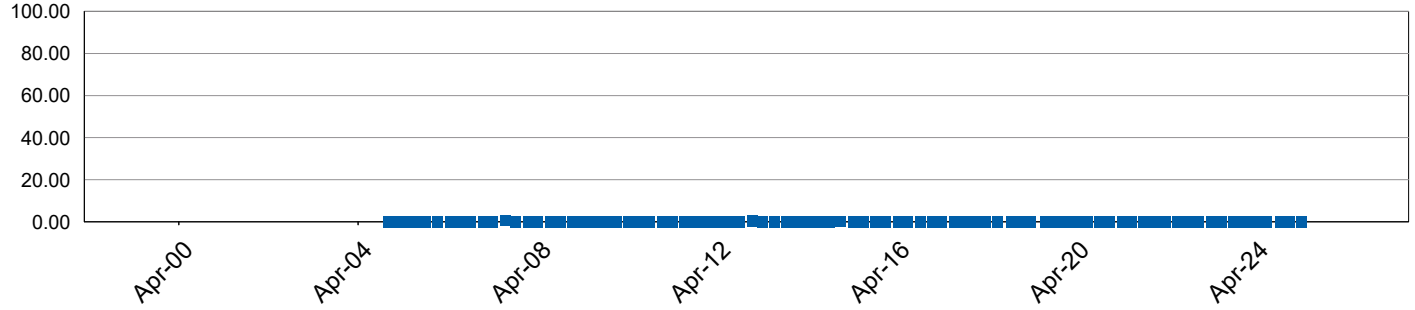
Methane (% v/v) No Limit Applies

AL/27



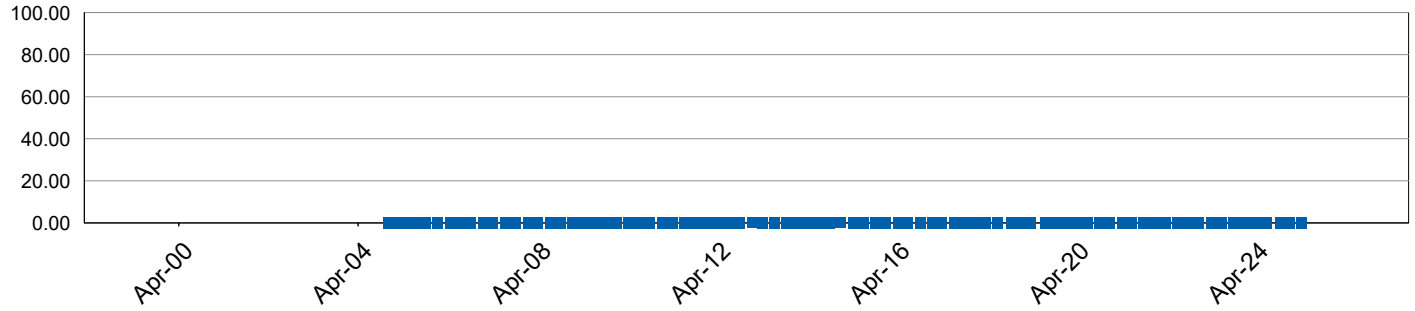
Methane (% v/v)
AL/28(H)

No Limit Applies



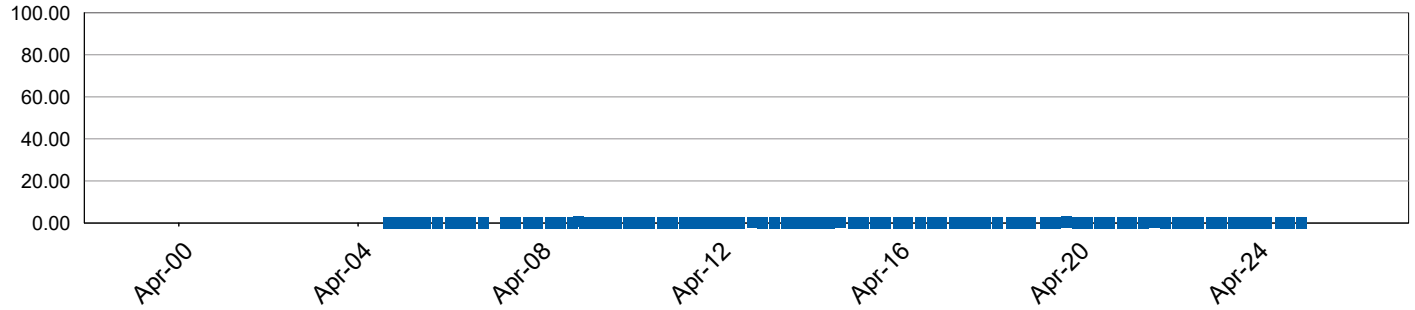
Methane (% v/v)
AL/28(L)

No Limit Applies



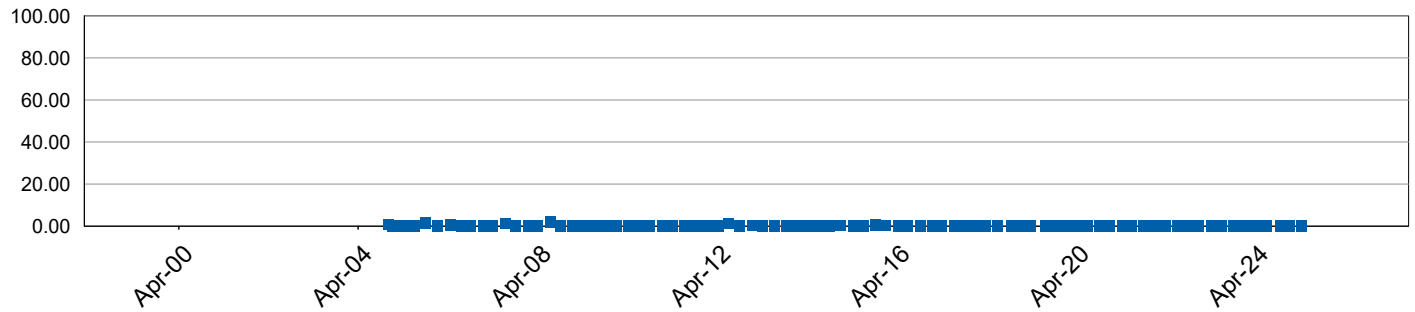
Methane (% v/v)
AL/29

No Limit Applies



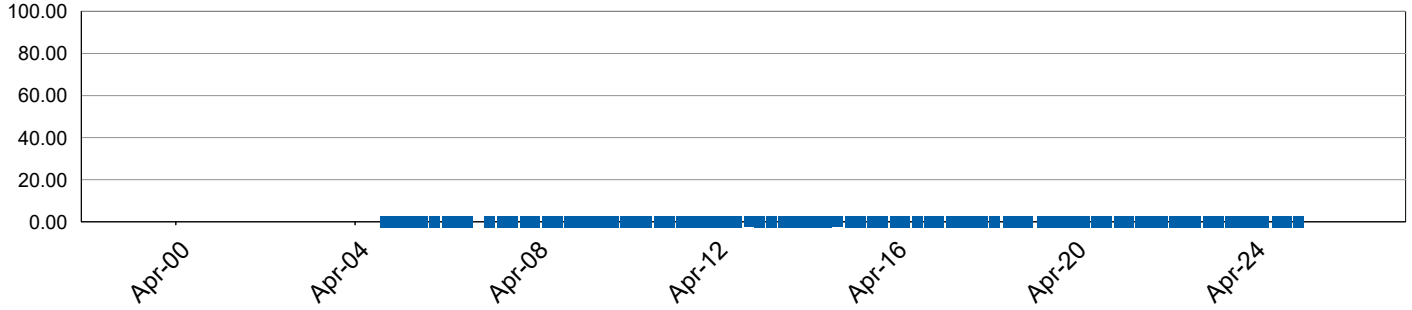
Methane (% v/v)
AL/30

No Limit Applies



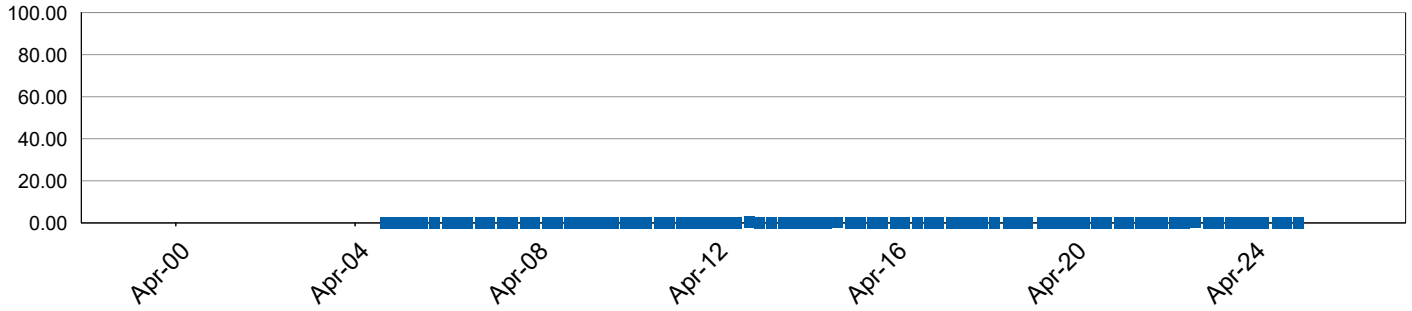
Methane (% v/v)
AL/31

No Limit Applies



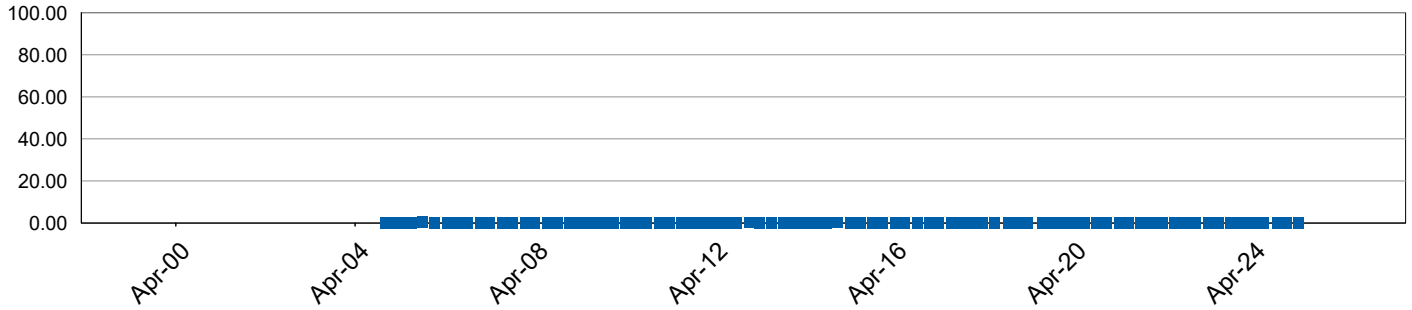
Methane (% v/v)
AL/32

No Limit Applies



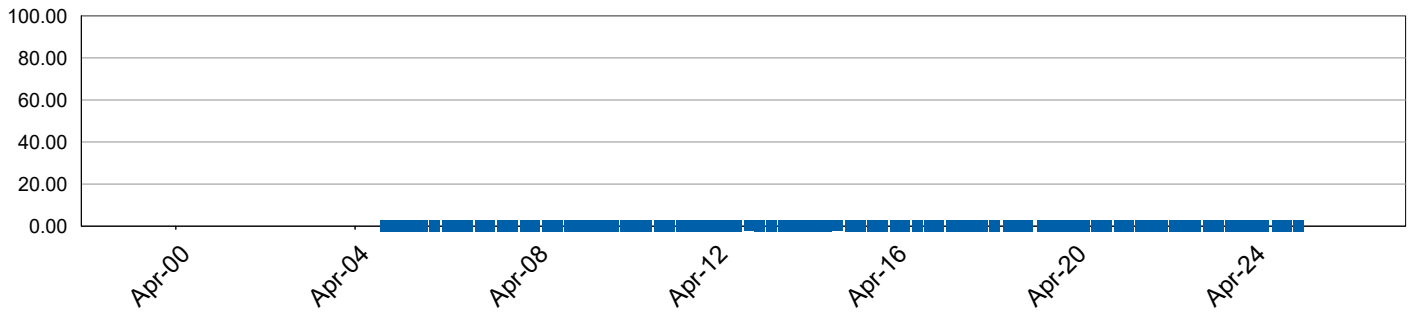
Methane (% v/v)
AL/33(H)

No Limit Applies



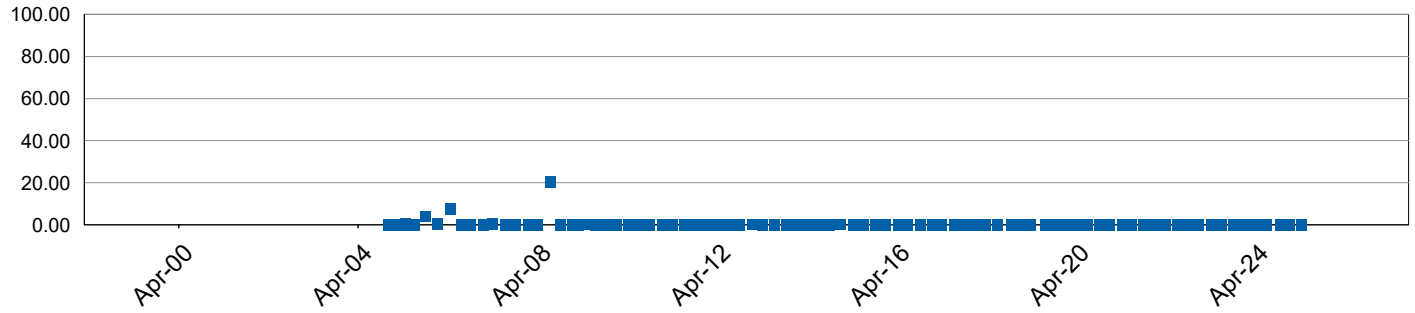
Methane (% v/v)
AL/33(L)

No Limit Applies



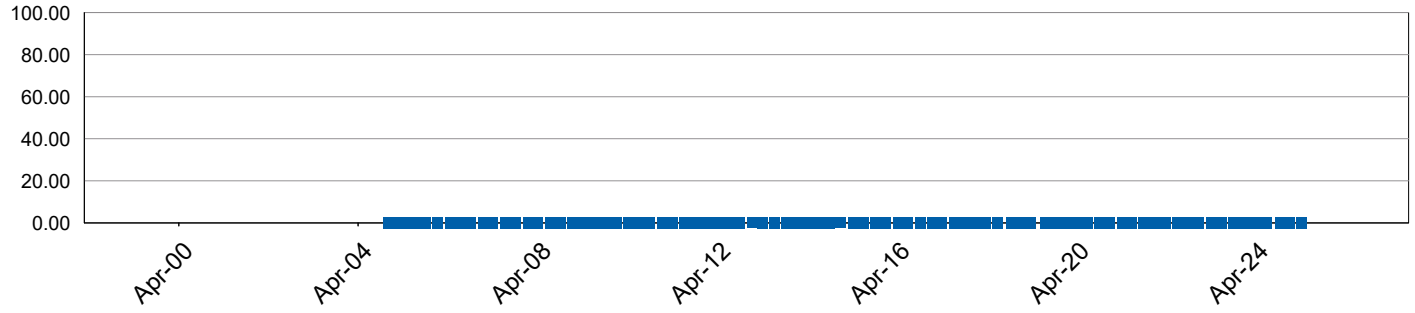
Methane (% v/v) No Limit Applies

AL/34



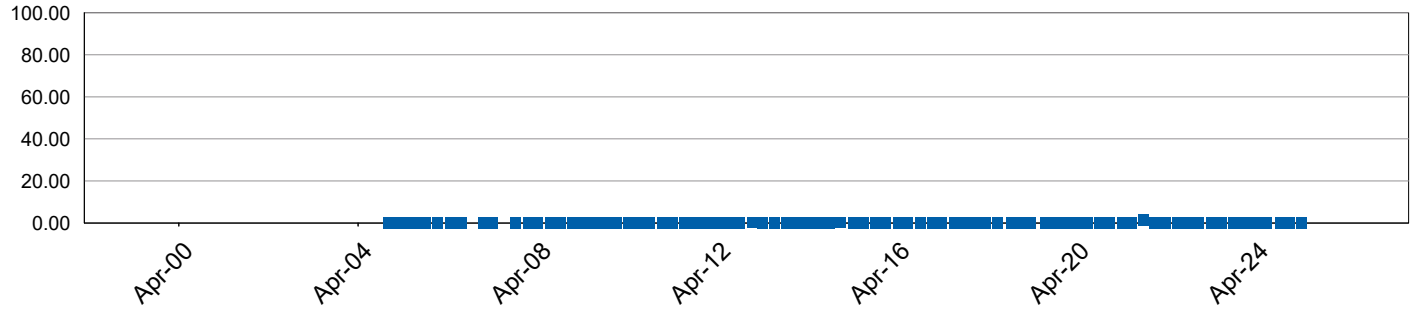
Methane (% v/v) No Limit Applies

AL/35



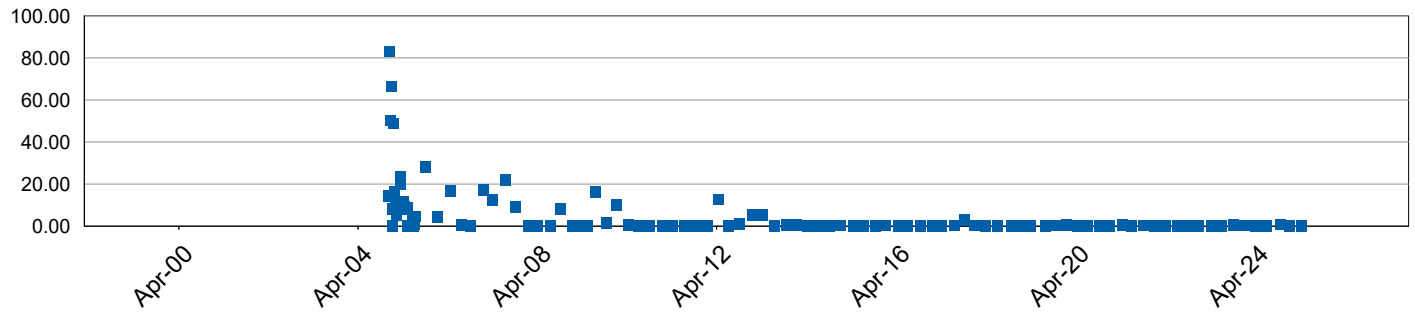
Methane (% v/v) No Limit Applies

AL/36



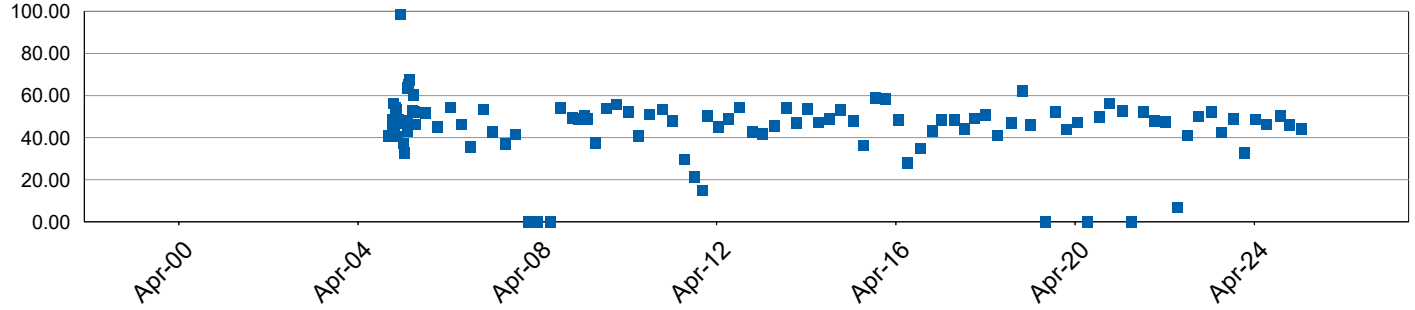
Methane (% v/v) No Limit Applies

AL/37(H)



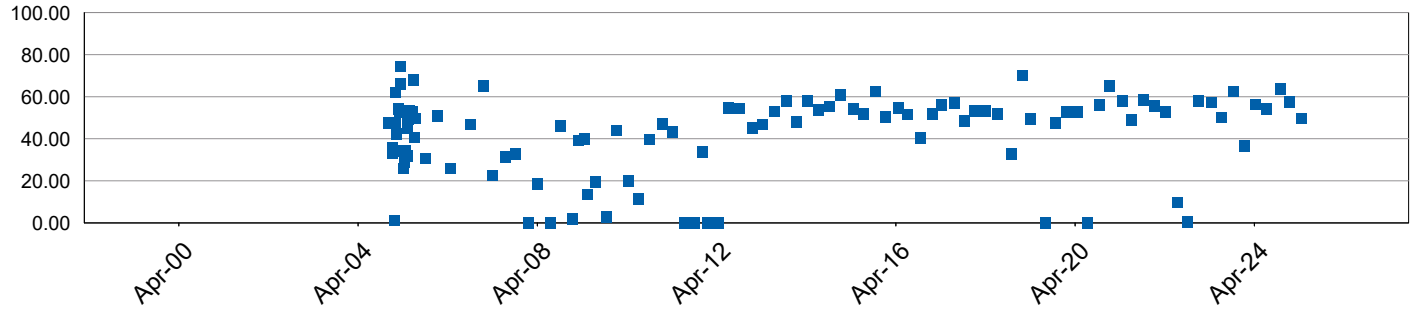
Methane (% v/v)
AL/37(L)

No Limit Applies



Methane (% v/v)
AL/38

No Limit Applies



Methane (% v/v)
AL/39

No Limit Applies

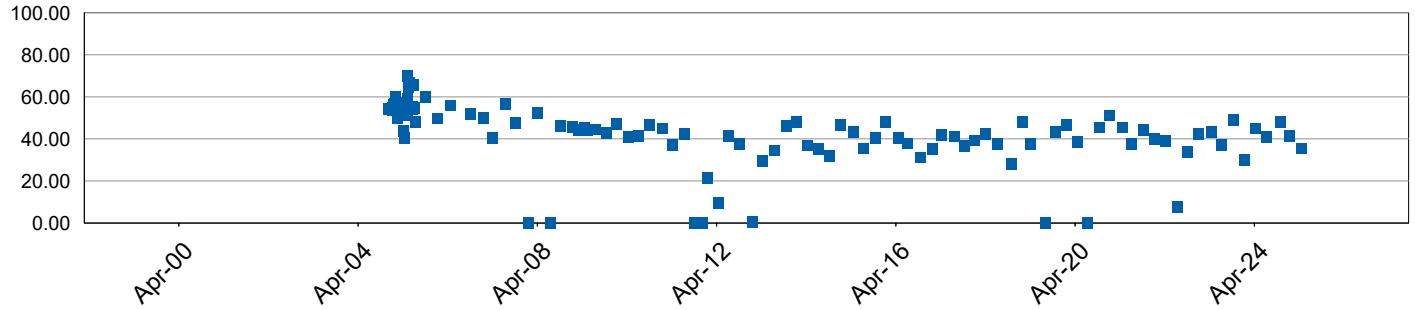
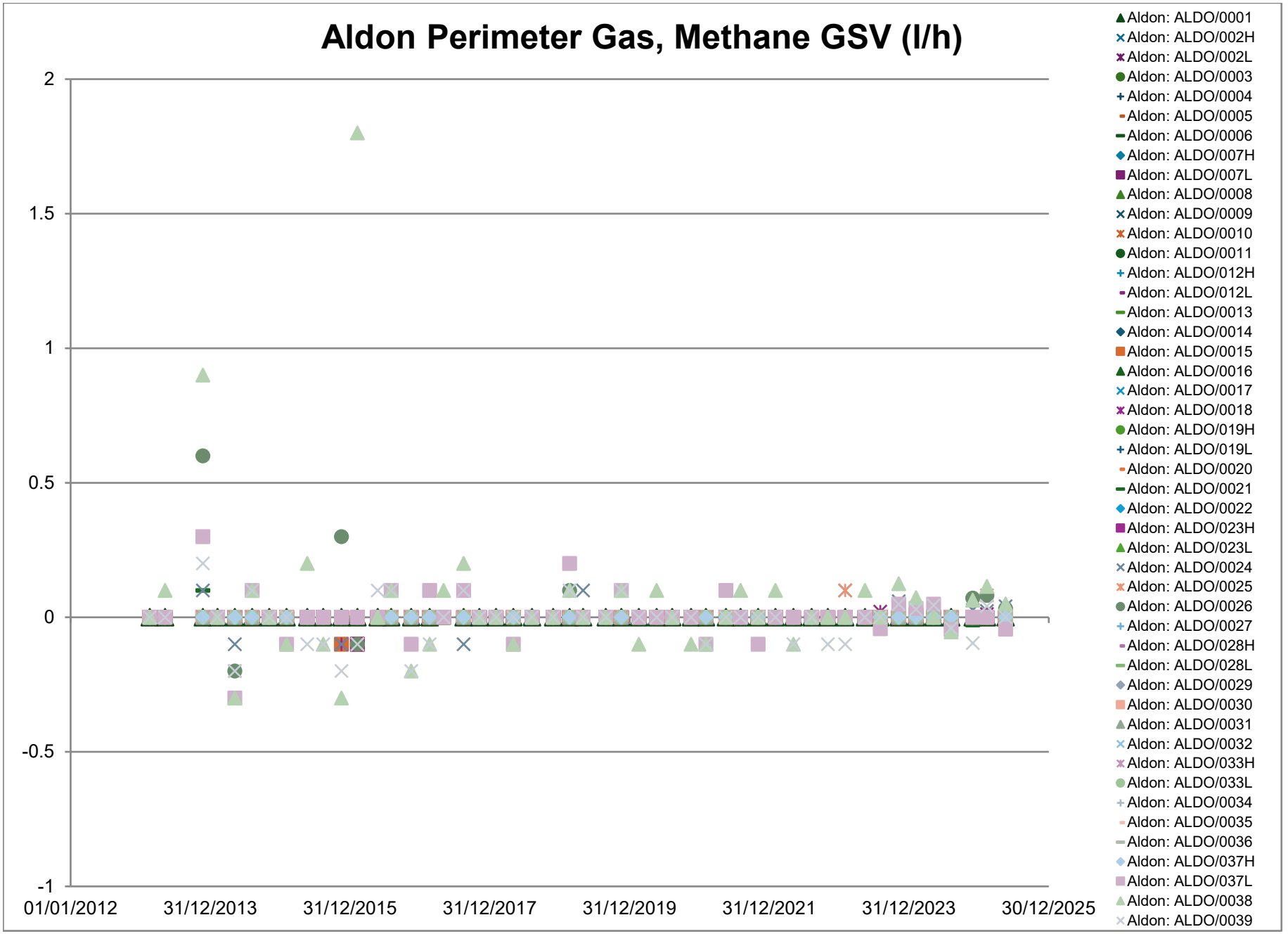
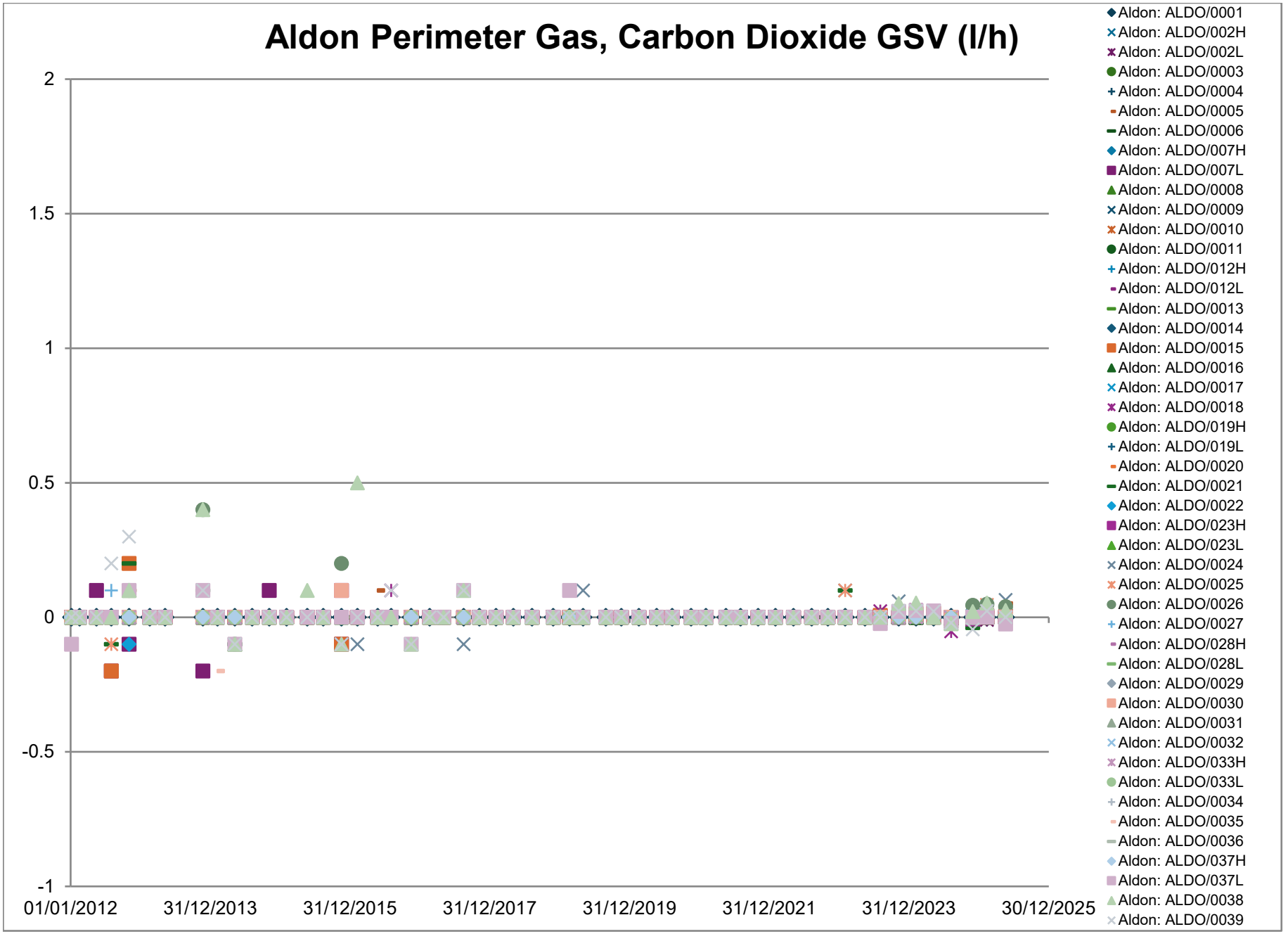


Figure 7. Perimeter Methane and Carbon Dioxide GSV Graphs


Aldon Perimeter Gas, Methane GSV (l/h)
2
1.5
1
0.5
0
-0.5
-1
01/01/2012
31/12/2013
31/12/2015
31/12/2017
31/12/2019
31/12/2021
31/12/2023
30/12/2025
Aldon: ALDO/0001
Aldon: ALDO/002H
Aldon: ALDO/002L
Aldon: ALDO/0003
Aldon: ALDO/0004
Aldon: ALDO/0005
Aldon: ALDO/0006
Aldon: ALDO/007H
Aldon: ALDO/007L
Aldon: ALDO/0008
Aldon: ALDO/0009
Aldon: ALDO/0010
Aldon: ALDO/0011
Aldon: ALDO/012H
Aldon: ALDO/012L
Aldon: ALDO/0013
Aldon: ALDO/0014
Aldon: ALDO/0015
Aldon: ALDO/0016
Aldon: ALDO/0017
Aldon: ALDO/0018
Aldon: ALDO/019H
Aldon: ALDO/019L
Aldon: ALDO/0020
Aldon: ALDO/0021
Aldon: ALDO/0022
Aldon: ALDO/023H
Aldon: ALDO/023L
Aldon: ALDO/0024
Aldon: ALDO/0025
Aldon: ALDO/0026
Aldon: ALDO/0027
Aldon: ALDO/028H
Aldon: ALDO/028L
Aldon: ALDO/0029
Aldon: ALDO/0030
Aldon: ALDO/0031
Aldon: ALDO/0032
Aldon: ALDO/033H
Aldon: ALDO/033L
Aldon: ALDO/0034
Aldon: ALDO/0035
Aldon: ALDO/0036
Aldon: ALDO/037H
Aldon: ALDO/037L
Aldon: ALDO/0038
Aldon: ALDO/0039


Aldon Perimeter Gas, Carbon Dioxide GSV (l/h)
2
1.5
1
0.5
0
-0.5
-1
01/01/2012
31/12/2013
31/12/2015
31/12/2017
31/12/2019
31/12/2021
31/12/2023
30/12/2025
Aldon: ALDO/0001
Aldon: ALDO/002H
Aldon: ALDO/002L
Aldon: ALDO/0003
Aldon: ALDO/0004
Aldon: ALDO/0005
Aldon: ALDO/0006
Aldon: ALDO/007H
Aldon: ALDO/007L
Aldon: ALDO/0008
Aldon: ALDO/0009
Aldon: ALDO/0010
Aldon: ALDO/0011
Aldon: ALDO/012H
Aldon: ALDO/012L
Aldon: ALDO/0013
Aldon: ALDO/0014
Aldon: ALDO/0015
Aldon: ALDO/0016
Aldon: ALDO/0017
Aldon: ALDO/0018
Aldon: ALDO/019H
Aldon: ALDO/019L
Aldon: ALDO/0020
Aldon: ALDO/0021
Aldon: ALDO/0022
Aldon: ALDO/023H
Aldon: ALDO/023L
Aldon: ALDO/0024
Aldon: ALDO/0025
Aldon: ALDO/0026
Aldon: ALDO/0027
Aldon: ALDO/028H
Aldon: ALDO/028L
Aldon: ALDO/0029
Aldon: ALDO/0030
Aldon: ALDO/0031
Aldon: ALDO/0032
Aldon: ALDO/033H
Aldon: ALDO/033L
Aldon: ALDO/0034
Aldon: ALDO/0035
Aldon: ALDO/0036
Aldon: ALDO/037H
Aldon: ALDO/037L
Aldon: ALDO/0038
Aldon: ALDO/0039

Appendices

Appendix A. Aldon Landfill: Site Photographs 19th and 20th June 2025

Aldon Landfill: Site Photographs 19th and 20th June 2025

Photograph 1. Central Compound (facing west)

Location: www///encoding.engaging.fizzy

Time: 09:13hrs (19/06/2025)

Photograph 2. Central Compound Leachate Tank (facing west)

Location: www ///engraving.glue.capacity

Time: 09:13hrs (19/06/2025)

Photograph 3. South Area (facing south)

Location: www ///producing.balancing.weeps

Time: 16:11hrs (19/06/2025)

Photograph 4. Central Area (facing west)

Location: www ///cashiers.tapes.stag

Time: 12:57hrs (19/06/2025)

Photograph 5. Central Area (facing west)

Location: www ///amplifier.trackers.tumblers

Time: 08:16hrs (20/06/2025)

Photograph 6. Central Area (facing south)

Location: www ///empty.composers.honeybees

Time: 10:10hrs (20/06/2025)

Photograph 7. North Area (facing south east)

Location: www ///though.solo.strapped

Time: 14:38hrs (19/06/2025)

Photograph 8. North Area (facing north west)

Location: www ///though.solo.strapped

Time: 14:38hrs (19/06/2025)

Photograph 9. North Area (facing east)

Location: www ///cocktail.poorly.purely

Time: 11:43hrs (20/06/2025)

Photograph 10. Springhead Gutter (facing north west)

Location: www ///formless.broadens.appetite

Time: 15:58hrs (19/06/2025)

Photograph 11. Surface Water monitoring point AL7/01W (facing north east)

Location: www ///limit.translated.unhelpful

Time: 16.00hrs (19/06/2025)

Appendix B. Perimeter Gas Borehole Logs (1990)

ROTARY TEST DRILLING LTD

APPENDIX 4

DAILY REPORT

Job No. 151690	Site Ambion Waste Disposal Site.	Day Wed
BH 1 No. 1A.	Client Shropshire County Council.	Date 27.6.90

Rig No. Dando 220 R3	Casing Size 6"	Total length of casing in bore hole 1.50m	Bits/Tools used 6¾" RR 3⅞" DHH.	Total depth of b/hole BH1 3.20m. BH1A 4.00m.

Depth From	Depth To	BH.	Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
0			Light Brown Clay With Frq Pieces										
	0.75		Of Light Grey Limestone.										
0.75	3.20		Very Loose Tip Waste Infill.										
			E.o.B.										
		BH1A											
0	0.10		Grass + Topsoil.										
0.10			Light Brown Clay Frq Pieces										
			Of Light Grey Limestone +										
	0.80		Tip Waste Infill.										
0.80	4.00		Fissured Light Grey Limestone.										
		BH1A											
			Borehole Complete YES/~~NO~~										

Other Observations

B.H.No.	Depth Struck	Time	Rate	Standing Level
BH1		Dry.		
BH1A				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		Moved onto BH1. ¼hr
		Terminated BH1 As Instructed By Engr + Moved To BH1A Position ½hr.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.S Dainton	Director	7.30	6.30pm.	
D Higman				
		11hrs		

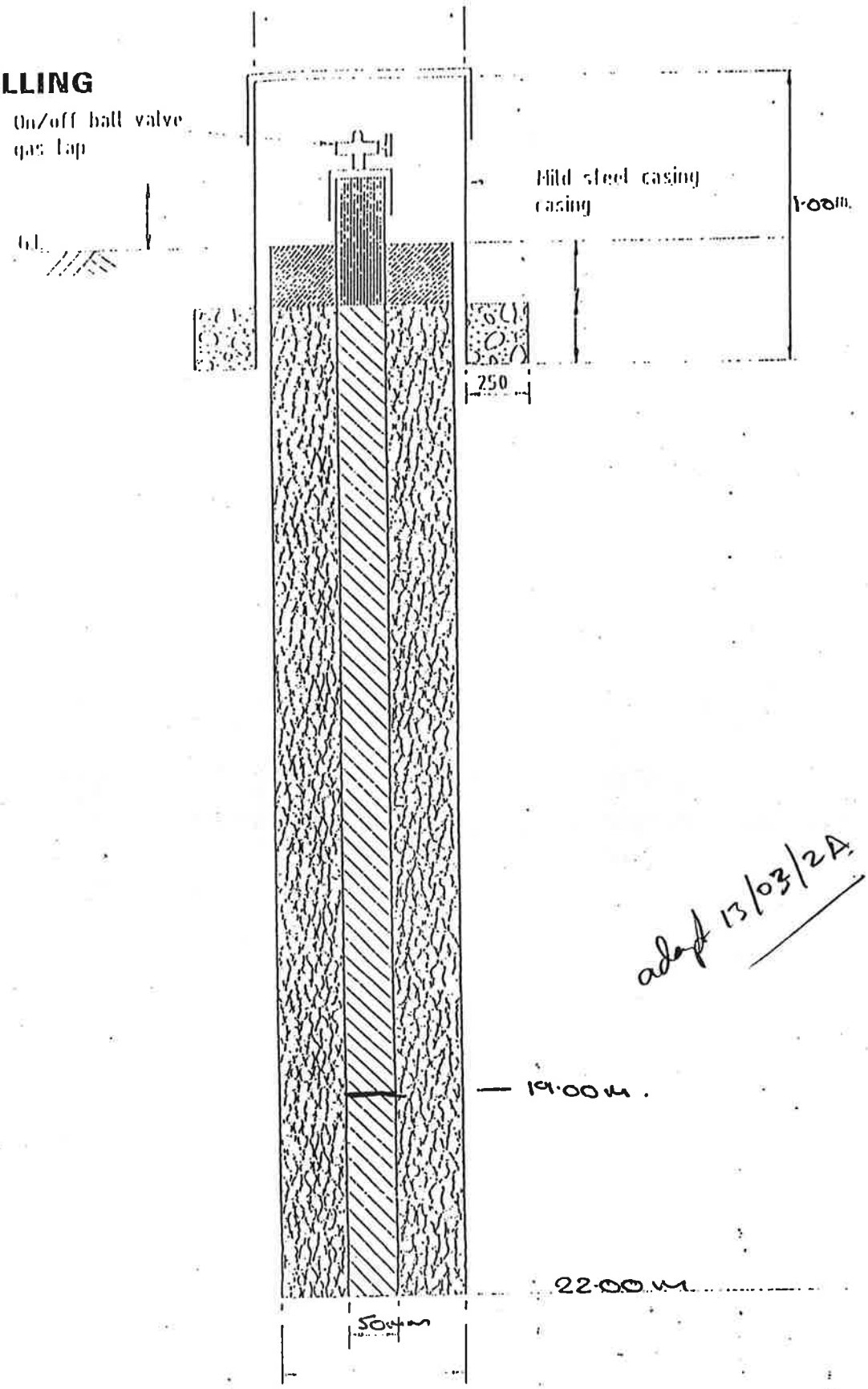
REMARKS :- i.e. moving difficulties (remarks must be inserted for II/II moves exceeding 1hr)
Visits to site by other than G.C. Staff.

As Above.
CDale Brings Out Comp.
HxH Dumper Arrives On Site.

Weather Conditions :- Fine.

BH1.

ROTARY TEST DRILLING



adopt 13/03/2A.

STANDARD DETAIL

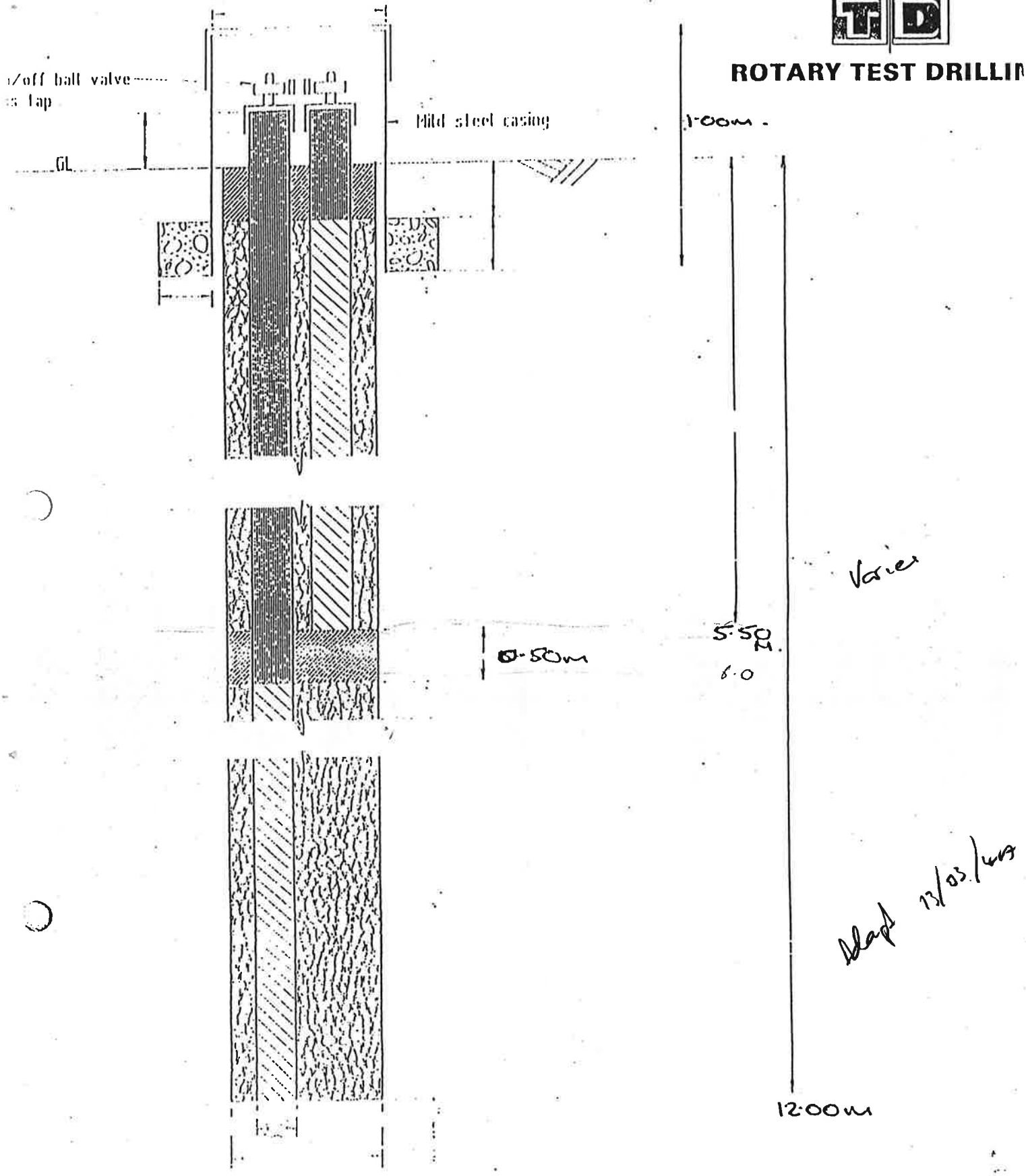
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

BH2

ROTARY TEST DRILLI



Dlapd 13/03/1990

STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

N.T.S.	DRAWN: J.C TRACED: S.A	CHECKED: DATE: FEB 1990	Drg

ROTARY TEST DRILLING LTD

DAILY REPORT 1.

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day THURS
BH As Below No.	Client SHROPSHIRE COUNTY COUNCIL.	Date 28.6.90

Rig No. DANDO 220 R3	Casing Size BH1A 6"	Total length of casing in bore hole BH1A 1.50m	Bits/Tools used BH1A 5 3/4" DHH. 3 7/8" DHH.	Total depth of b/hole As Below.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
4.00		BH1A	FISS LIGHT GREY LIMESTONE OCC										
	22.00		WEATHERED BANDS.										
			EOB.										
		BH2.											
G/L	0.10		GRASS + TOPSOIL.										
0.10	0.55		LIGHT BROWN CLAY OCC STONES.										
0.55			FISS LIGHT GREY LIMESTONE WITH OCC										
	12.00		WEATHERED BANDS.										
			EOB.										
		BH3											
G/L	0.10		GRASS + TOPSOIL.										
0.10	0.65		LIGHT BROWN CLAY WITH OCC STONES										
0.65			LIGHT GREY MUDSTONE/SILTSTONE										
	10.00		WITH OCC LIMESTONE BANDS.										
			EOB.										
		BH4											
G/L	0.10		GRASS + TOPSOIL.										
0.10	0.65		LIGHT BROWN CLAY WITH OCC STONES.										
0.65	8.00		LIGHT GREY WEATH MUDSTONE/SILTSTONE.										
8.00	10.00		LIGHT GREY FISS LIMESTONE.										
			EOB.										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
1A	DRY.			
2				
3				
4				

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. Dainton	DIRECTOR	8.00am	8.00pm	12hrs
D. Higham				LESS ½hr TRAV.

Details of Standing, Obstruction Time etc.

Time From	Time To	Details

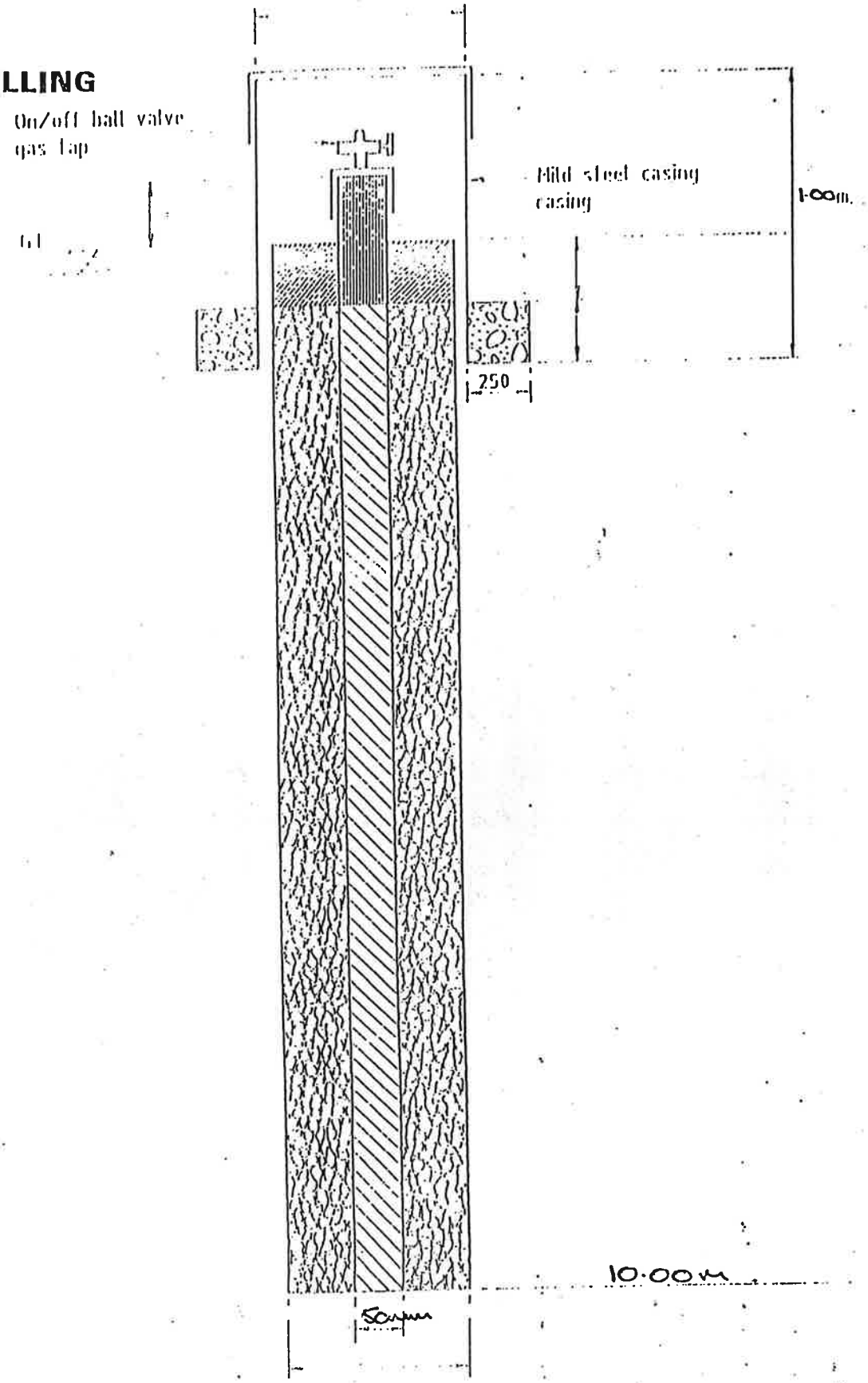
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

MOVING BETWEEN BHS 3/4 hr.

Weather Conditions :-
FINE.

BH3

ROTARY TEST DRILLING



STANDARD DETAIL

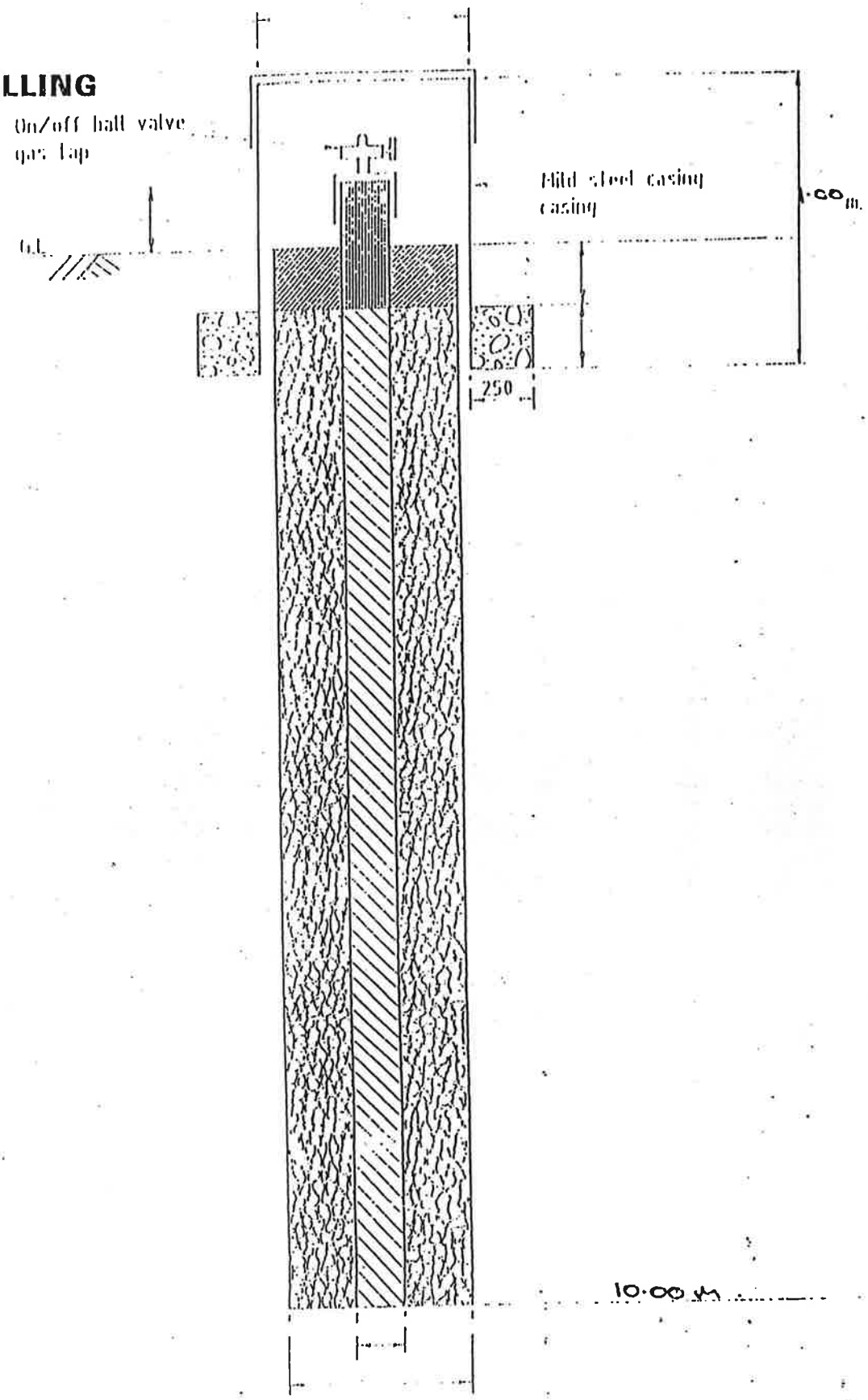
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

BH4.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

ROTARY TEST DRILLING LTD

DAILY REPORT 2.

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day THURS
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL.	Date 23.6.90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3 7/8" DHH.	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH5											
G/L	0.10		GRASS + TOPSOIL.										
0.10	0.75		LIGHT BROWN CLAY OCC STONES.										
0.75			LIGHT GREY MUDSTONE/SILTSTONE										
	2.40		ORE STAINED IN PARTS.										
2.40			FISS LIGHT GREY LIMESTONE OCC										
	10.00		WEATHERED BANDS.										
			EOB.										
		BH6											
G/L	0.10		GRASS + TOPSOIL.										
0.10			LIGHT BROWN CLAY OCC STONES +										
	0.70		WASTE INFILL.										
0.70	2.30		LIGHT GREY MUDSTONE/SILTSTONE.										
2.30			LIGHT GREY FISS LIMESTONE WITH										
	10.00		OCC WEATHERED BANDS.										
			EOB.										

Borehole Complete YES/~~NO~~

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
5	DRY.			
6				

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.S. Dainton	DRILLER			

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		SEE LOG 1.

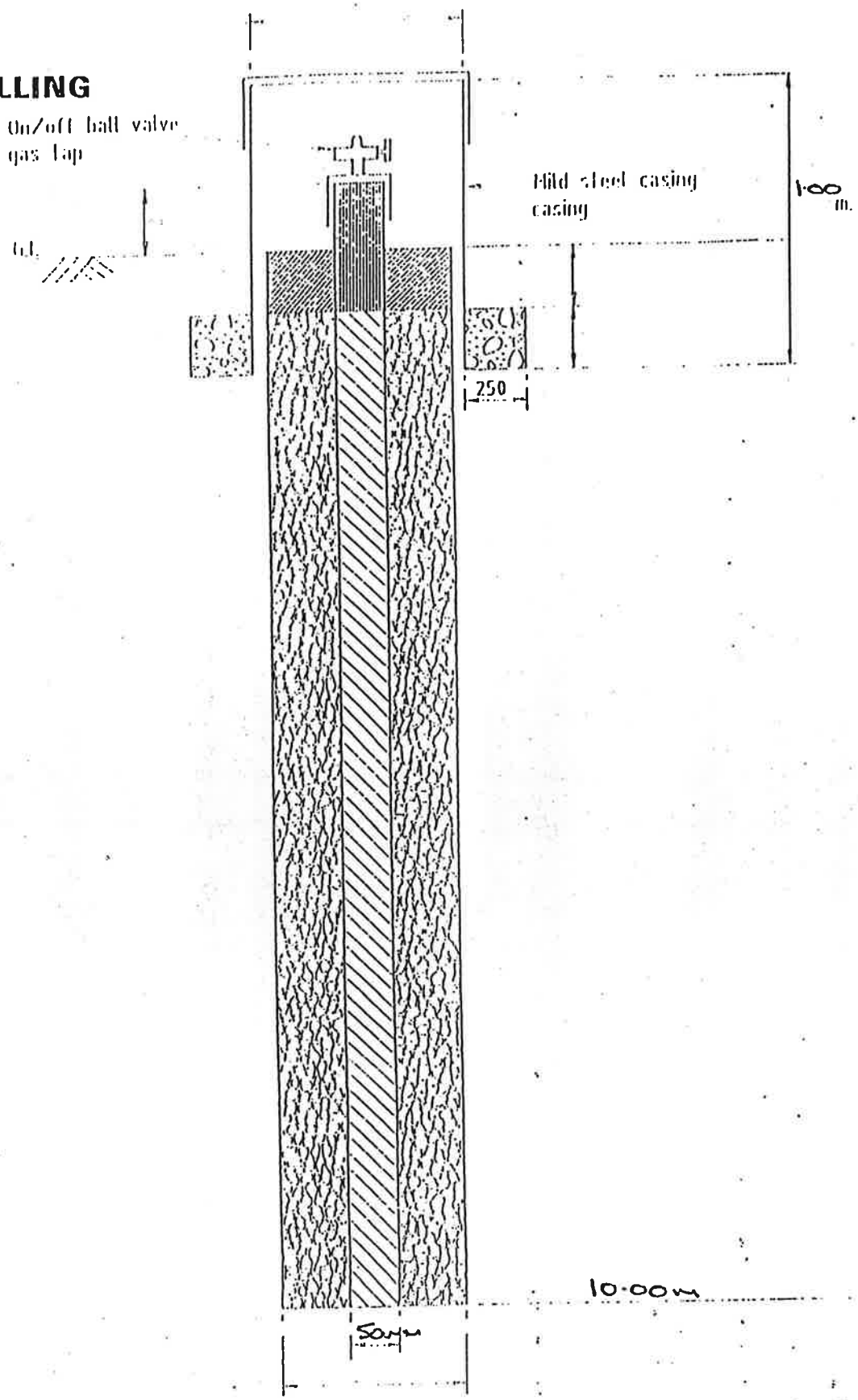
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

SEE LOG 1.

Weather Conditions :- FINE.

BH5

ROTARY TEST DRILLING



STANDARD DETAIL

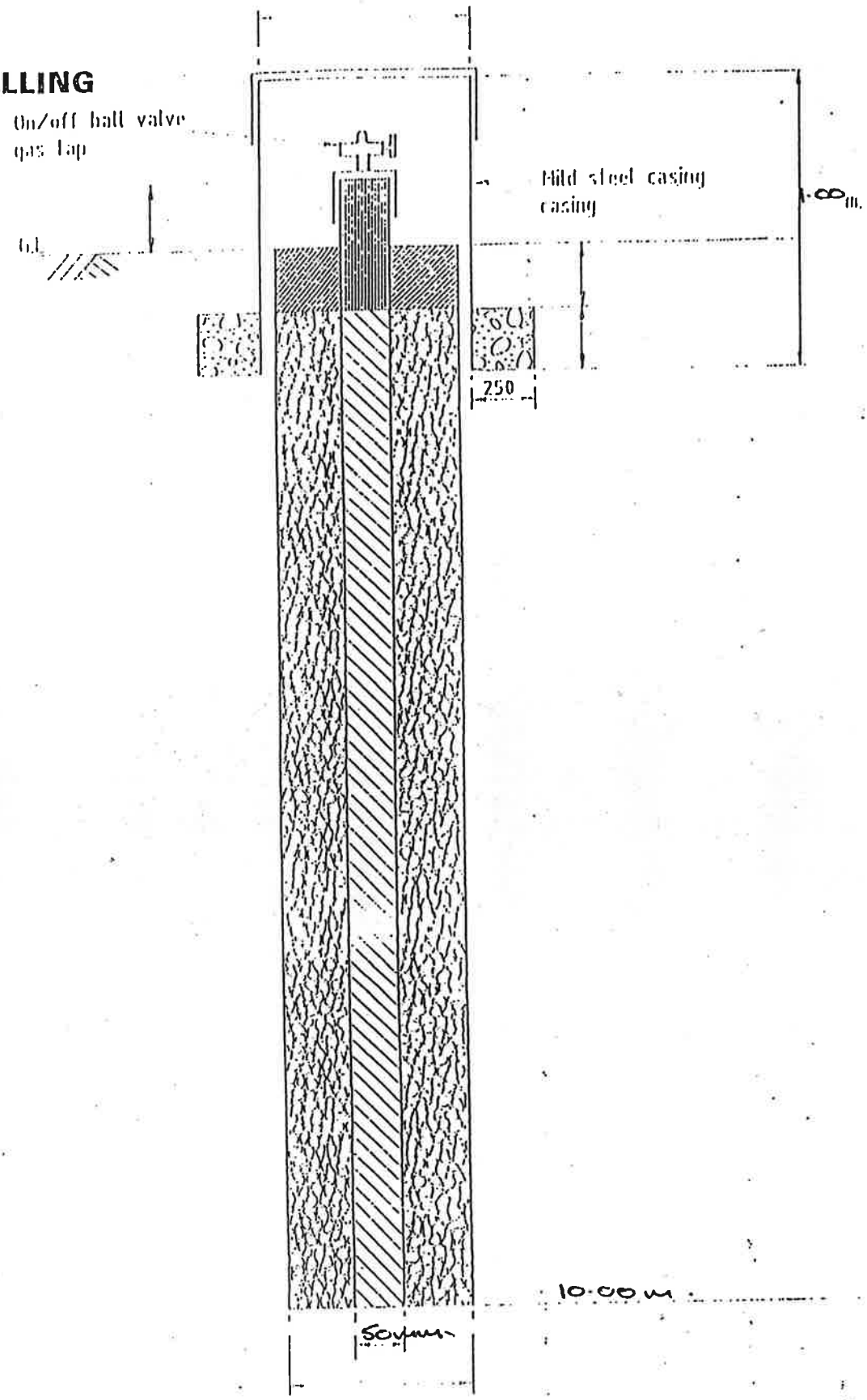
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

BH6.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT 1.

Job No. 151690	Site Aldon Waste Disposal Site.	Day Fri
BH No. As Below	Client Shropshire County Council.	Date 29.6.90

Rig No. Dando 220 L3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3⅞" DHH.	Total depth of b/hole As Below

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH7											
G/L	0.10		Grass + Topsoil.										
0.10	0.55		Light Brown Clay Occ Stones.										
0.55			Light Grey Limestone Occ Weath										
	10.00		Brown Siltstone Bands.										
			E.O.B.										
		BH8											
G/L	0.10		Grass + Topsoil.										
0.10	0.65		Light Brown Clay Occ Stones.										
0.65			Light Grey Limestone Occ Brown										
	8.00		Siltstone Bands.										
			E.O.B.										
		BH9.											
G/L	0.05		Grass + Topsoil.										
0.05	0.15		Light Brown Clay.										
0.15			Light Grey + Brown Limestone/										
	8.00		Siltstone With Occ Limestone Bands										
			E.O.B.										
		BH10											
G/L	0.15		Grass + Topsoil.										
0.15	4.00		Clay + Waste Infill.										
			E.O.B.										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
7				
8				
9		DRY.		
10				
11				

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. Daintom	Director			
D. Higham.				
		8:00	5:30 PM.	
		9½ hrs		
	Less	2½ hrs.	Tray.	

Details of Standing, Obstruction Time etc.

Time From	Time To	Details

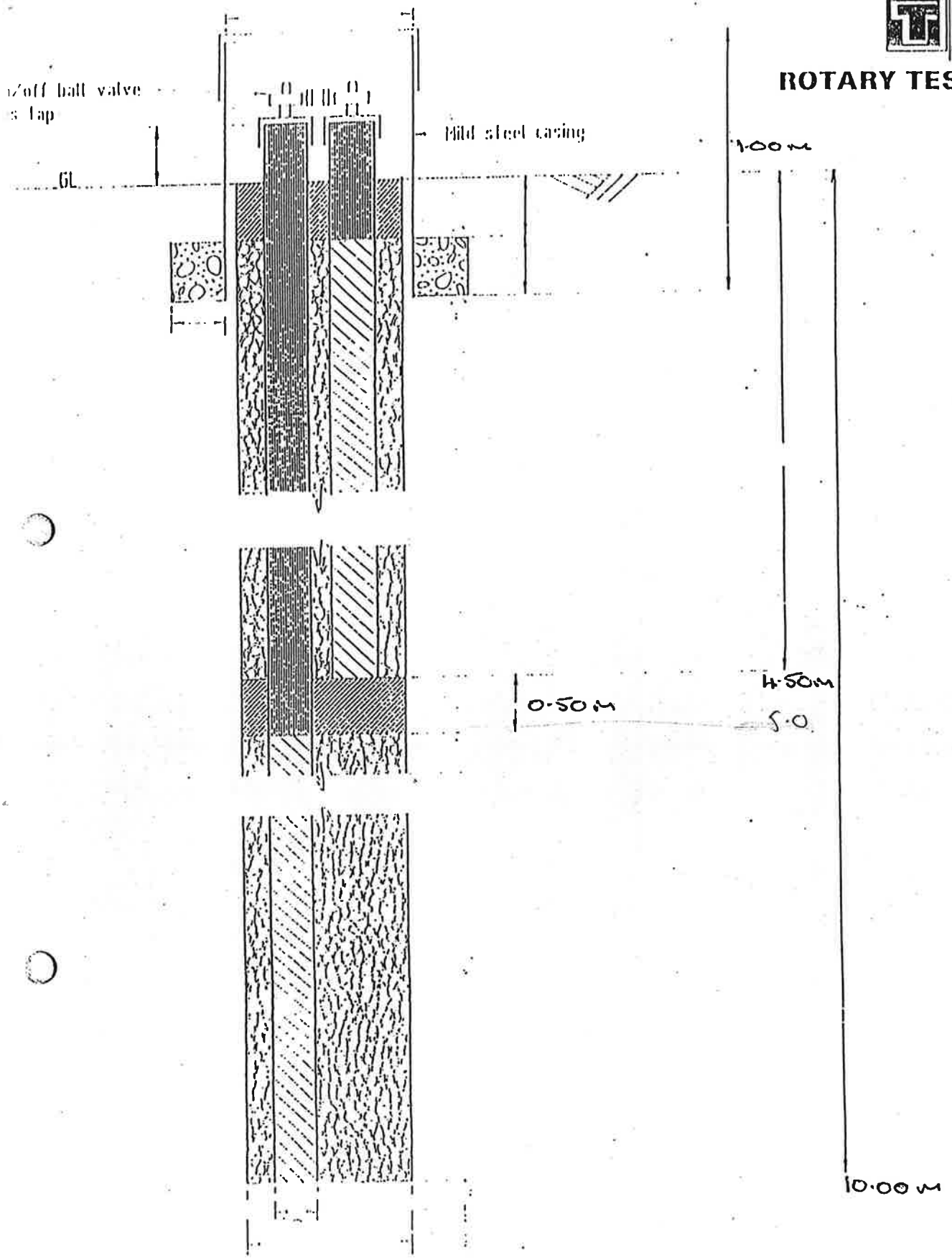
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

Moving Between BHs ¾ hr.

Weather Conditions :- Fine.

BH7

ROTARY TEST DRILLI



STANDARD DETAIL

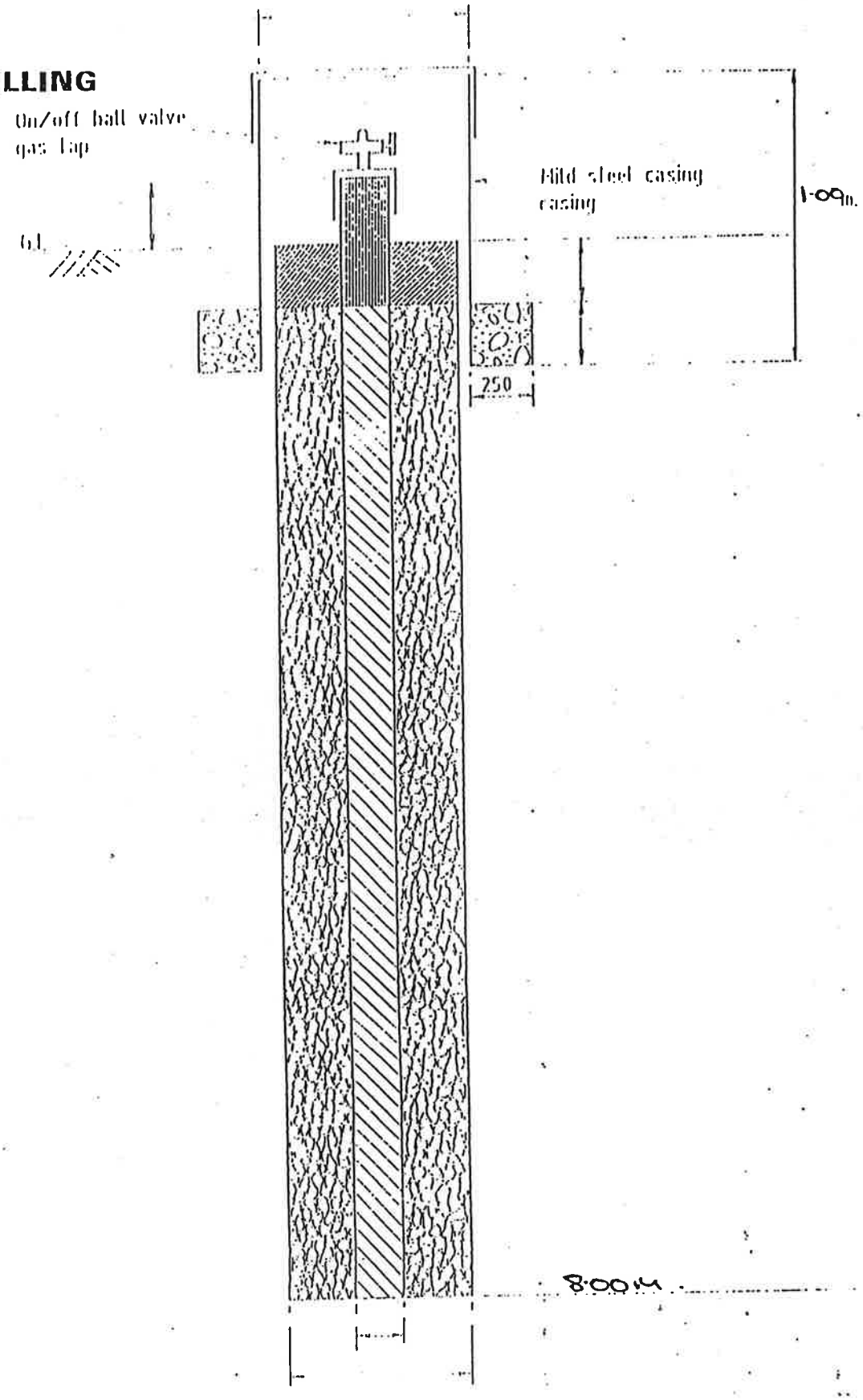
Detail of Twin Level Gas Monitoring Borehole

N.T.S.

DRAWN: LT TRACED: SA	CHECKED: DATE: FEB 1990	No's

BH3.

ROTARY TEST DRILLING



STANDARD DETAIL

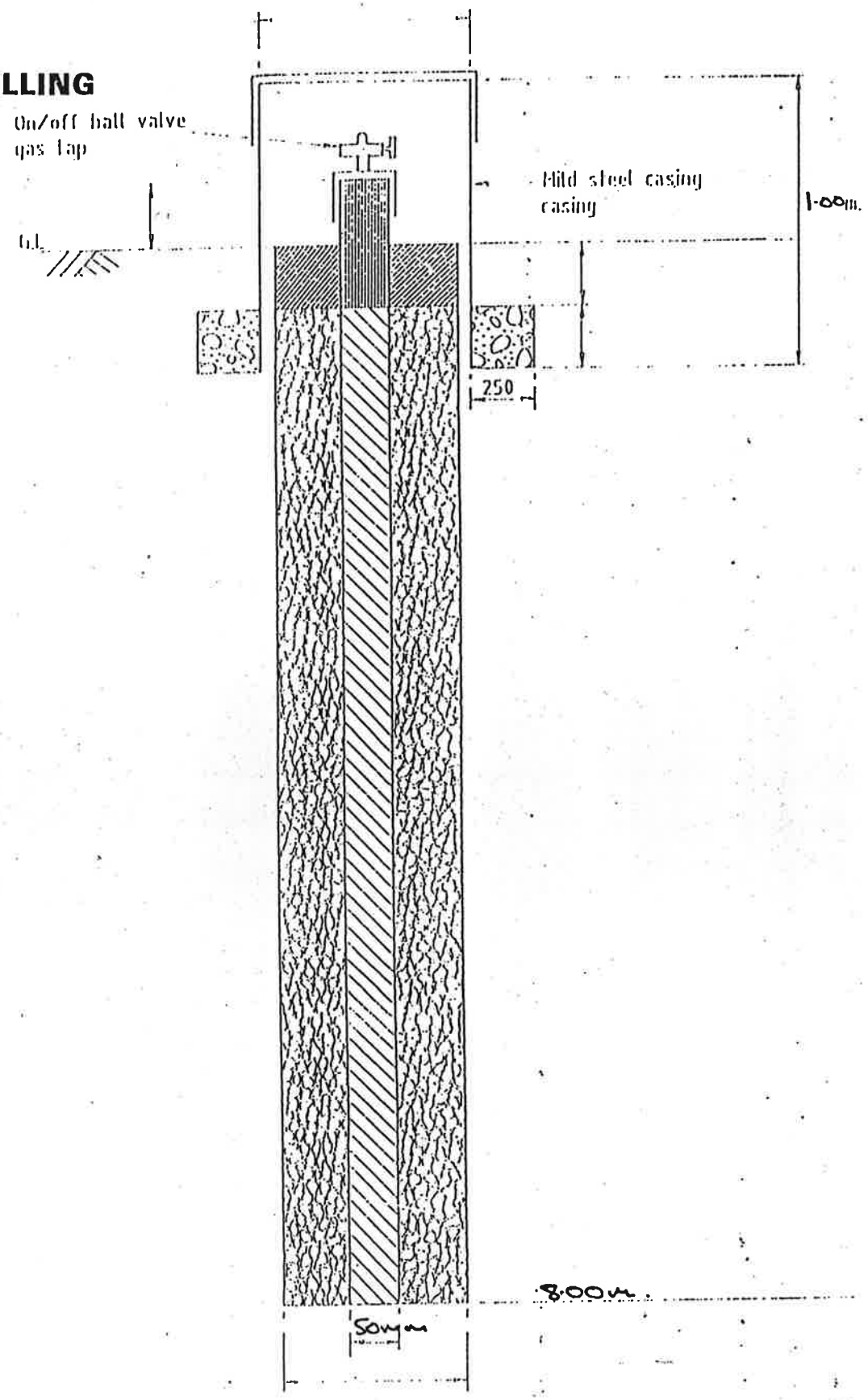
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

BH9.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT 2.

Job No. 157690	Site ALDON WASTE DISPOSAL SITE.	Day FRI
BH No. As Below	Client SHROPSHIRE COUNTY COUNCIL.	Date 29.6.90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3⅞" RR	Total depth of b/hole As Below.

Depth From	Depth To	BH11.	Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
C/L	0.10		GRASS + TOPSOIL.										
0.10	0.45		LIGHT BROWN CLAY OCC. STONES.										
0.45			LIGHT GREY FISSURED LIMESTONE										
	8.00		OCC. WEATHERED BANDS.										
			E.O.B.										
			Borehole Complete YES/NO										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
	SEE	LOG 1.		

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. Daunton	DIRECTOR.			

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		SEE LOG 1.

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

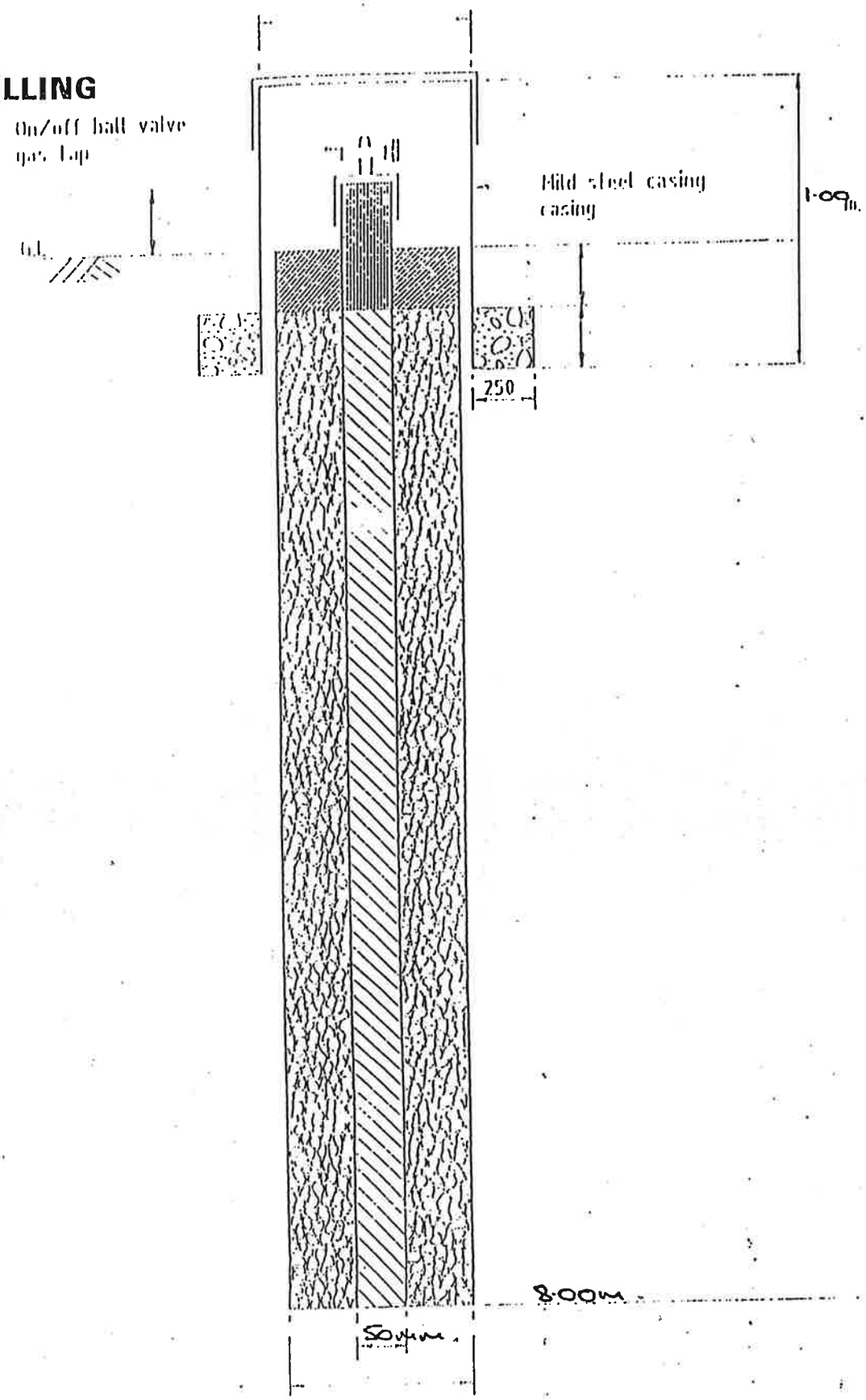
SEE LOG 1.

Weather Conditions :-

FINE.

BH11.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day MON
BH No. —	Client SHROPSHIRE COUNTY COUNCIL.	Date 2-7-90

Rig No.	Casing Size	Total length of casing in bore hole	Bits / Tools used	Total depth of b/hole
—	—	—	—	—

Depth From	Depth To	Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		ALDON SITE UNLOADED EQUIP										
		INSERTED STANDPIPES IN BHS										
		1										
		2										
		3										
		4										
		5										
		6										
		7										
		8										
		9										
		11										
		ALSO METAL STANDPIPE COVERS										
		5 hrs.										
		Borehole Complete YES / NO										

Other Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level

Details of Standing, Obstruction Time etc.

Time From	Time To	Details

Name	Occupation	Starting Time	Finishing Time	Wet Time
P. Dainton	DIRECTOR			
D Cusk				
A Watkinson.				
		7.30	6.30 pm.	
		11 hrs		
	LESS	2½ hrs	TRAV.	

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

—

Weather Conditions :-
FINE.

ROTARY TEST DRILLING LTD

DAILY REPORT 1.

Job No. 151690	Site Arddin Waste Disposal Site	Day Tues
BH No. As Below	Client Shropshire County Council.	Date 3.7.90

Rig No. Dando 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3⅞" DHH	Total depth of b/hole As Below.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH12											
G/L	0.10		Grass + Topsoil.										
0.10	0.40		Light Brown Clay.										
0.40			Light Grey Fiss Limestone Occ										
	8.00		Weathered Bands.										
			EOB										
		BH10A											
G/L	0.30		Grass + Topsoil.										
0.30	0.45		Light Brown Clay.										
.5			Light Grey Fiss Limestone Occ										
	8.00		Weathered Bands.										
			EOB										
		BH13											
G/L	1.00		Grass + Topsoil / Brown Clay.										
1.00			Light Grey Limestone Occ Weath										
	8.00		Bands.										
			EOB										
		BH14											
G/L	0.40		Grass + Topsoil.										
0.40	1.60		L Brown Clay.										
1.60			Light Grey Fiss Limestone Occ										
	8.00		Weath Bands.										
			EOB.										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
12	DRY.			
10A				
13				
14				
⅛				

Name	Occupation	Starting Time	Finishing Time	Wet Time
A Stanton	Director.			
D Clark				
A Watkinson.				
		8.30	7.00pm.	
		10½hrs		
	Less	½hr	Trav.	

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		Hyd Rig Pipe Leaking Stripped For Repair.
		Fitting Standpipes + Metal Covers. BHs 12, 10A, 13, 14 15, 16, 17, 18 + 19.

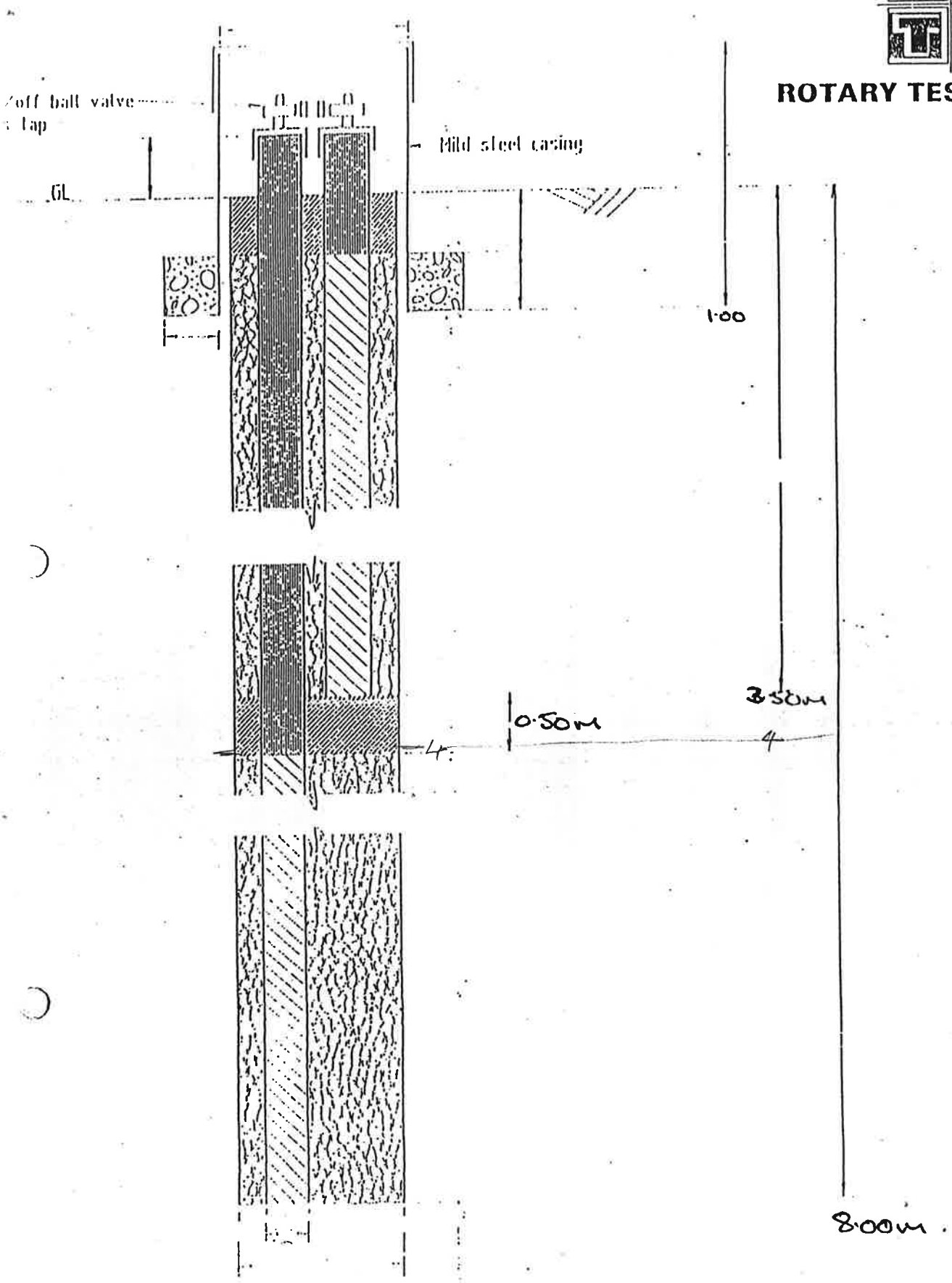
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

Moving Between BHs (9No) 3¼hrs.

Weather Conditions :- Fine.

BH12

ROTARY TEST DRILLI



STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

N.T.S.	DRAWN: LC TRACED: S.A	CHECKED: DATE: FEB 1990	Dwg

ROTARY TEST DRILLING LTD

DAILY REPORT 2.

Job No. 151690	Site Alders Waste Disposal.	Day Tues
BH No. As Below	Client Shropshire County Council.	Date 3.7.90

Rig No. Dando 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3 7/8" DHH.	Total depth of b/hole As Below.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
G/L	0.30	BH15	Grass + Topsoil.										
0.30	0.50		Light Brown Clay.										
0.50			Light Grey Fiss Limestone Occ										
	5.40		Weath Bands.										
5.40			Very Broken + Weath Limestone										
			+ Clayey Siltstone With Frq										
	8.00		Small Voids.										
			EOH.										
		BH16											
G/L	0.35		Grass + Topsoil.										
0.35	0.45		Light Brown Clay.										
0.45			Light Grey Fiss Limestone Occ										
	1.50		Weath Bands.										
1.50			Brown Limestone Frq Clayey										
	8.00		Bands.										
			EOH.										
		BH17											
G/L	0.30		Grass + Topsoil.										
0.30	0.40		Light Brown Clay.										
0.40	5.70		Weath Brown Limst/Siltstone Clay Bands.										
5.70	8.00		Fiss Light Grey Limestone.										
			EOH										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
15	} Dry.			
16				
17				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		See Log 1.

Name	Occupation	Starting Time	Finishing Time	Wet Time
R J Dennison	Director.			

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

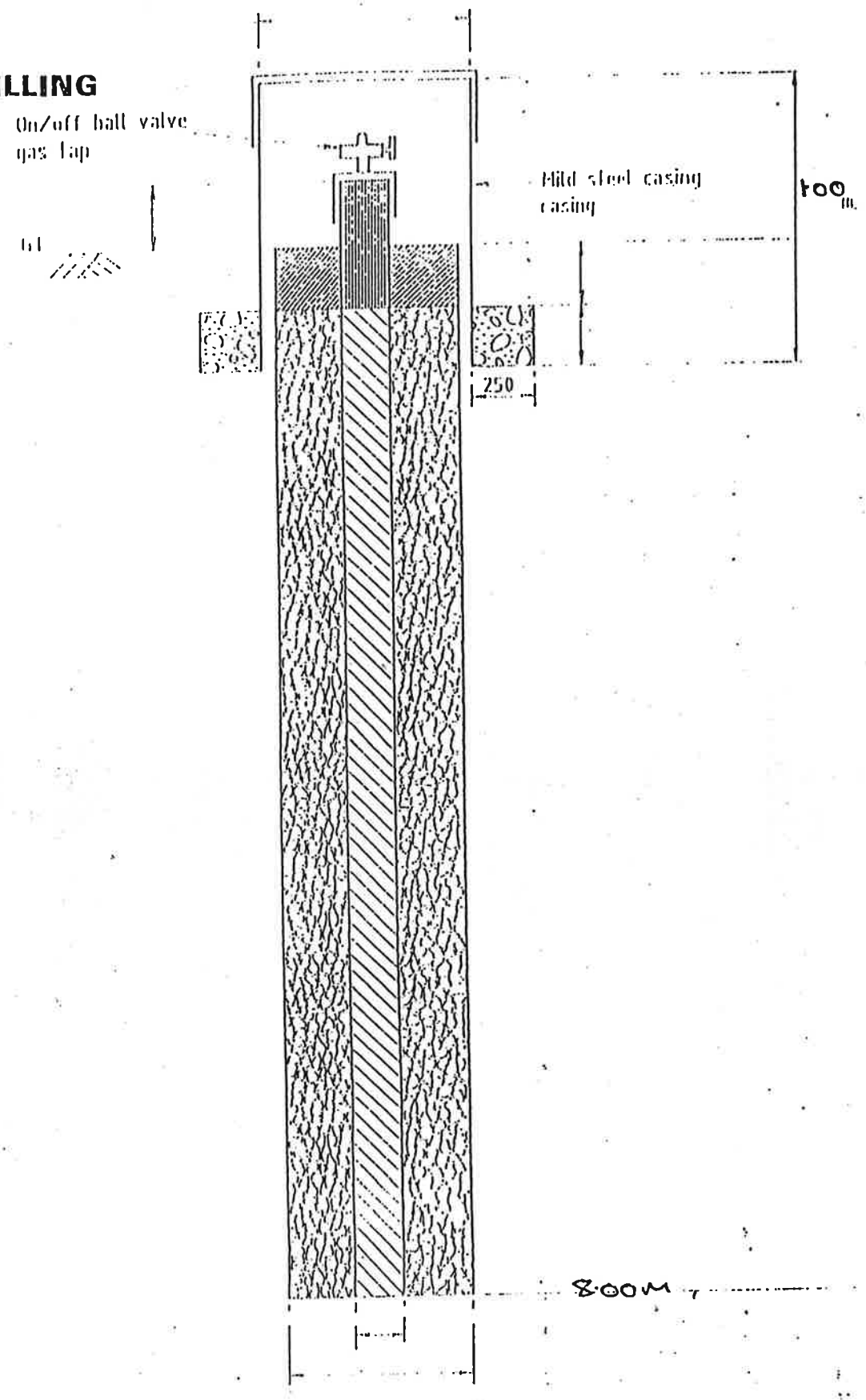
See Log 1.

Weather Conditions :-

Fine.

BH 10A

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT 3.

Job No. 151690	Site ALDON WASTE DISPOSAL SITE.	Day TUES
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL.	Date 3.7.90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3 3/8" DHH.	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
G/L	0.10	BH18	GRASS + TOPSOIL.										
0.10	0.20		BROWN CLAY.										
0.20			LIGHT GREY FISS LIMESTONE OCC.										
	4.00		WEATH BANDS.										
4.00	8.00		VERY BROKEN LIMESTONE/MUDSTONE.										
			EOB.										
		BH19											
G/L	0.10		GRASS + TOPSOIL.										
0.10	0.30		BROWN CLAY.										
0.30			LIGHT GREY FISS LIMESTONE OCC.										
	8.00		WEATH BANDS OF BROWN SILTSTONE.										
			EOB.										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
18	DRY.			
19				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		SEE LOG 1.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. Dunton	DIRECTOR.			

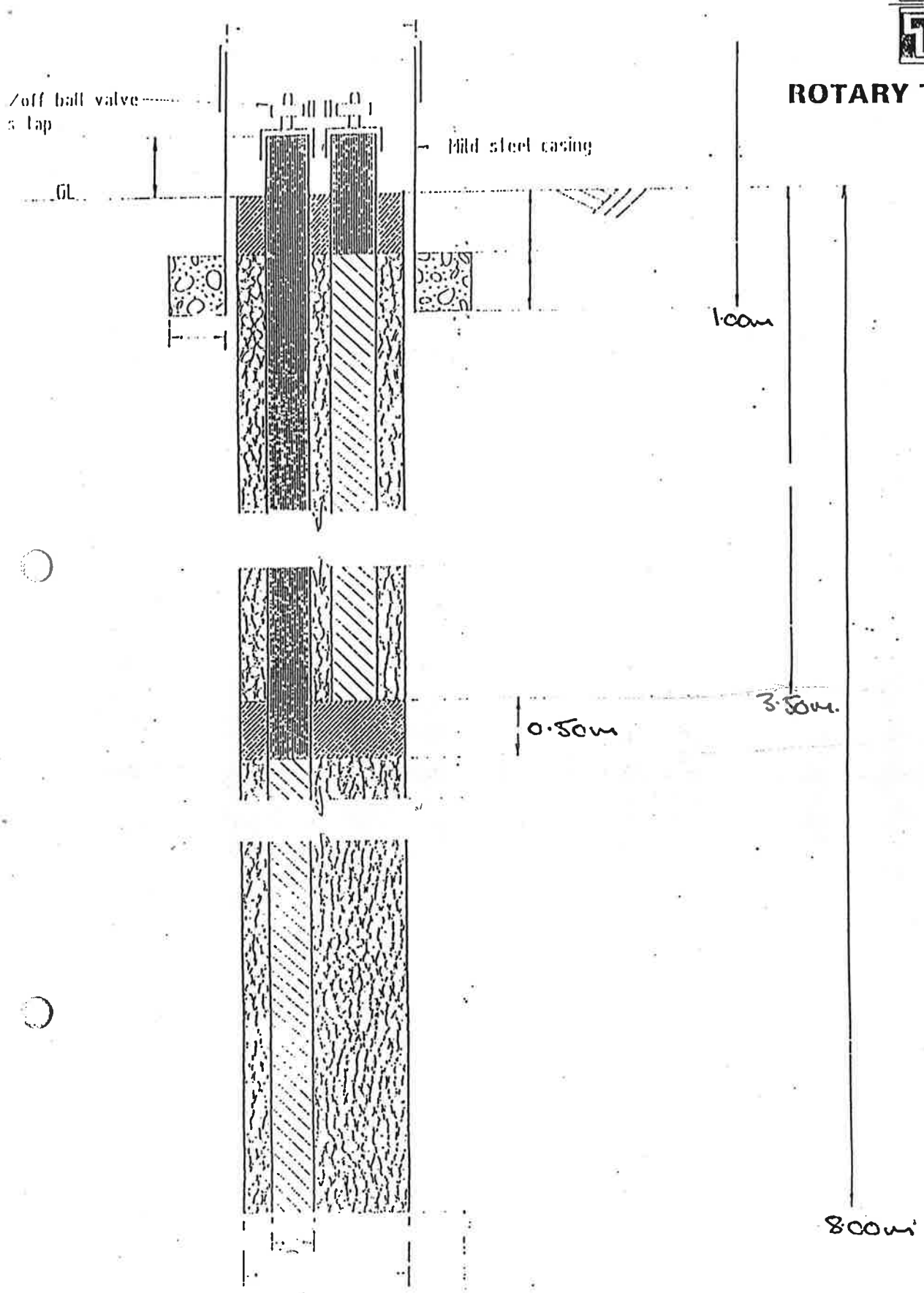
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

SEE LOG 1.

Weather Conditions :-
FINE.

BH 19.

ROTARY TEST DRILLI



STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

N.T.S.	DRAWN: LC TRACED: S.A	CHECKED: DATE: FEB 1990	DWG

ROTARY TEST DRILLING LTD

DAILY REPORT.

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day · WEDS.
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNSIL.	Date 4.7.90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used DHH 3⅞"	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
G/L	0.10	BH20	GRASS + TOPSOIL.										
0.10	0.90		BROWN CLAY.										
0.90			WEATH LIGHT GREY LIMESTONE +										
			SILTSTONE WITH OCC BANDS OF										
	10.00		BROWN CLAYEY HMESTONE.										
			EOB										
		BH21											
G/L	0.15		GRASS + TOPSOIL.										
0.15	0.55		LIGHT BROWN CLAY.										
0.55			WEATH LIMESTONE/SILTSTONE FRG										
	10.00		BROWN HMESTONE BANDS.										
			EOB										
		BH22											
G/L	0.15		GRASS + TOPSOIL.										
0.15	0.55		BROWN CLAY.										
0.55			FISS LIGHT GREY LIMESTONE WITH										
			OCC WEATH HMESTONE/SILTSTONE										
	12.00		BANDS.										
			EOB										
			Borehole Complete YES/NO										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
20	DRY	(0% @ 100% BEL)		
21				
22				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		REMAINING HYD LEAKS ON RIG CONTROL PANEL. HHTS FITTING STANDPIPES IN BHs 20, 21, 22, 23 & 24 PLUS METAL COVERS.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.S Dainton	DIRECTOR			
D Cunnik				
A Watkinson.				
		8.00	6.30 PM.	
		10½ HRS		
	LESS	½ HR	TRAV.	

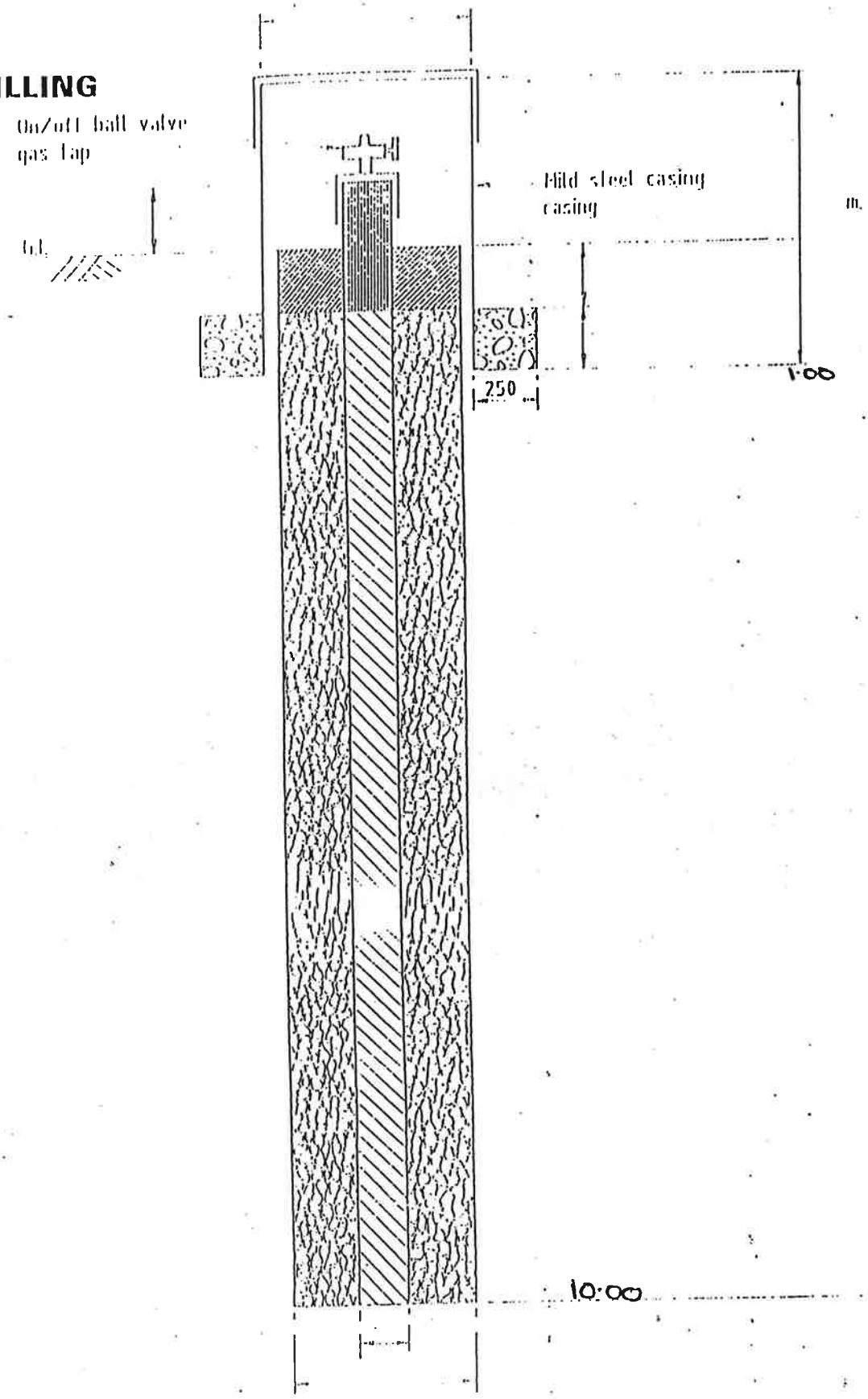
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

MOVING BETWEEN BHs ½ HR.

Weather Conditions :- RAIN.

BH 20, C.

ROTARY TEST DRILLING



STANDARD DETAIL

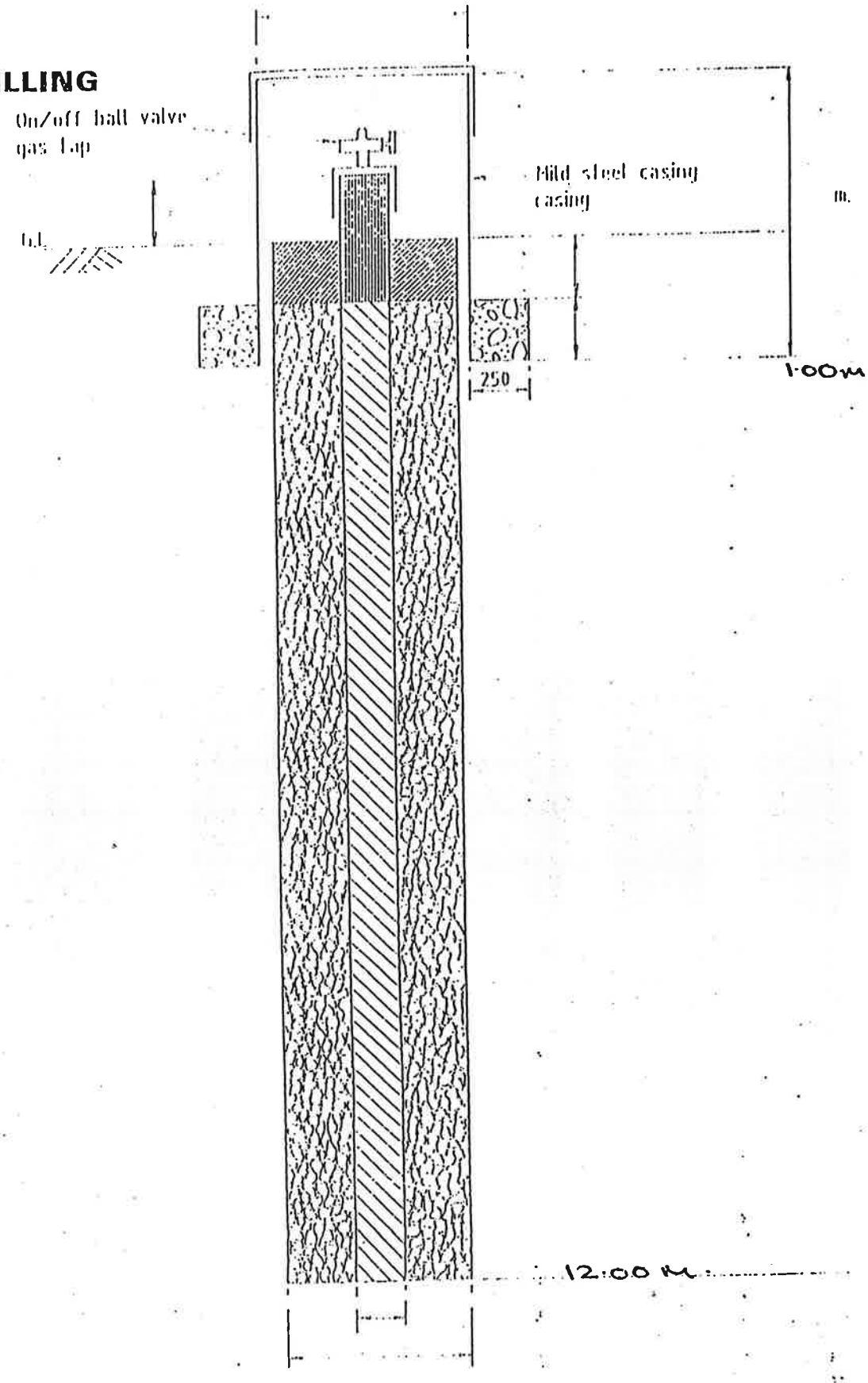
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

BH 22, .

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT 2.

Job No. 151690	Site ALDON WASTE DISPOSAL SITE.	Day WEDS
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL.	Date 4.7.90

Rig No. DANDO 220 R3.	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3 3/8" DHH	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH23											
C/L	0.20		GRASS + TOPSOIL.										
0.20	0.60		LIGHT BROWN CLAY.										
0.60			FISS LIGHT GREY LIMESTONE WITH FRQ										
	11.00		WEATH BROWN MUDSTONE/SILTSTONE										
			BANDS.										
			EOB										
		BH24											
C/L	0.20		GRASS + TOPSOIL.										
0.20	0.65		BROWN CLAY.										
0.65			FISS LIGHT GREY LIMESTONE WITH										
	12.50		FRQ WEATH BROWN MUDSTONE/										
			SILTSTONE BANDS.										
			EOB.										

Borehole Complete YES/~~NO~~

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
23	DRY.		(0% @	0% 100 LEL)
24				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		SEE LOG 1.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. Daintry.	DIRECTOR.			

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

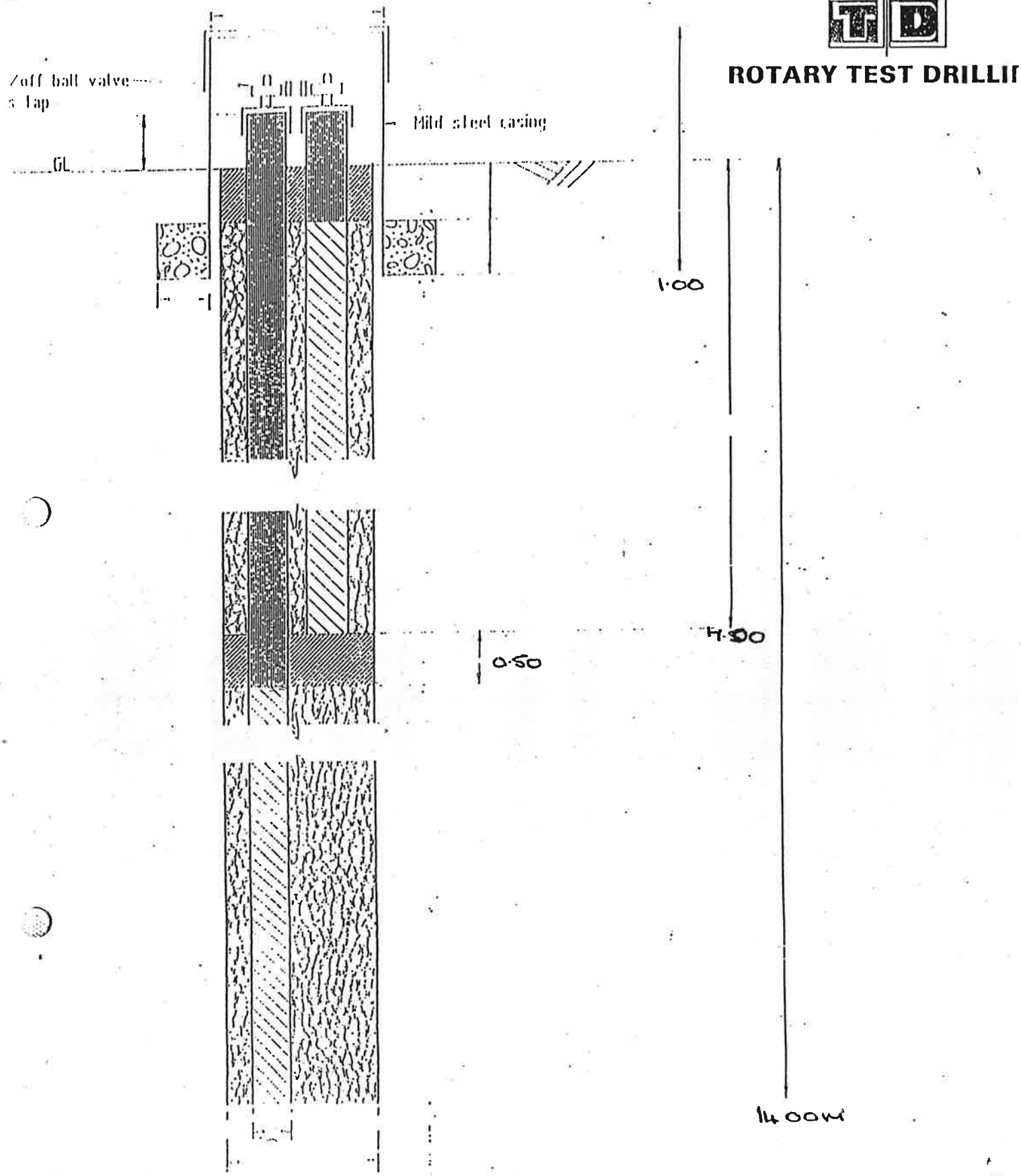
SEE LOG 1.

Weather Conditions :-

RAIN.

BH 23.

ROTARY TEST DRILLI



STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

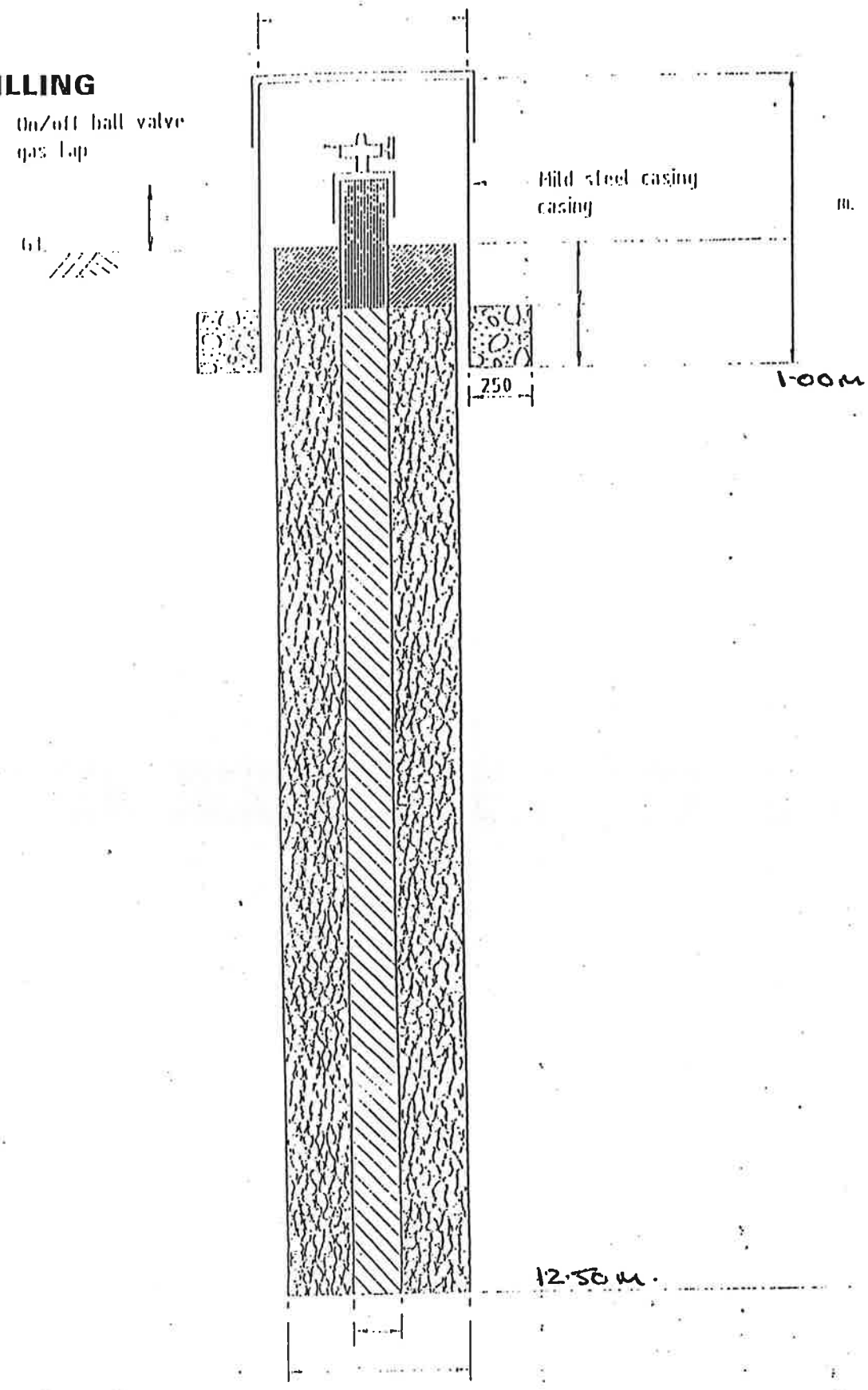
N.T.S.

DRAWN: LC	CHECKED:
TRACED: S.A	DATE: FEB 1990

Dwg

BH24.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

ROTARY TEST DRILLING LTD

DAILY REPORT

Job No. 151690	Site ALDORS WASTE DISPOSAL	Day THURS
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL.	Date 5.7.90

Rig No.	Casing Size	Total length of casing in bore hole	Bits/Tools used	Total depth of b/hole
DANDO 220 R3	—	—	3 7/8" D.H.H	AS BELOW.

Depth From	Depth To	BH	Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH	25, 26, 27.										
G/L	0.10		GRUSS + TOPSOIL.										
0.10	0.35		BROWN CLAY.										
0.35			WEATHERED BROWN + LIGHT GREY LIMESTONE/SILTSTONE WITH OCC										
	17.00		LIGHT GREY LIMESTONE BANDS.										
			EOB.										
		BH	28.										
G/L	0.10		GRUSS + TOPSOIL.										
0.10	0.30		BROWN CLAY.										
0.30	17.00		FISS LIGHT GREY LIMESTONE.										
			EOB.										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
25	DRY		0% @	100% LEL.
26				
27				
28				

Name	Occupation	Starting Time	Finishing Time	Wet Time
P DAINTON	DIRECTOR.			
D CLARK				
A WATKINSON.				
		8.30	7.30	
		11 HRS		
LESS	TRAV	½ HR.		

Details of Standing, Obstruction Time etc.

Time From	Time To	Details

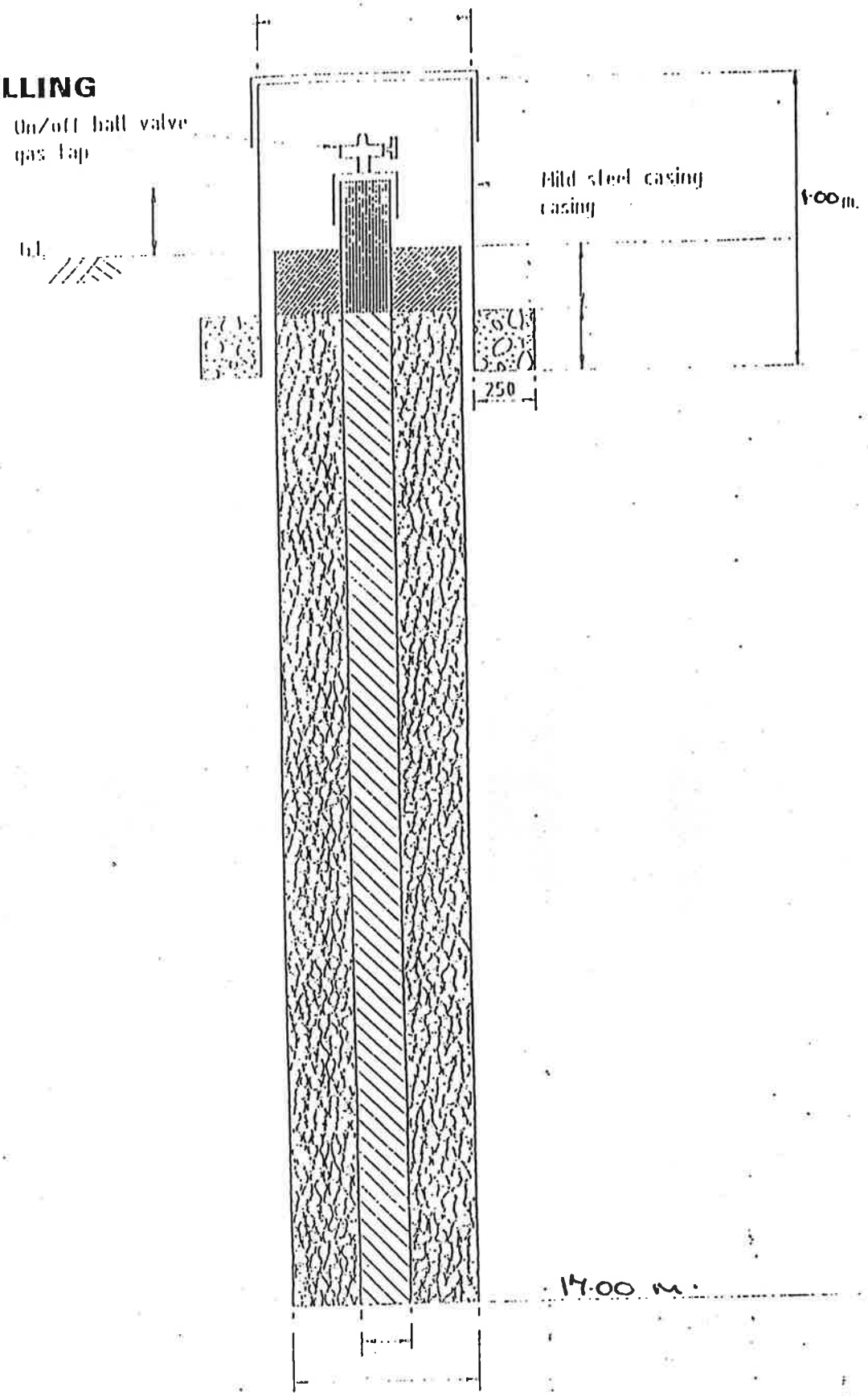
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

MOVING BETWEEN BHs 25, 26, 27 1½ HRS,
MOVING ON TO BH 28 DIFFICULT MOVE 1½ HRS
MOVING FROM 28 TO BH 29 VERY LONG
MOVE TO BASE OF TIP 1¾ HRS.

Weather Conditions :-
RAIN

BH's 25, 26, + 27.

ROTARY TEST DRILLING



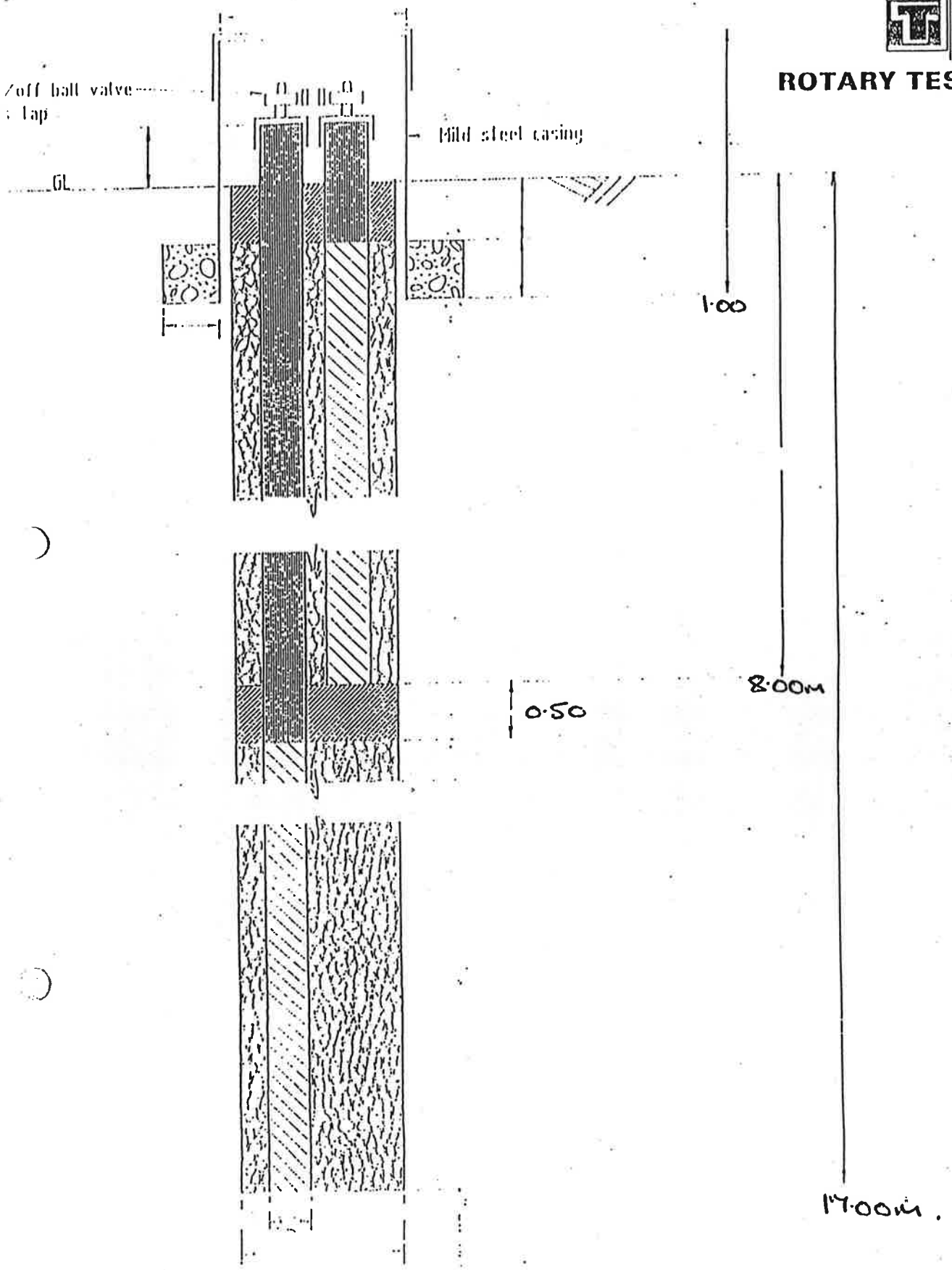
STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN: J.C
TRACED: S.A

ROTARY TEST DRILLI



STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

N.T.S.	DRAWN: J.C TRACED: S.A	CHECKED: DATE: FEB 1990	DR 5

ROTARY TEST DRILLING LTD

DAILY REPORT

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day FRI
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL.	Date 6.7.90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3⅞" DHH.	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BH29											
G/L	0·20		GRASS + TOPSOIL.										
0·20			WEATH LIGHT GREY LIMESTONE										
			WITH OCC BANDS OF WEATH BROWN										
	15·00		MUDST/ SILTSTONE.										
			E.O.B.										
		BH30											
G/L	0·20		GRASS + TOPSOIL.										
0·20			FISS + WEATH BROWN + GREY										
			LIMESTONE OCC WEATH SILTY										
	12·00		BANDS.										
			E.O.B.										
		BH31											
G/L	0·25		GRASS + TOPSOIL.										
0·25	4·50		BROWN CLAY FRQ MUDST BANDS										
4·50			FISS + WEATH LIMESTONE WITH										
			OCC WEATH BROWN SANDSTONE/										
	10·00		SILTSTONE BANDS.										
			E.O.B.										

Borehole Complete YES/NO

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
29	} DRY.	0% @		100% LEL.
30				
31				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details

Name	Occupation	Starting Time	Finishing Time	Wet Time
P.J. DAINTON	DIRECTOR			
D. CLARK				
A. WATKINSON				
		8:30	4:00 P.M.	
		7½ HRS.		
	LESS	2½ HRS	TRAV	

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1hr)
Visits to site by other than G.C. Staff.

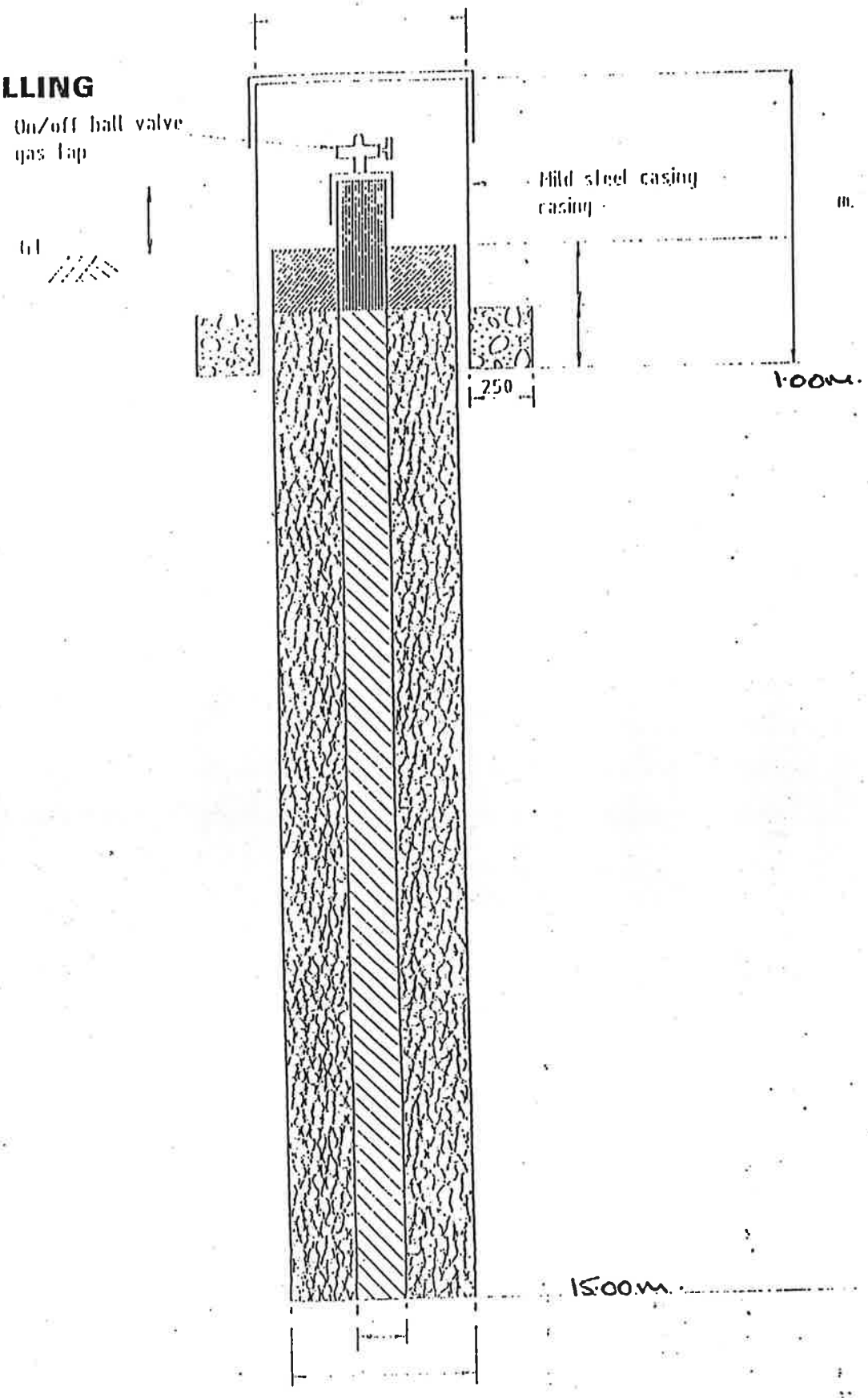
DIFFICULT MOVES BETWEEN BHs 29, 30, 31

Weather Conditions :-

FINE.

BH 29.

ROTARY TEST DRILLING



STANDARD DETAIL

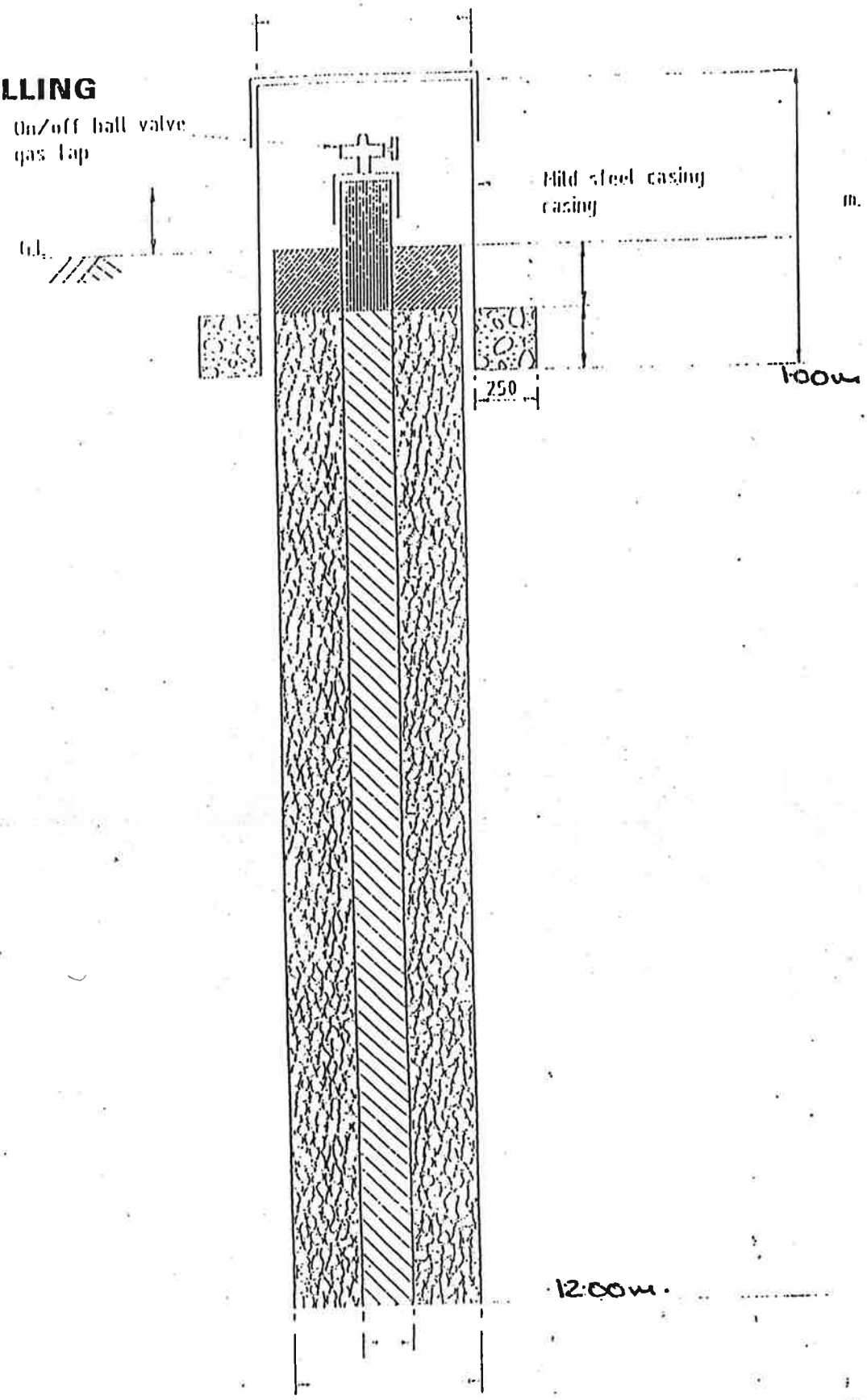
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

BH30.

ROTARY TEST DRILLING



STANDARD DETAIL

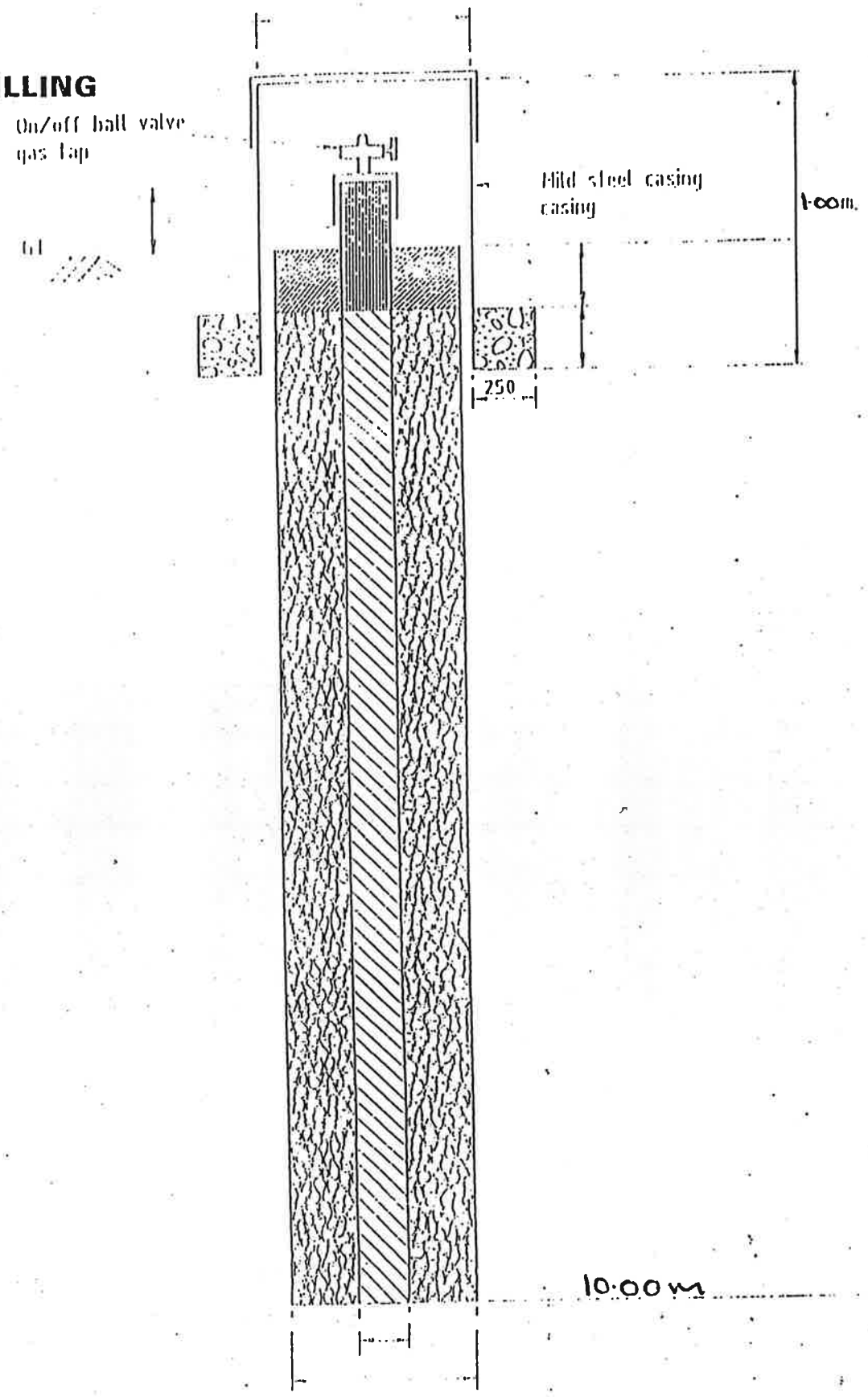
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN: J.C
TRACED: S.A

BH31.

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT

Job No. 151690	Site ALDON WASTE DISPOSAL SITE	Day MON
BH No. AS BELOW	Client SHROPSHIRE COUNTY COUNCIL	Date 9.7.90

Rig No. DANDO 220 R3 | Casing Size — | Total length of casing in bore hole — | Bits/Tools used DHH 3⅞" | Total depth of b/hole AS BELOW.

Depth From	Depth To	BHs	Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
G/L	0.25		GRASS + TOPSOIL.										
0.25			SOFT BROWN CLAY WITH OCC BANDS										
	3.20		OF HUMESTONE (VERY WEATHERED)										
3.20			LIGHT GREY FISS LIMESTONE WITH										
			OCC BROWN CLAYEY HUMESTONE										
	10.00		BANDS.										
			EOB										
		BH	36										
G/L	0.20		GRASS + TOPSOIL.										
0.20	2.30		BROWN CLAY FRQ HUMESTONE BANDS										
2.30			FISS LIGHT GREY LIMESTONE WITH										
	12.00		OCC WEATH BROWN HUMESTONE BANDS.										
			EOB										
			Borehole Complete YES/~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
32				
33				
34	DRY	0%	[redacted]	100% LEL.
35				
36				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		INSTALLING STANDPIPES.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P J DRINKWATER	DIRECTOR			
D CLARK				
A WHICKINSON.				
		7:30	6:30	
		11 hrs		
	LESS	2½ hrs	TRAV.	

REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

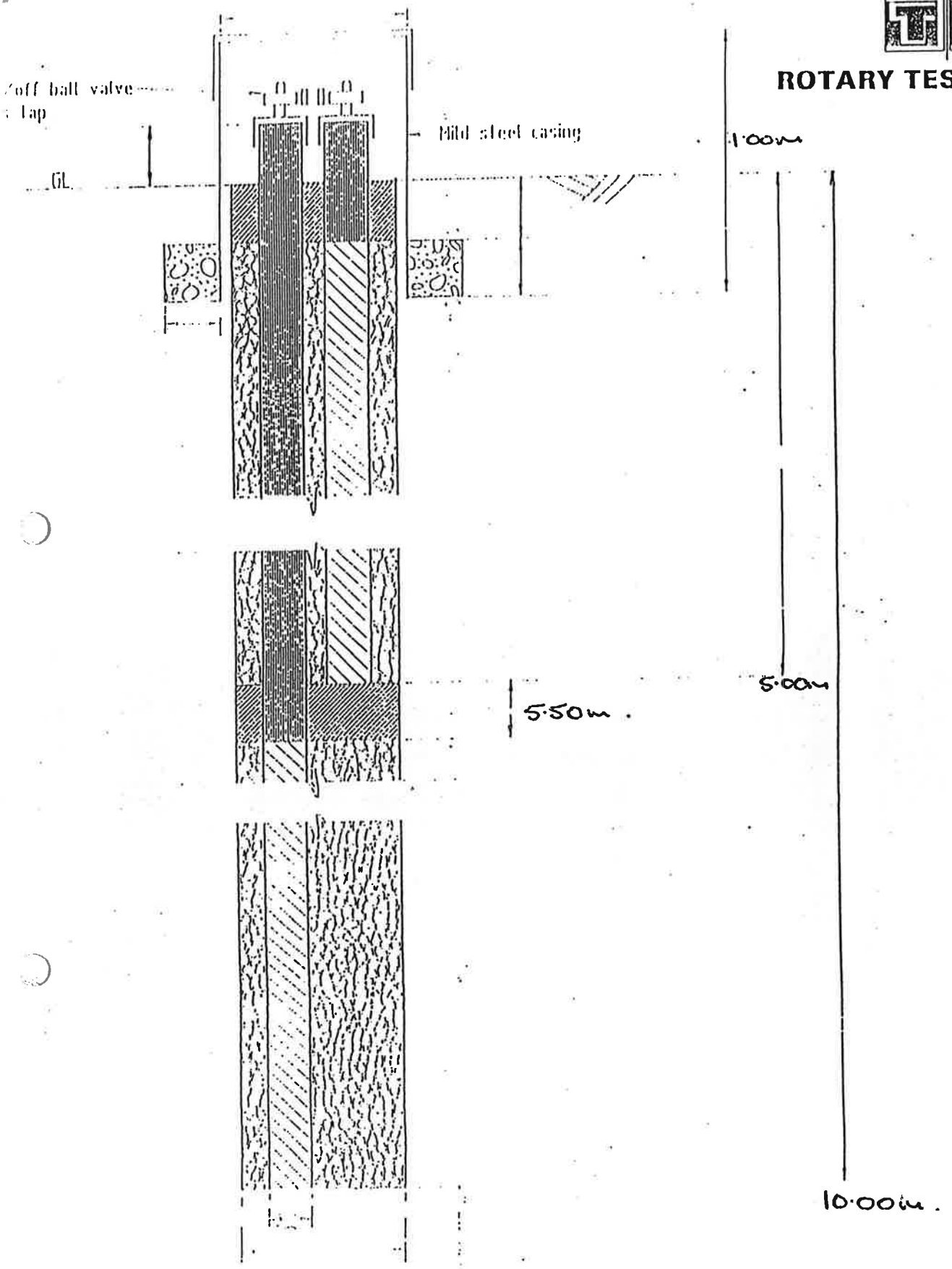
MOVING BETWEEN BHs 32, 33, 34 + 35 DIFFICULT SET UPS ON SLEEPERS DUE TO INCLINE OF SITE 3½ hrs.

Weather Conditions :-

FINE.

BH 55.

ROTARY TEST DRILLI



STANDARD DETAIL

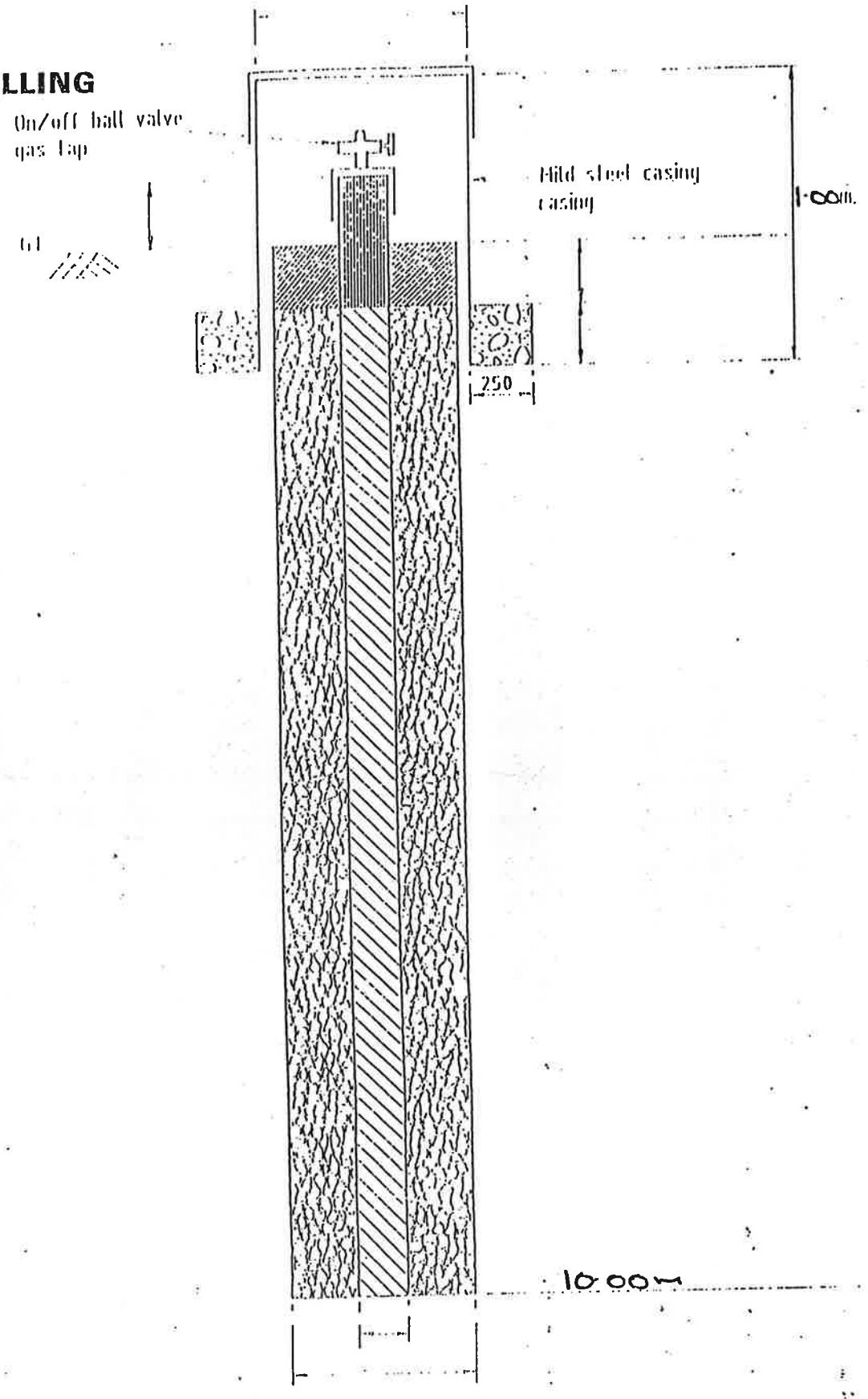
Detail of Twin Level Gas Monitoring Borehole

N.T.S.

DRAWN: TT TRACED: S.A	CHECKED: DATE: FEB 1990	DWG

BHs 32, 34, 35

ROTARY TEST DRILLING



STANDARD DETAIL

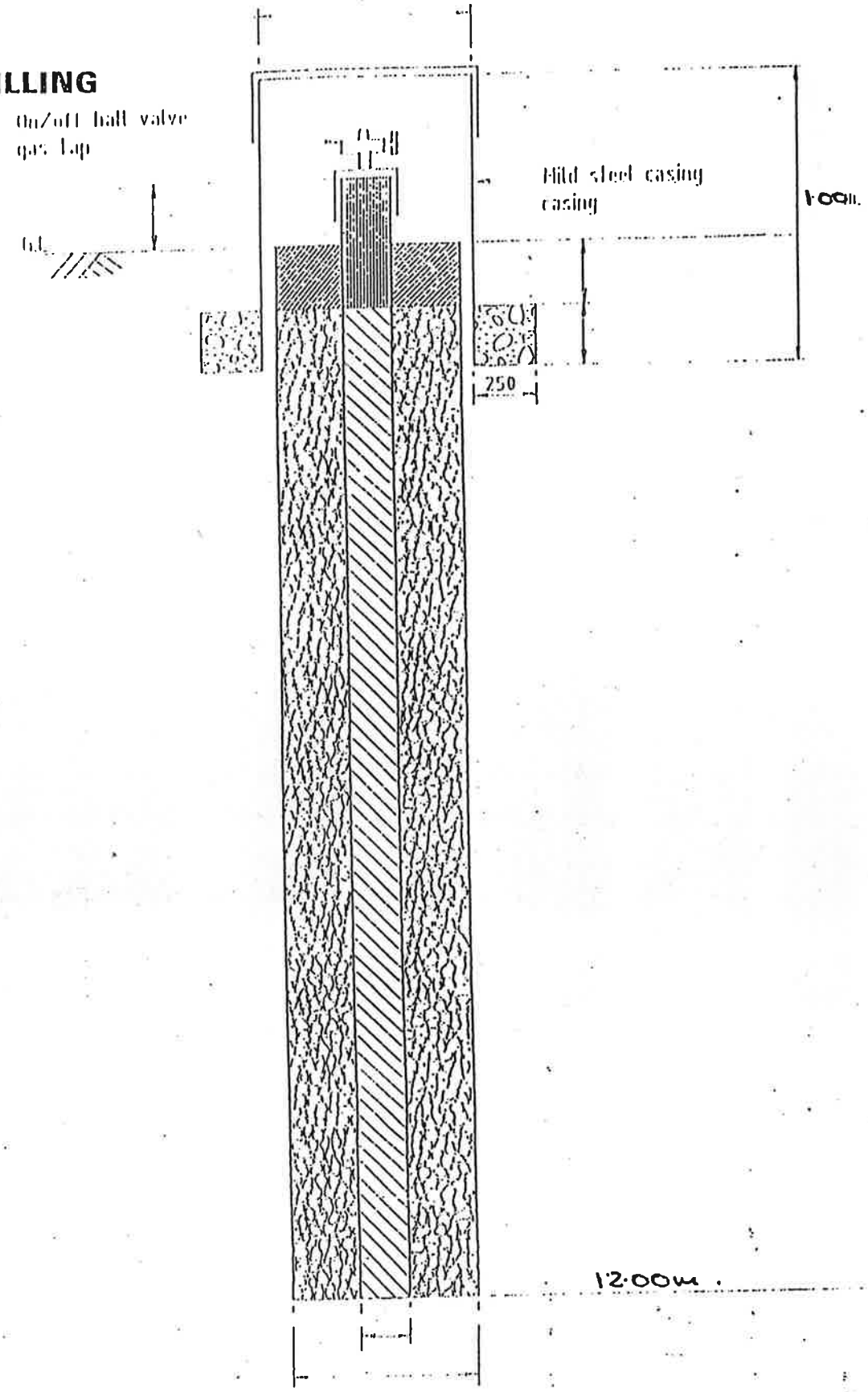
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

BH36

ROTARY TEST DRILLING



STANDARD DETAIL

Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED: S.A

ROTARY TEST DRILLING LTD

DAILY REPORT

Job No. 151690	Site ALDOW WASTE DISPOSAL SITE	Day TUES
BH No. AS BELOW	Client SURREY COUNTY COUNCIL.	Date 10-7-90

Rig No. DANDO 220 R3	Casing Size —	Total length of casing in bore hole —	Bits/Tools used 3⅞" DHH.	Total depth of b/hole AS BELOW.

Depth From	Depth To		Strata Description	Core Recovered (length)	Samples Type	Sam.No	From	To	S.P. Tests 6 150	3 75	3 75	3 75	3 75
		BHs	37, 38										
G/L	0·15		GRASS & TOPSOIL.										
0·15	0·90		BROWN CLAY.										
0·90			LIGHT GREY LIMESTONE WITH OCC.										
	15·00		BROWN SILTY BANDS.										
			EOB.										
		BH	39.										
G/L	0·20		GRASS & TOPSOIL.										
0·20	0·50		BROWN CLAY.										
TO			LIGHT GREY LIMESTONE WITH OCC.										
	12·00		BROWN SILTY BANDS.										
			EOB.										
			Borehole Complete YES / ~~NO~~										

Water Observations

B.H. No.	Depth Struck	Time	Rate	Standing Level
37	DRY.		0% @	100% LEL
38				
39				

Details of Standing, Obstruction Time etc.

Time From	Time To	Details
		INSTALLED STANDPIPES.

Name	Occupation	Starting Time	Finishing Time	Wet Time
P. DUNSTAN	DIRECTOR			
D. CLARK				
A. WHICKER				
		8.30 - 5.00 hrs.		
		9 hrs		
	LESS	½ hr	TRAV.	

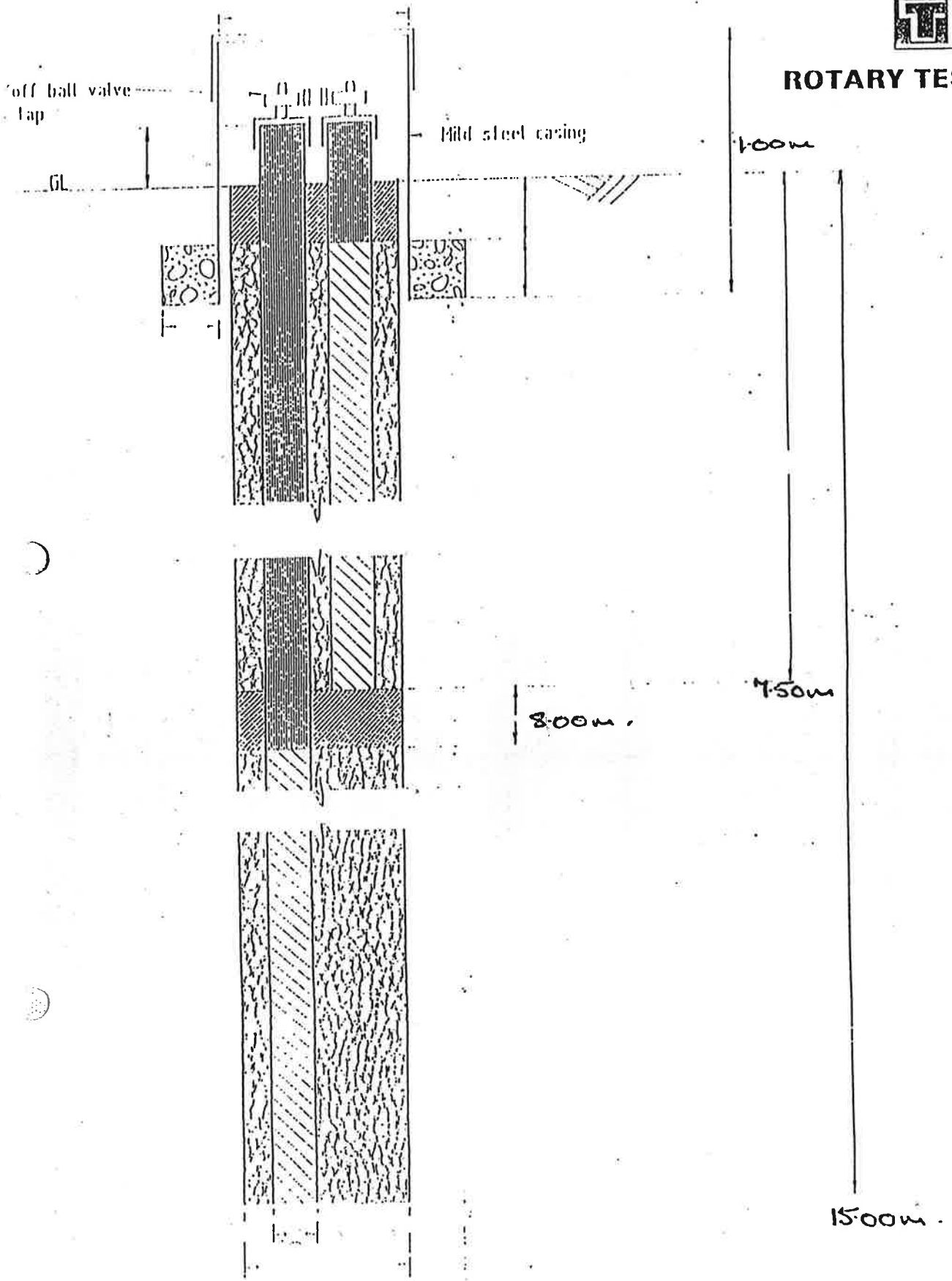
REMARKS :- i.e. moving difficulties (remarks must be inserted for H/H moves exceeding 1 hr)
Visits to site by other than G.C. Staff.

MOVING FROM BH 36 TO BH 3M LONG MOVE FROM BASE OF TIP TO BH3M POSITION 1¾ hrs. MOVING BETWEEN BH 3/4 hrs.

Weather Conditions :-

BH 37

ROTARY TEST DRILLI



STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

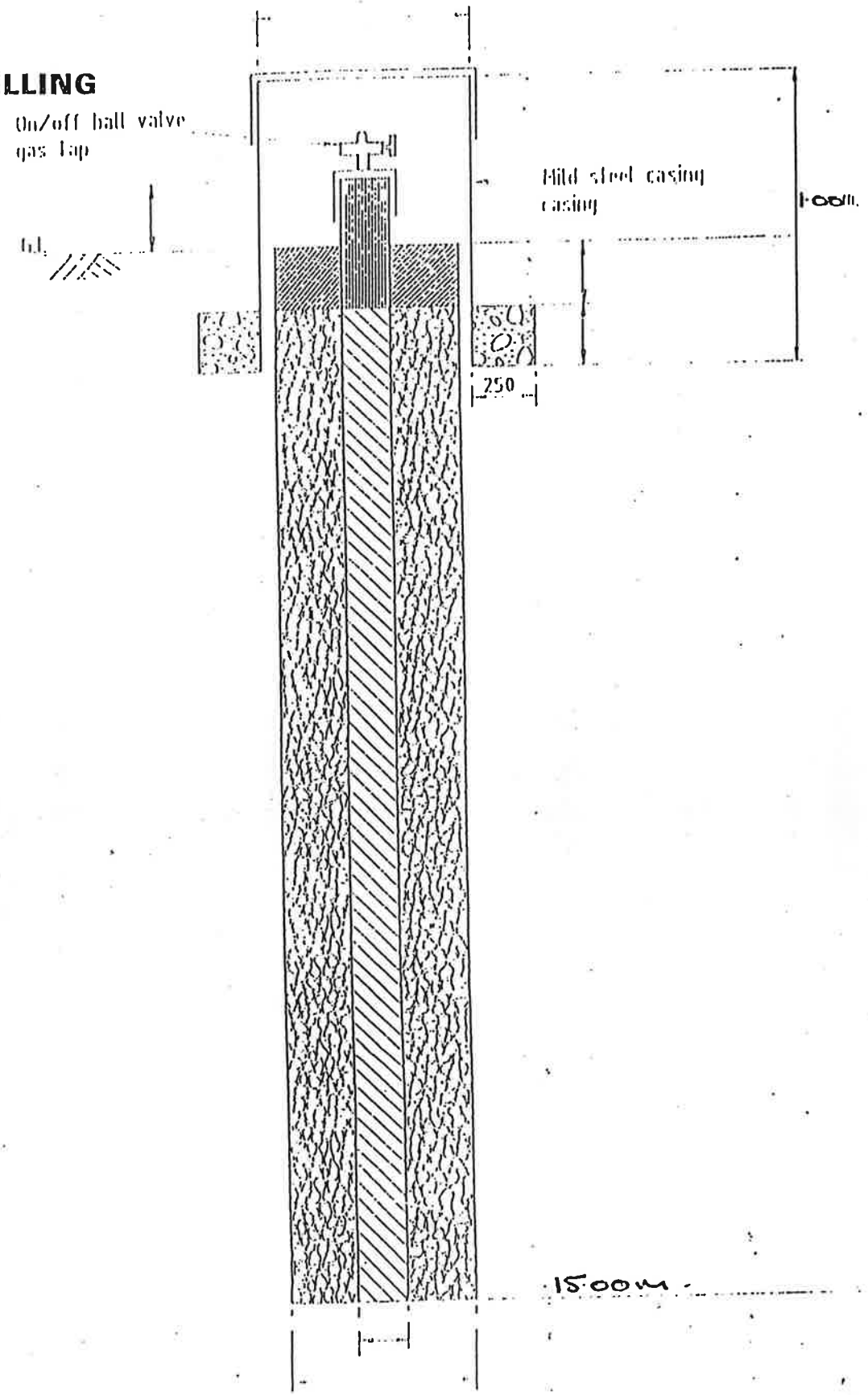
N.T.S.

DRAWN: J.C	CHECKED:
TRACED: S.A	DATE: FEB 1990

Dwg

BH 38.

ROTARY TEST DRILLING



STANDARD DETAIL

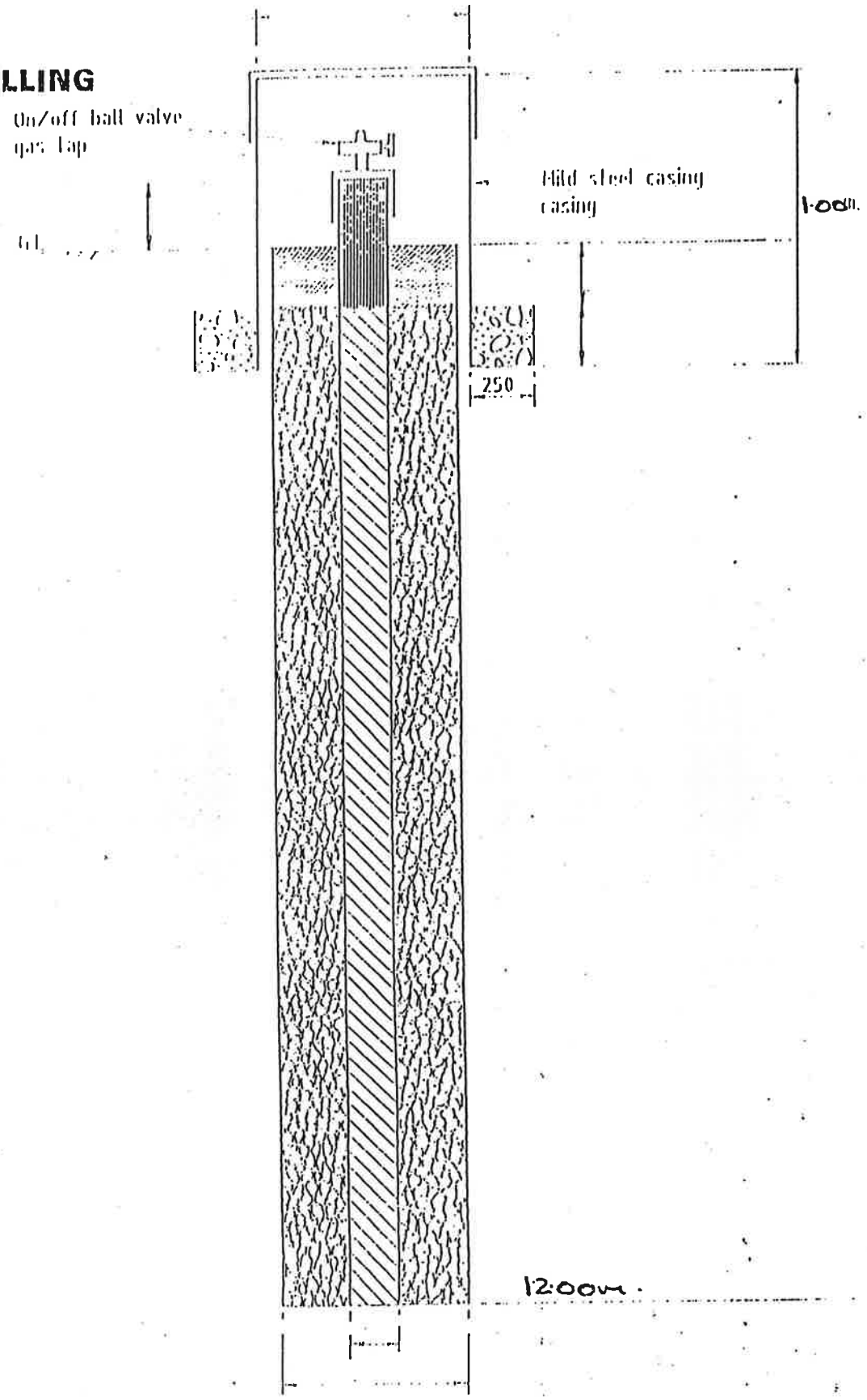
Detail of Single Gas Monitoring Borehole

Scale N.T.S.

DRAWN : J.C
TRACED : S.A

BH39.

ROTARY TEST DRILLING



STANDARD DETAIL

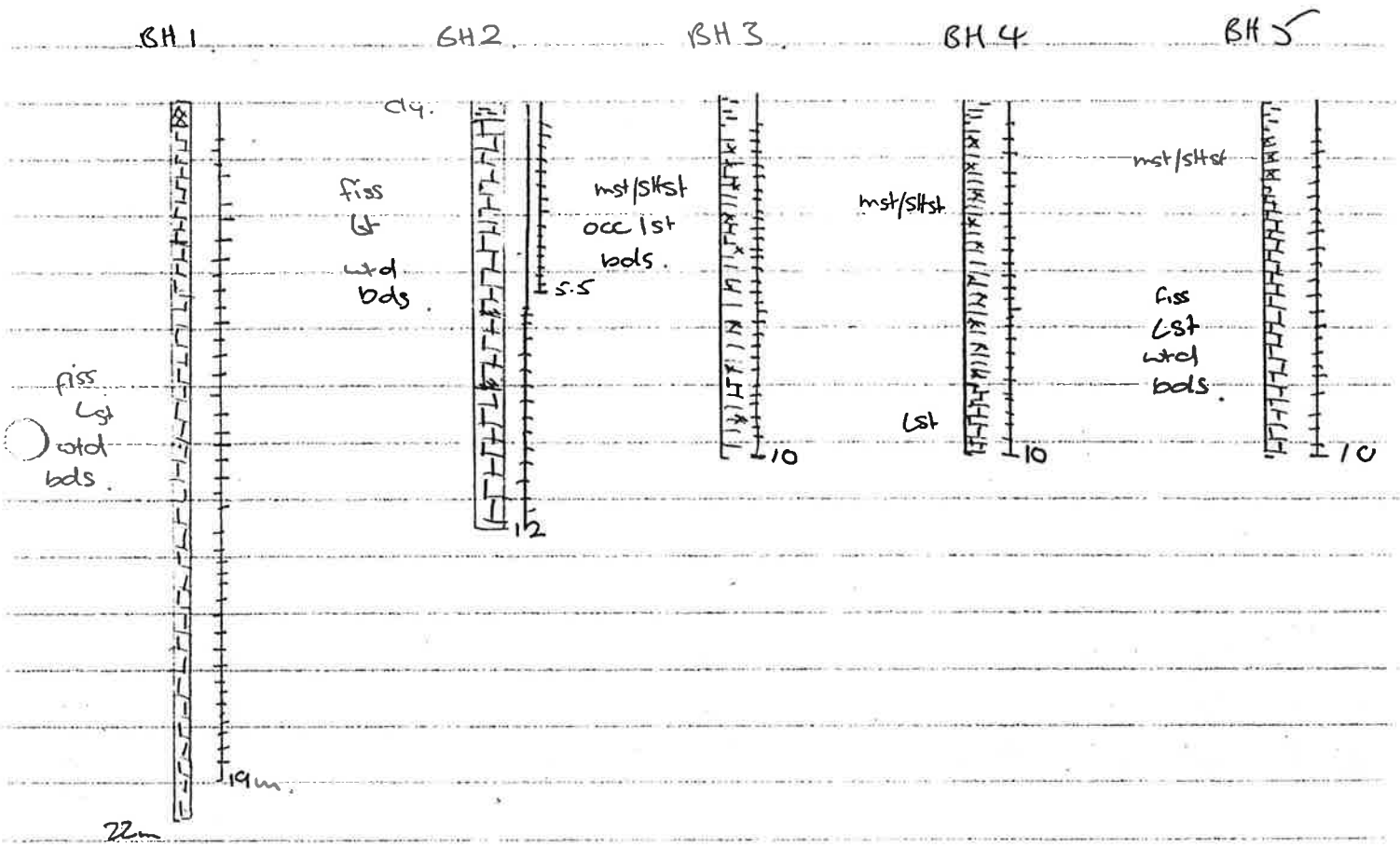
Detail of Single Gas Monitoring Borehole

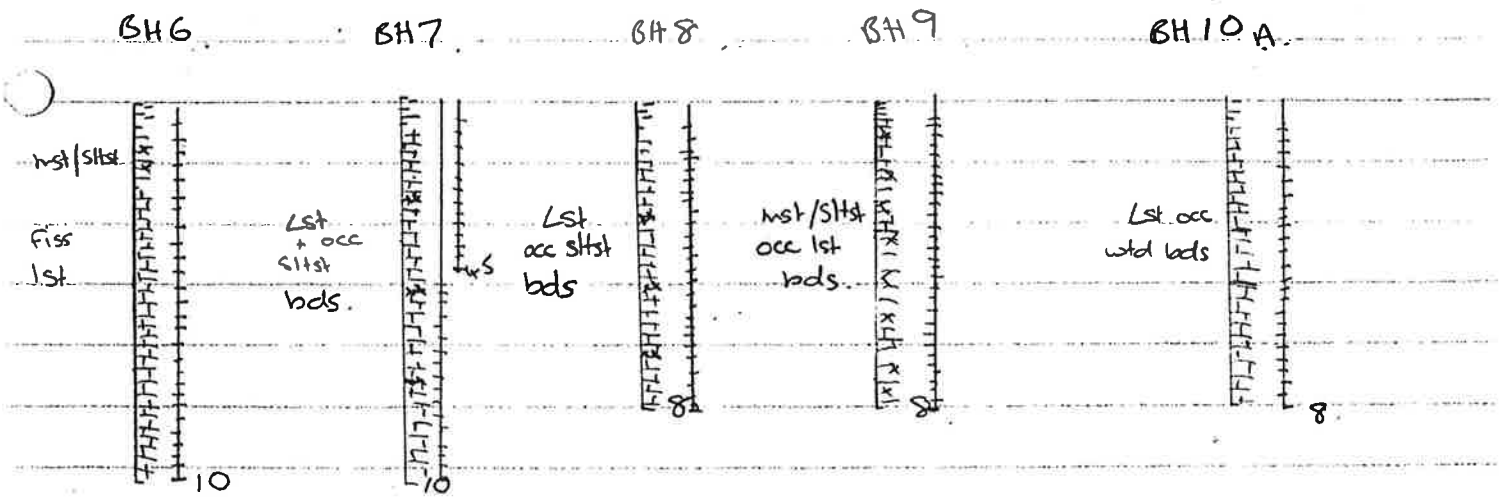
Scale N.T.S.

DRAWN : J.C
TRACED : S.A

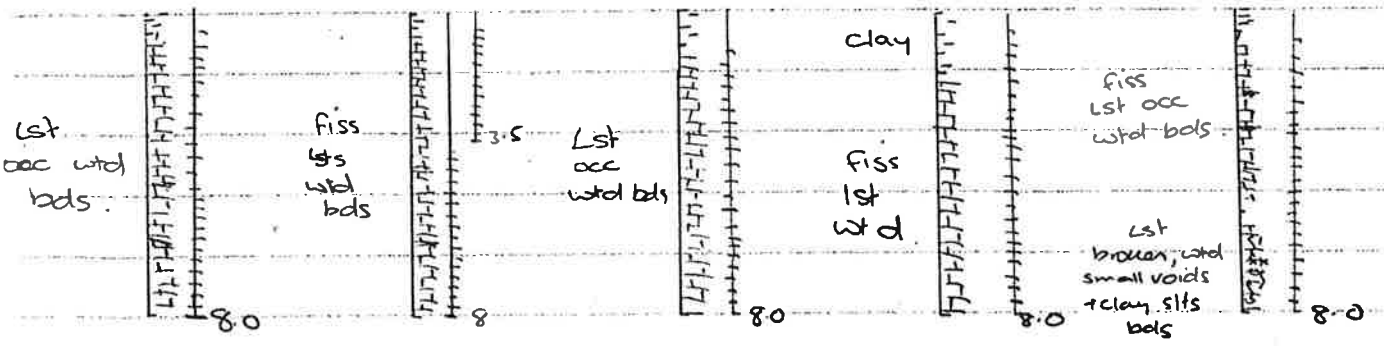
Gas Monitoring boreholes

Aldon W.D. Site

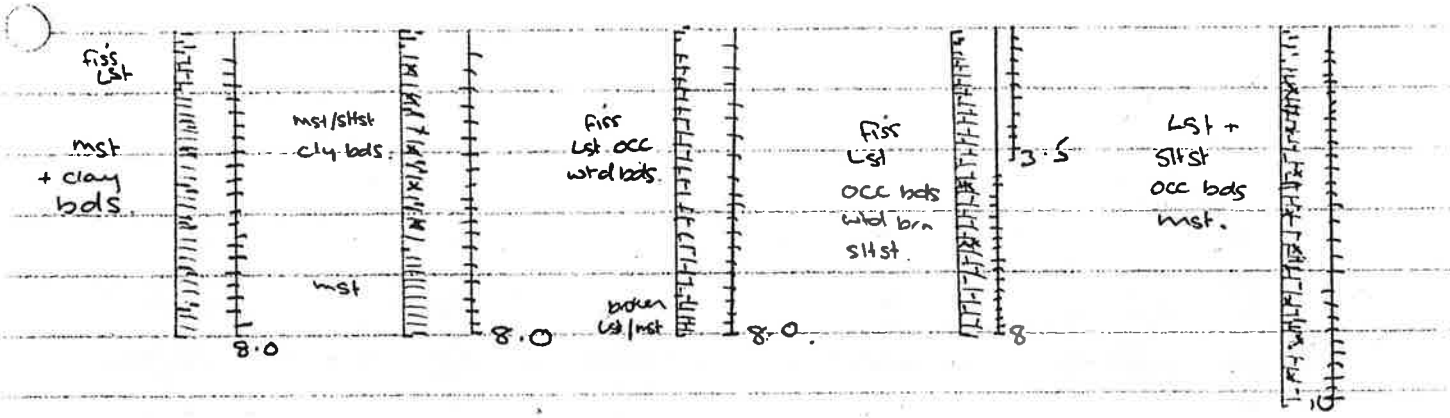




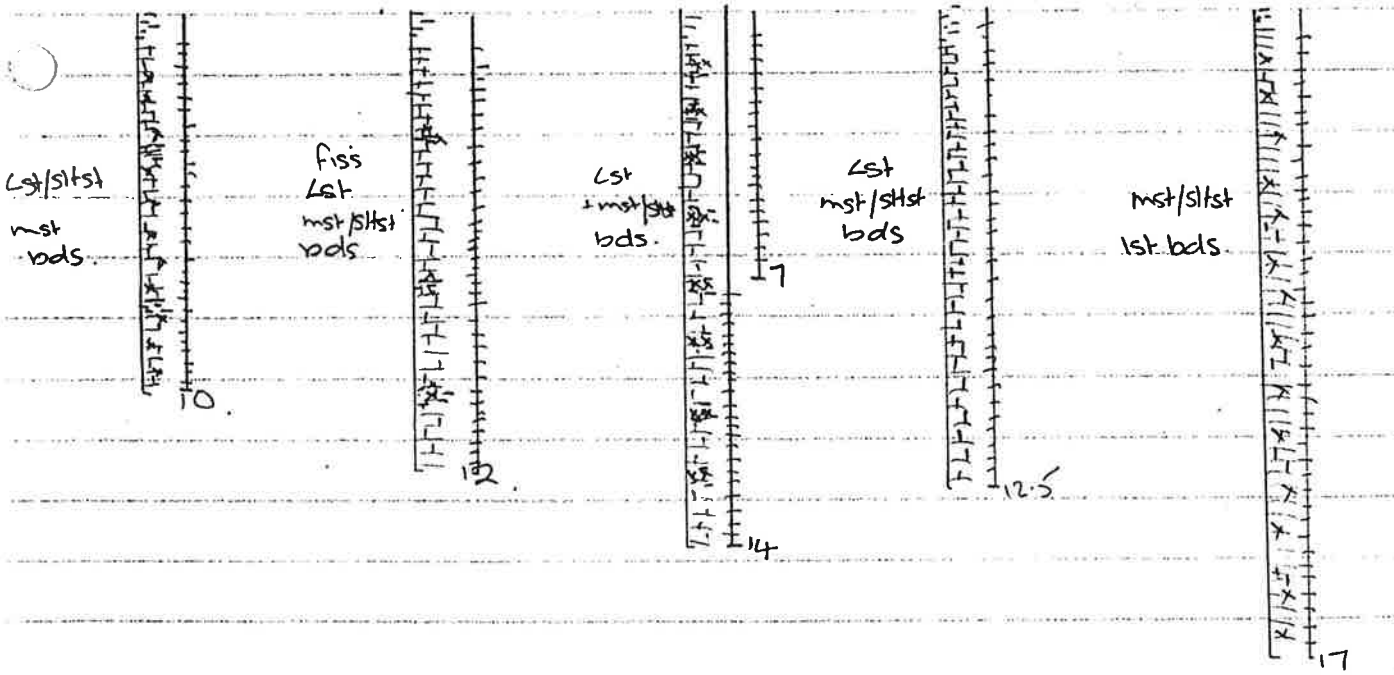
BH 11 BH 12 BH 13 BH 14 BH 15



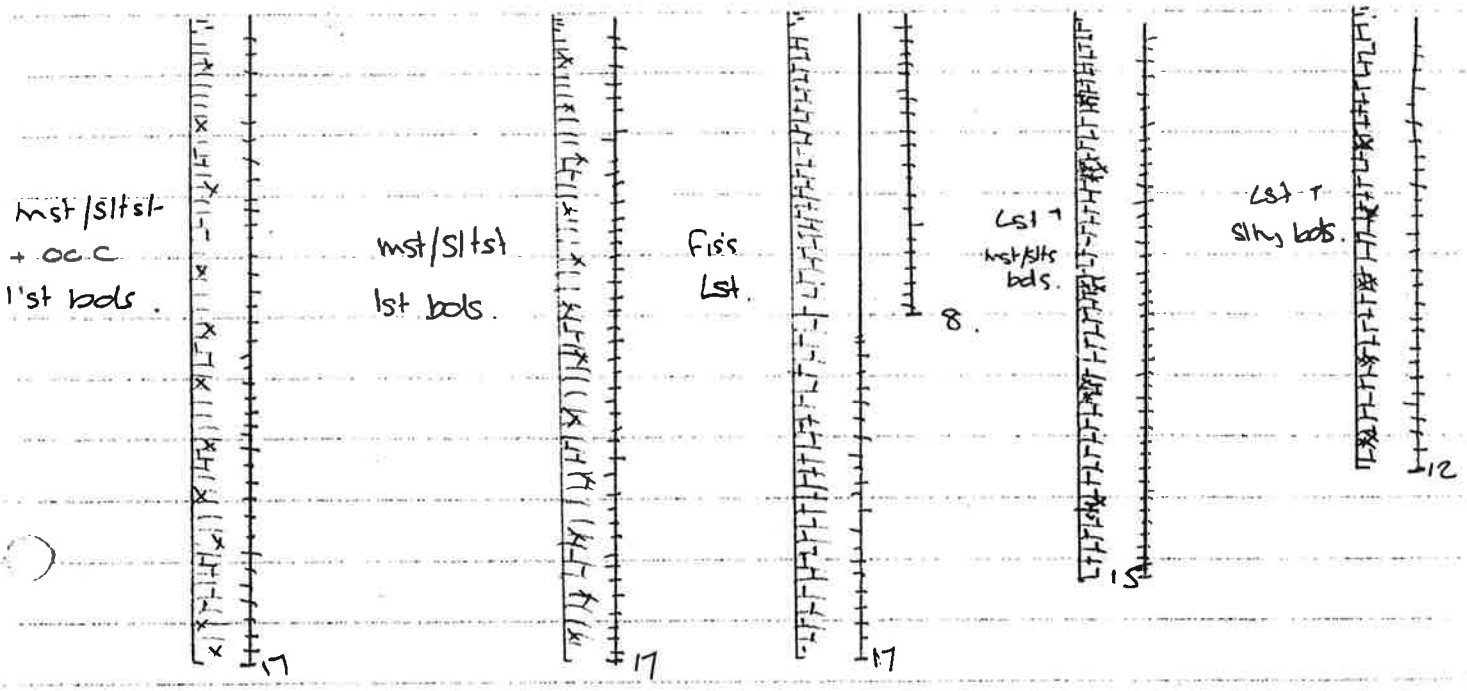
BH 16 BH 17 BH 18 BH 19 BH 20



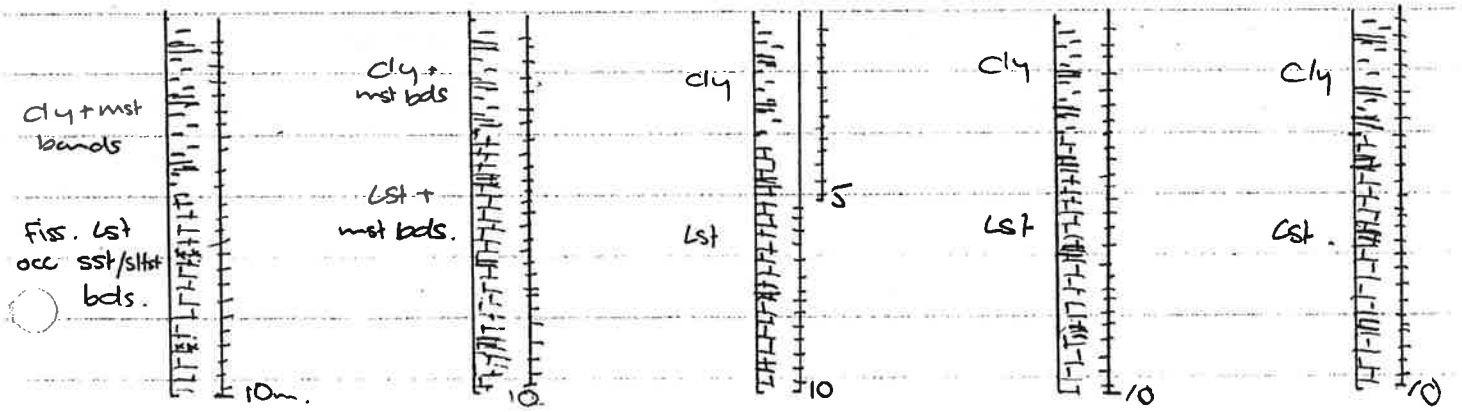
BH 21 BH 22 BH 23 BH 24 BH 25



BH 26 BH 27. BH 28 BH 29 BH 30



BH 31 BH 32 BH 33 BH 34 BH 35

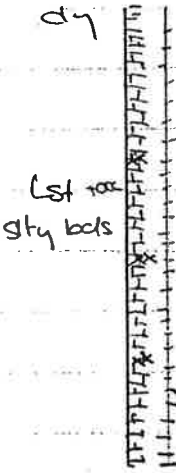


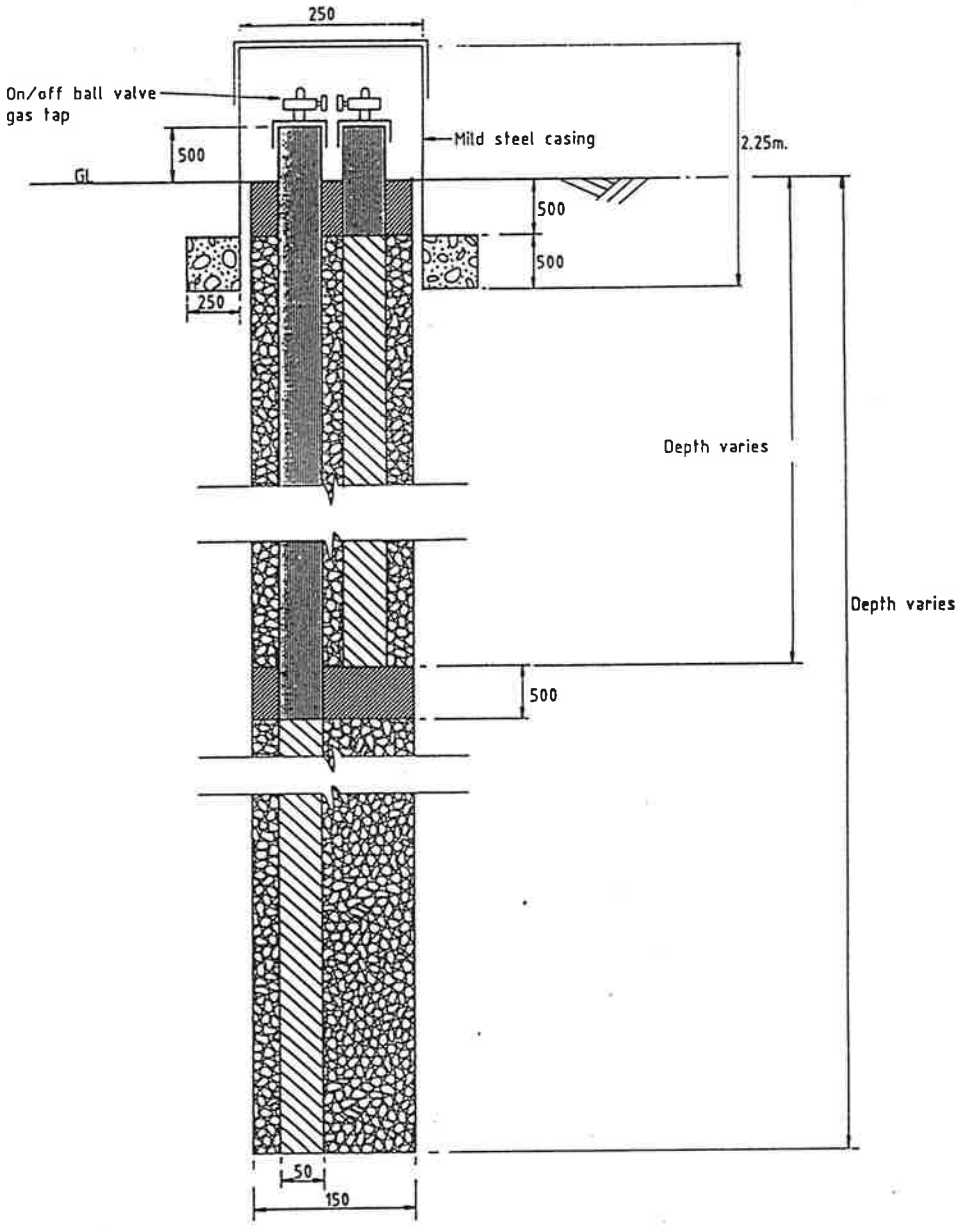
BH 36.

BH 37

BH 38

BH 39





NOTES

1. Concrete surround to steel casing to be class C
2. Cap for casing to be locked with a suitable heavy duty padlock supplied with 3 keys
3. Caps with gas taps attached are to be removable

Bentonite

10mm. nominal sized pea gravel

Solid walled HDPE 50mm. dia. pipe

Slotted walled HDPE 50mm. dia. pipe

All dimensions in mm. unless stated otherwise

Shropshire County Council

K.B. MADELIN M.Sc., C.Eng.
COUNTY SURVEYOR,
SHIREHALL,
ABBEY FOREGATE,

STANDARD DETAIL

Detail of Twin Level Gas Monitoring Borehole

REVISIONS

Scale N.T.S.

DRAWN : J.C | CHECKED:
TRACED: S.A | DATE: FEB 1990

Drg.No. SD 13/03/4

APPENDIX 5

Appendix C. In-Waste Gas Data

[See appended datasheet]

Appendix D. Aldon Infrastructure Borehole Audit

[See appended datasheet]

Appendix E. Perimeter Gas Dataset

[See appended datasheet]

Appendix F. Approach B. Appropriate Adoption of Risk and Concentration Based Principles for Gas Compliance in the Perimeter Network around the site.

Approach B: Combined ICOP and Hazardous GSV based Action Levels and Compliance Limits

Approach B splits the proposed action level and compliance limits into two separate groups based upon whether each individual monitoring point has an established methane rich composition or whether it is methane depleted.

In the methane rich monitoring points, methane action levels and compliance limits, and carbon dioxide action levels are based on GSV values which SUEZ have conservatively proposed using the same methodology and environmental risk assessment as in Approach A.

In the methane depleted monitoring points, the methane compliance limit is unchanged from the current 1%v/v, with a new 0.5%v/v action level to enable SUEZ to identify if a rising trend was to ever occur. Following ICOP guidance which is only applicable for monitoring points which are 'methane free', the methane depleted points have been subject to a bespoke calculated action level based on historical carbon dioxide concentrations. No carbon dioxide compliance limit is to be applied to points which are 'methane free'.

The Limits proposed in Approach B are provided in Table 1 and Table 2 (overleaf), split based on established methane conditions.

Table 1. Methane Rich Monitoring Points Hazardous GSV Action Level and Compliance Limits

Monitoring Point	Methane		Carbon Dioxide
	Action Level (GSV)	Compliance Limit (GSV)	Action Level (GSV)
AL/02L, AL/04, AL/05, AL/09, AL/15, AL/18, AL/20, AL/21, AL/22, AL/23H, AL/23L, AL/24, AL/25, AL/26, AL/37H, AL/37L, AL/38, AL/39	0.07	0.5	0.07

Table 2. Methane Depleted Monitoring Points ICOP Action Level and Compliance Limits

Monitoring Point	Methane		Carbon Dioxide
	Action Level (%v/v)	Compliance Limit (%v/v)	Action Level (%v/v)
AL/02(H)	0.5	1	10.0
AL/03			4.7
AL/06			7.7
AL/07(H)			4.6
AL/07(L)			4.8
AL/08			8.1
AL/10			8.4
AL/11			10.2
AL/12(H)			4.8
AL/12(L)			2.6
AL/13			2.9
AL/14			4.6
AL/16			10.1
AL/19(H)			3.0
AL/19(L)			3.2
AL/27			9.3
AL/28(H)			4.0
AL/28(L)			2.8
AL/29			11.1
AL/30			11.6
AL/31			5.2
AL/32			9.4
AL/33(H)			8.2
AL/33(L)			7.6
AL/34			8.6
AL/35			4.8
AL/36			7.2

Appendix G. Perimeter Gas ICOP Action Level Calculations

[See appended datasheet]