

P e l l F r i s c h m a n n

London Institute of Healthcare Engineering

Verification Report

Land contamination risk management

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1 Introduction

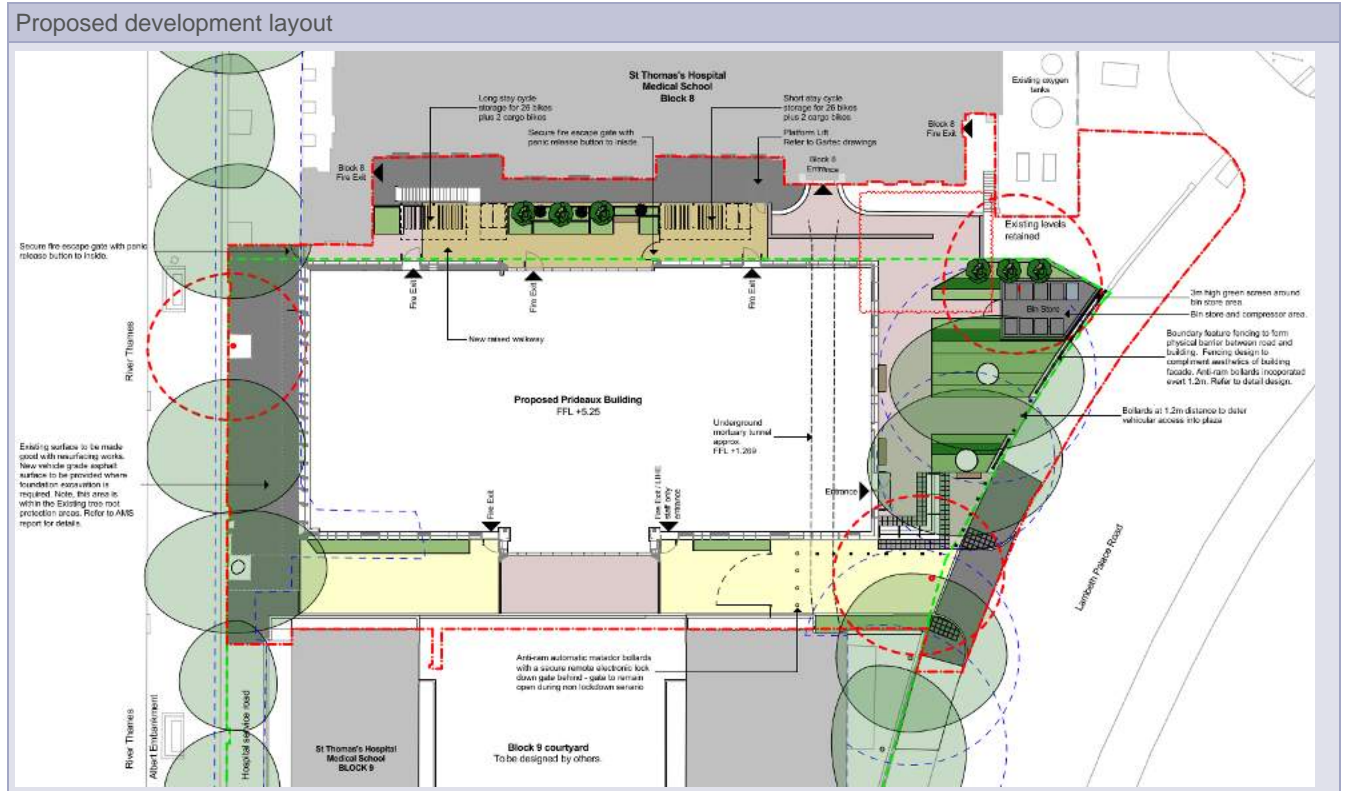
1.1 Commission

Pell Frischmann has been commissioned by Morgan Sindall Construction (the *client*) to prepare this land contamination remediation Verification Report for the London Institute of Healthcare Engineering (LIHE) development at St Thomas' Campus, Lambeth Palace Road, Kings College London, (the *site*). The proposed development consists of a new four-storey research and education facility for the University. Figure 1-1 includes a site location plan and development plans/illustrations.

Pell Frischmann's land contamination risk management commission for the development also included the production of the Remediation Strategy (102228-PF-ZZ-XX-RP-GG-600003) for the development in June 2023. The remediation strategy identified that a remediation cover system would be required in areas of soft landscaping to protect the development end-users from the underlying Made Ground onsite.

Figure 1-1 Site location





1.2 Scope of work

The process of remediation verification is intended to provide a record of the remediation activities as evidence that the remediation has been successful and that consequently the areas subject to remediation can be considered 'suitable for use'. This verification report is also intended to satisfy planning condition 29 (B and C), see Section 2.3.

Pell Frischmann's verification scope of work for the remediation cover system included the following:

- Collating contractor's records relating to the geotextile and imported soils,
- Undertaking verification site inspection to confirm the presence of the underlying geotextile layer, record the thickness of placed cover soils and collect soil samples from the cover soils,
- Scheduling geochemical laboratory analysis for the soil samples and assessing the results against the remediation soil acceptability criteria, and
- Producing a verification report following the completion of remediation works.

Pell Frischmann's scope of work was limited to the activities outlined above. Morgan Sindall and their appointed contractors were responsible for undertaking all remedial measures, including sourcing and placing the geotextile separator layer and the cover soils.

2 Background

2.1 Land contamination risk management

The Environment Agency (EA) Land Contamination Risk Management (LCRM) guidance, sets out the process that should be followed for managing risks from land contamination. This includes ensuring that the site will be ‘suitable for its proposed use’ in line with National Planning Policy Framework (NPPF). The process of LCRM should be used to:

- Identify and assess if there is an unacceptable risk
- Assess what remediation options are suitable to manage the risk
- Plan and carry out remediation
- Verify that remediation has worked

LCRM includes three risk-based stages (1) risk assessment, (2) options appraisal, and (3) remediation and verification. Table 2-1 presents Pell Frischmann’s simplified summary of the LCRM process.

Table 2-1 Land contamination risk management - simplified

1 Risk Assessment		2 Options appraisal		3 Remediation and verification	
Preliminary risk assessment		Site investigation scheme		Quantitative risk assessment	
PRA		Quantitative risk assessment		LCROA	
Desk study to identify sources of contamination and sensitive receptors. PRA to identify potential S-P-R contamination linkages (CLs)	SIS: Investigate potential sources and receptors	GQRA/DQRA: Quantitative risk assessment to assess risks for each CL to identify and assess unacceptable risks	Identify remediation option to address unacceptable risks	LCRS	LCRV
			Strategy: steps and measures required to implement remediation onsite. Verification plan: activities and records that must be kept during remediation		Record of all remediation activities as evidence that remediation has been successful [this report]

2.2 LCRM reports

Morgan Sindall provided Pell Frischmann with copies of pre-construction land contamination/ geoenvironmental reports that were prepared for the LIHE development between 2015 and 2020. Both, the 2015 desk study and 2020 ground contamination assessment report covered a larger land parcel, which included the subject site and land to the south. The reports were prepared prior to the release of the LCRM guidance in October 2020, however they broadly align with the LCRM process, as summarised overleaf. Pell Frischmann subsequently produced a remediation strategy for the site in 2023.

A list of available reports prepared between 2015 and 2023 are provided in Table 2-2.

Table 2-2 Land contamination reports

Report title and reference	Source	Date
Remediation strategy, (ref:102228-PF-ZZ-XX-RP-GG-600001).	Pell Frischmann	June 2023
Ground contamination assessment report. London Institute of Healthcare Engineering London SE1 (ref: C15000A)	Ground Engineering Limited	August 2020
Geotechnical & geoenvironmental desk study (ref: 351414/WCD/WAM/01/A)	Mott MacDonald	September 2015

Preliminary risk assessment (PRA): The desk study report (September 2015) included a review of the readily available desk-based information for the site as well as a preliminary Conceptual Site Model (CSM) and a preliminary risk assessment for the development.

Site investigation scheme (SIS) and generic quantitative risk assessment (GQRA): An intrusive site investigation was undertaken by Ground Engineering Limited in 2020, followed by a land contamination generic quantitative risk assessment (GQRA), which is presented in the *Ground Contamination Assessment Report, (Ground Engineering Limited, August 2020)*. The GQRA identified three contaminants of concern (CoC) in the shallow Made Ground onsite including lead, benzo(a)pyrene (a polycyclic aromatic hydrocarbon, PAH) and asbestos in soils, that were likely to require remediation in areas of soft landscaping only.

Remediation strategy: Pell Frischmann subsequently produced a remediation strategy for the development in June 2023. The remediation strategy was based on review of the 2020 site investigation data and risk assessment findings. A summary of the relevant contaminant linkages associated with the Made Ground and requiring remediation is provided in Table 2-3. The remediation strategy specified the use of a composite cover system in the soft landscaping areas of the development to break potential exposure pathways between the existing Made Ground and human health site users. The remediation requirements are discussed in detail in Chapter 3 of this report.

Table 2-3 Relevant contaminant linkages that require remediation

CL	Source	Pathway	Receptor
101	Contaminants (lead and benzo(a)pyrene) within Made Ground onsite	Ingestion, inhalation and dermal contact associated with areas of soft landscaping only	Human health of end users
201	Asbestos in soils (within the Made Ground onsite)	Inhalation of liberated respirable fibres associated with areas of soft landscaping only	Human health of end users

2.3 Planning permission

The development was granted planning permission by Lambeth Borough Council in 2021 (planning ref 20/00884/FUL, 13 April 2021). Planning conditions relating to land contamination were included within Planning Condition 29 of the decision notice, and read as follows:

29A. No demolition or development shall commence until the following components of a scheme to deal with the risks associated with contamination of the site have been submitted to and approved in writing by the local planning authority:

- i) A site investigation scheme, based on previous findings to provide information for a detailed assessment of risk to all receptors that may be affected, including those off-site.*
- ii) The site investigation results and detailed risk assessment from a).*
- iii) An options appraisal and remediation strategy giving full details of the remediation measures required and how they are undertaken.*
- iv) A verification plan providing details of the data that will be collected in order to demonstrate that works set out in iii) are complete and identifying any requirements for long-term monitoring of pollutant linkages, maintenance and arrangements for contingency option.*

The development shall thereafter be implemented in accordance with details and measures approved.

29B Prior to occupation of any part of the development, a verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing by the local planning authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a "long-term monitoring and maintenance

plan") for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the local planning authority.

29C If, during development, contamination not previously identified is found to be present at the site then no further development shall be carried out until the developer has submitted and obtained written approval from the local planning authority for, an amendment to the remediation strategy detailing how this unsuspected contamination will be dealt with.

The requirements of Planning Condition 29-A have been satisfied by the previous reports for the development. This verification report has been prepared to satisfy the 'verification report' requirements of Planning Condition 29-B and the unexpected contamination requirements in Condition 29-C

Table 2-4 provides a matrix summarising how planning condition 29, the LCRM process and the existing land contamination reports align with each other.

Table 2-4 LCRM, planning conditions and previous reports matrix

Planning condition	LCRM stage	LCRM Report	Report date
29-A Part (i) and (ii)	Preliminary risk assessment	Geotechnical & Geoenvironmental Desk Study	Sep-2015
	Quantitative risk assessment	Ground Contamination Assessment Report	Aug-2020
29-A Part (iii) and (iv)	Remediation options appraisal	Remediation strategy	Jun-2023
	Remediation strategy		
	Remediation verification plan		
29-B	Remediation verification	This report	Nov-2023
29-C	Unexpected contamination		

2.3.1 Planning condition 29 C - unexpected contamination

The planning conditions 29 C states: *If, during development, contamination not previously identified is found to be present at the site then no further development shall be carried out until the developer has submitted and obtained written approval from the Local Planning Authority for, an amendment to the remediation strategy detailing how this unsuspected contamination will be dealt with.*

The contractors (PC Cooney) have confirmed (via email) that unexpected contamination was not encountered during construction including within the landscaped areas subject to remediation.

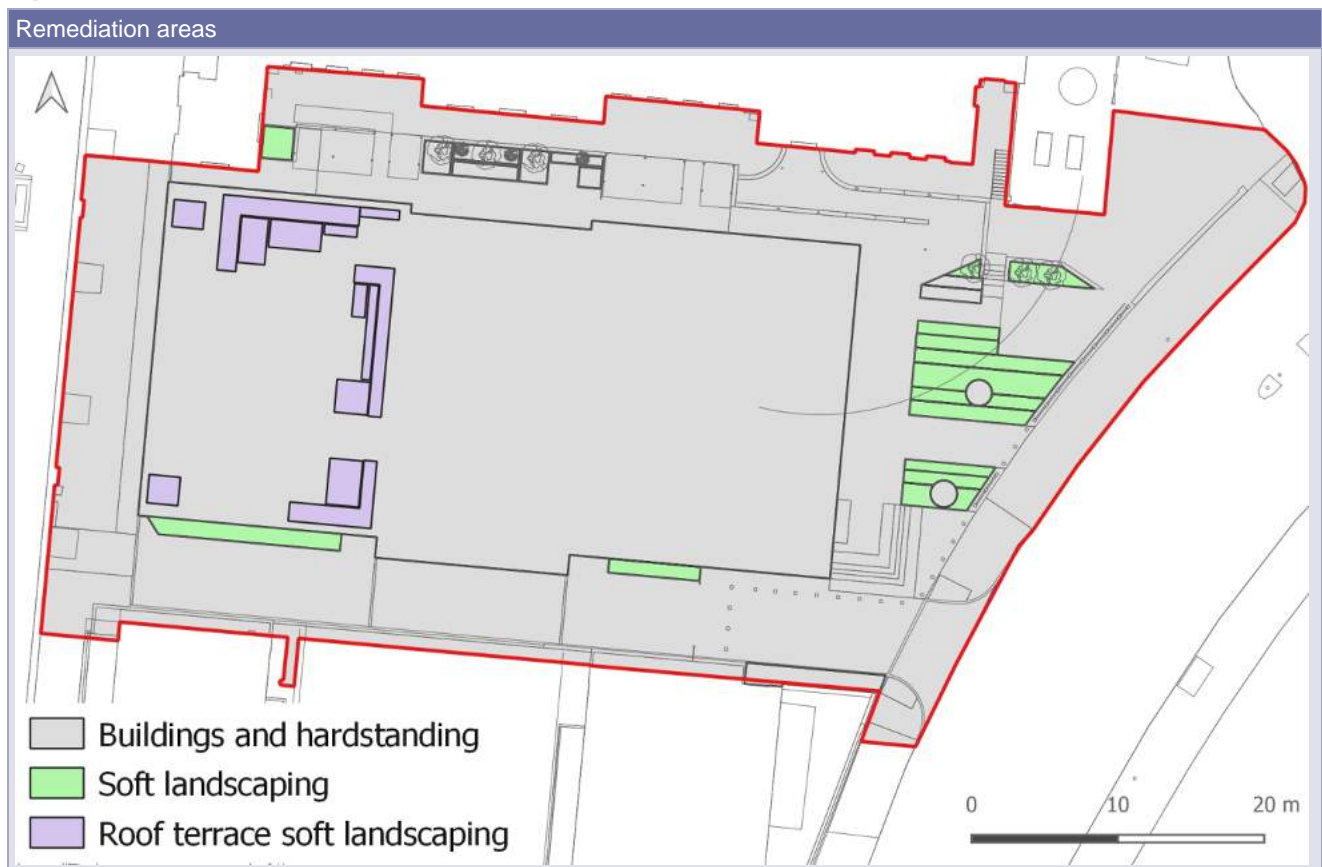
3 Remediation requirements

3.1 Introduction and remediation areas

The remediation strategy identified that remediation would only be required in the proposed soft landscaping areas of the development to protect the development end-users from the underlying Made Ground onsite. The proposed development has been zoned into areas that do and do not require remediation as follows:

- **Remediation areas:** areas of proposed softcover/landscaping underlain by Made Ground that will require remediation (green, Figure 3-1).
- **Hardstanding areas:** building footprints and areas of hardstanding (grey, Figure 3-1) including roads, footways, cycleways, where remediation is not required as the hard standing in these areas will break potential contamination exposure pathways.
- **Terraced gardens:** The development includes rooftop terrace gardens (Level 1 and Level 3 terrace gardens). The soft landscaping areas within the terrace gardens are shown in purple in Figure 3-1. Remediation will not be required in these areas (as they are underlain by the building and not Made Ground). The imported soils used in these areas will, however, need to meet the required human health soil acceptability criteria (SAC) (and cannot present a new contamination risk) and thus are included in this verification report.

Figure 3-1 Remediation areas plan



3.2 Composite cover system

The placement of ‘clean’ cover systems across the soft-landscaped areas was selected as the preferred remediation solution to break the contamination pathways for the linkages summarised in Table 2-3. Remediation cover systems can comprise (1) a suitable thickness of cover soils, or (2) a composite system including geotextiles and cover soils; with imported cover soils needing to meet ‘suitable for use’ criteria.

Due to the potential presence of residual ‘asbestos in soils’ (within the Made Ground), a composite cover system was selected. The composite cover system includes two key elements, in order of placement:

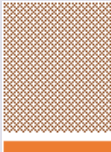
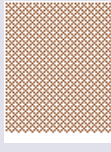
- a geotextile directly laid over the existing Made Ground onsite; and
- the placement of a suitable thickness of ‘clean’ cover soils above the geotextile.

Geotextile: The non-woven geotextile is predominantly intended to prevent soil mixing and to act as a physical marker to prevent future damage during routine landscape maintenance.

Cover soils - thickness: the cover soil thickness needs to suitably protect the underlying geotextile from weather damage and from damage during daily use of the landscaping areas. A minimum soil thickness of 300mm will be required to protect the underlying geotextile, while this is typically suitable for areas of grass/turf cover, landscaping design often require a greater total thickness of topsoil and subsoil; on this basis the remediation strategy assumed a likely soil thickness of circa 600mm. Where the landscape design requires a greater thickness of soils e.g. around tree pits the geotextile placement may need to be adjusted/deepened to maintain a continuous presence of the composite cover system across the remediation area. The required soil thickness of cover soils can be achieved by either raising the ground levels on site, or by excavating and removing a thickness of Made Ground, or by a combination of the two. Since the remediation strategy was produced in June 2023 Pell Frischmann have been advised by the Client that the landscaping design in some areas may only require a soil thickness of 300mm.

Cover soils – geochemistry: Soil acceptability criteria (SAC) for the imported cover soils were specified in Appendix B of the remediation strategy. The SAC represent maximum geochemical threshold concentrations that should not be exceeded within the imported cover soils. Although remediation is not required for the terraced gardens the imported soils for these areas will also need to meet human health ‘soil acceptability criteria’ to ensure that the soils are ‘suitable for use’. Table 3-1 summarises the differences between the composite cover system and the terrace gardens landscaping that are included in this verification report.

Table 3-1 Composite cover system and terrace gardens

Areas	Soft landscaping areas (ground level)		Terraced Gardens	
Cover soil thickness	300 to 600mm		As required by landscape design	
Geotextile	Yes		No	

Visual/olfactory inspection of the imported topsoil and subsoil was also recommended to inspect for any of the following:

- Evidence of petroleum hydrocarbon contamination
- Asbestos fibres/ asbestos containing materials
- Significant quantities of putrescible materials (including wood or paper)
- Fragments of glass, bricks, concrete, wire or other anthropogenic matter

The remediation strategy advised that material containing any of the above components would not be suitable and should not be accepted onto site.

4 Verification

4.1 Introduction

The process of remediation verification is intended to provide a record of the remediation activities as evidence that the remediation has been successful and that consequently the areas subject to remediation can be considered 'suitable for use'. Pell Frischmann's verification scope of work for the remediation cover system included the following:

- Collating client supplied records relating to the geotextile and imported soils,
- Undertaking verification site inspections to confirm the presence of the underlying geotextile layer, record the thickness of placed cover soils and collect soil samples from the cover soils,
- Scheduling geochemical laboratory analysis for the soil samples and assessing the results against the remediation soil acceptability criteria, and
- Producing a verification report following the completion of the remediation works.

The Client was responsible for undertaking all remedial measures, including sourcing and placing the geotextile separator layer and the cover soils. Pell Frischmann visited the site to undertake verification inspections after the geotextile and cover soils had been placed onsite. Key parties involved in the remediation process for the site are summarised in Table 4-1.

Table 4-1 Key parties

Role	Organisation
Local planning authority	Lambeth Borough Council
The Client	Morgan Sindall
Landscape contractor	PC Cooney
Remediation verification	Pell Frischmann

4.2 Geotextile type and placement

The datasheet for the geotextile used onsite is presented in Appendix A. A non-woven geotextile was specified in the remediation strategy and a woven geotextile has been deployed onsite, however the geotextile used meets the tensile strength requirements so can be considered acceptable. Figure 4-1 includes a selection of photographs taken by the contractor during construction confirming the placement of the geotextile onsite.

Figure 4-1 Geotextile photographs



Geotextile placement



4.3 Verification inspection

A verification site visit was undertaken by a Pell Frischmann geoenvironmental consultant on 3 October 2023. The visit included overseeing the formation of a series of verification pits (hand excavated by the contractor) across the soft landscaping areas to confirm the presence of the geotextile separator layer, record the thickness of the placed cover soils and collecting soil samples for geochemical analysis. Verification soil samples were also collected from the terraced gardens (Level 1 and Level 3). The verification pits and soil sample location plan is presented in Figure 4-2. Photographs of selected soft landscaping areas are shown in Figure 4-3 overleaf.

Figure 4-2 Verification location plan

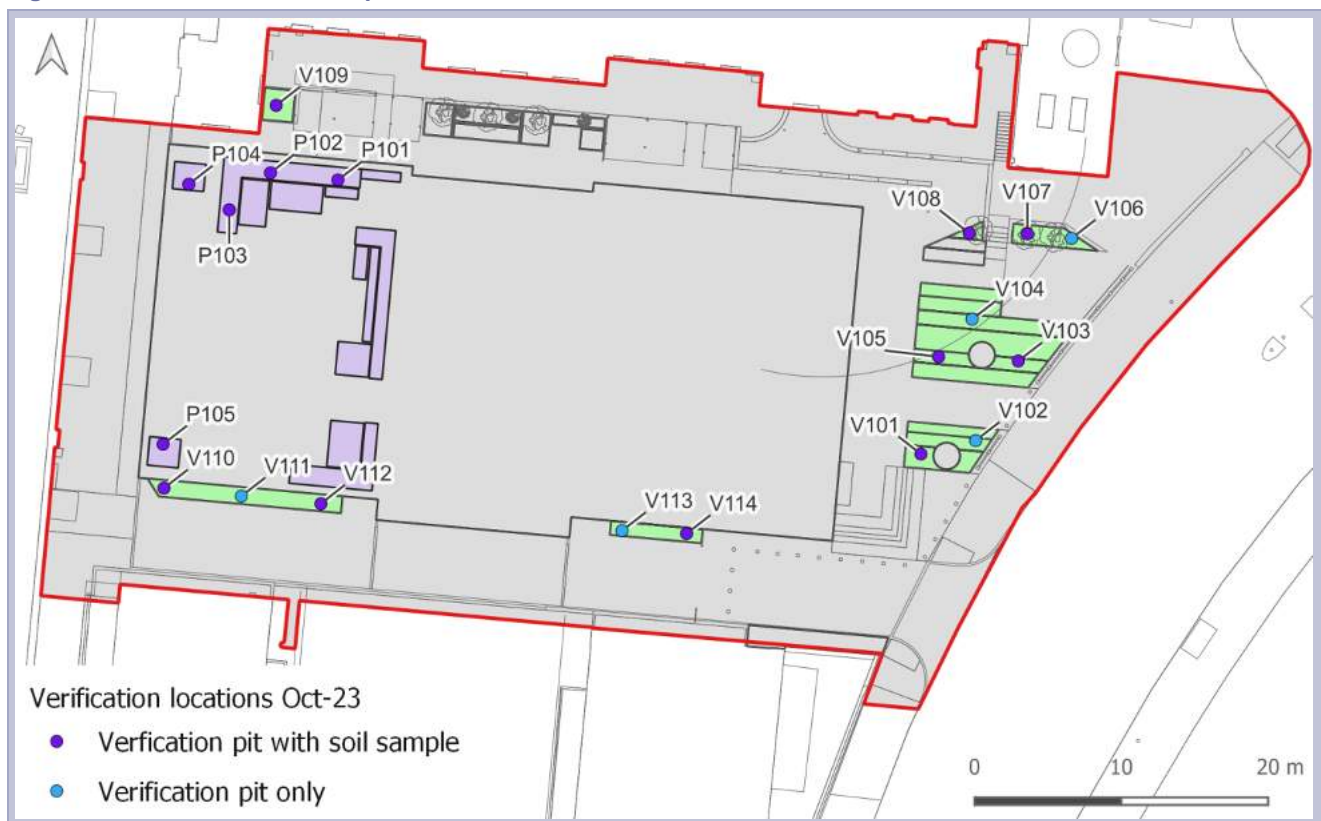


Figure 4-3 Verification site visit - photographs

3 October 2023



Soft landscaping area - ground level (V101- V102)



Soft landscaping area - ground level (V106 -V107)



Soft landscaping area - ground level (V110 – V112)



Rooftop terrace garden on Level 1



Rooftop terrace garden on Level 3



Imported topsoil – rooftop terrace garden

4.4 Verification inspection results

The required geotextile base layer was encountered in all fourteen verification pits and the thickness of the cover soils ranged between 300mm and 860mm (average of 490mm), as summarised in Table 4.2. Given that the development does not include private gardens and that the cover soils are underlain by geotextile, it is considered that the cover soil thicknesses recorded onsite will provide sufficient protection to the future site users and thus are acceptable.

Table 4-2 Verification pits – geotextile and soil thickness results

Verification location	Geotextile present	Measured cover soil thickness
V101	Yes	370mm
V102	Yes	300mm
V103	Yes	300mm
V104	Yes	400mm
V105	Yes	570mm
V106	Yes	720mm
V107	Yes	820mm
V108	Yes	860mm
V109	Yes	320mm
V110	Yes	450mm
V111	Yes	430mm
V112	Yes	500mm
V113	Yes	430mm
V114	Yes	400mm
		Average 490mm

Photographs of the inspection pits showing the thickness of the cover soil and confirming the presence of the geotextile beneath the cover soils are presented in Appendix F.

4.5 Cover soil sources

The cover soils for the soft landscaping areas were sourced from H Sivyer (Transport) Limited and the terrace garden soils were sourced from by Alfa Aggregate Products Limited.

Pre-import geochemical analysis data was provided by each supplier - copies are included in Appendix B. The geochemical analysis results for the pre-import data were within the soil acceptability criteria (SAC), indicating that the soils would be geochemically suitable for use.

Copies of the soil delivery tickets provided by the client are included in Appendix C. The records include the delivery dates, source, delivery address and the type of soil delivered to site.

4.6 Soil acceptability verification

Verification soil samples were collected from each of the remediated landscaped areas and from terrace gardens during the verification site visit. The soil samples were sent to ALS Laboratories (UK) Limited (ALS) a MCERTS accredited laboratory. Copies of the geochemical laboratory Certificates of Analysis are included in Appendix D.

The geochemical laboratory results for each soil sample were assessed against the soil acceptability criteria from the remediation strategy (a copy of the SAC is provided in Appendix D).

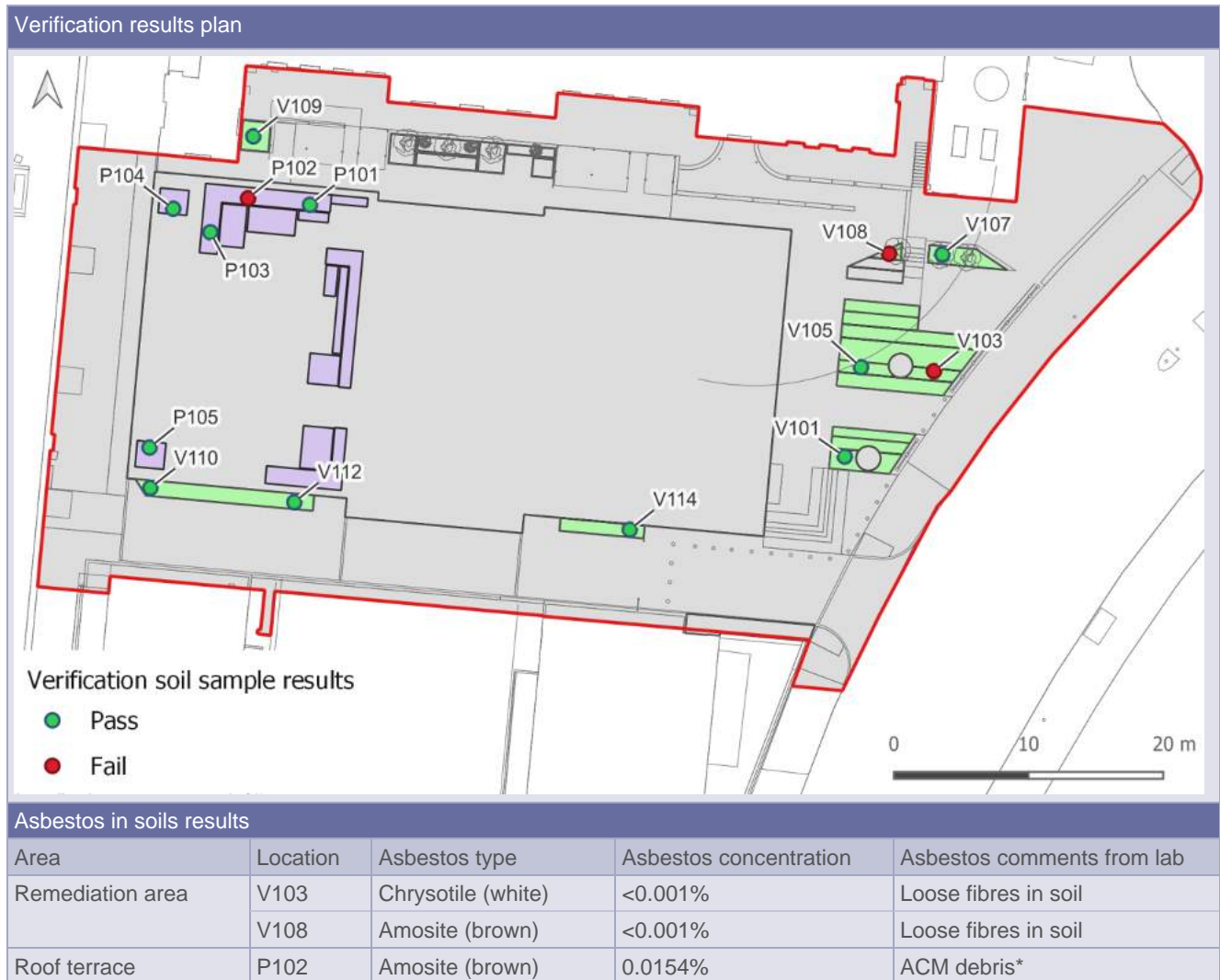
In summary, the results of the screening assessment between the recorded laboratory data and the soil acceptability criteria indicate the following:

- **Remediation areas:** nine soil samples were collected and analysed. Seven soil samples passed the SAC screening assessment (i.e. the recorded concentrations were lower than their respective SAC thresholds). The results for the remaining two soil samples (V103 and V108) passed the SAC except for Asbestos in Soils.
- **Terrace gardens:** five soil samples were collected and analysed. Four soil samples passed the SAC screening assessment. The results for the remaining soil sample (P102) passed the SAC except for Asbestos in Soils (AiS).

The SAC assessment results, including the asbestos types and concentrations, are summarised in Figure 4-4. Soil samples that passed the assessment are shown in green and samples that failed the assessment are shown in red.

Unacceptable soil results: The three soil samples that failed the SAC due to the identification of asbestos in soils were classified as ‘unacceptable’ and these acceptability failures were identified as ‘remediation defects’. The client was notified so that appropriate corrective actions could be determined.

Figure 4-4 Verification results summary



5 Corrective actions

5.1 Introduction

As introduced in Section 4.6, three verification soil samples failed the soil acceptability criteria. Asbestos in soils (AiS) was identified in two out of nine remediation verification soil samples and one out of five terrace garden soil samples. These soil samples were classified as 'unacceptable' and identified as 'remediation defects' that would require correction actions.

Following discussion with the client it was agreed that localised areas of cover soils would be excavated, removed and replaced. The remediation cover soils and the soils placed in the terrace gardens were from different sources and suppliers. The asbestos in soils results for each soil type are notably different (different concentrations and notably different nature based on the laboratory comments). On this basis, the client decided to source and import replacement cover soils from a new source/supplier.

5.2 Sequence of remedial actions

The corrective actions were undertaken in the following sequence:

1. Source and import replacement soil,
2. *Undertake verification soil sampling and analysis (prior to placement) to confirm acceptability,*
3. Excavate and remove the unacceptable soils, and
4. Place the newly imported/replacement soil.

Items 1, 3 and 4 were undertaken and recorded by the client, item 2 (in *italics above*) was undertaken by Pell Frischmann.

5.3 Replacement soil

The replacement cover soils were sourced from Bourne Amenity Limited.

- The pre-import geochemical analysis data for the soil are provided in Appendix B.
- The delivery tickets are included in Appendix C.

5.4 Verification sampling and analysis

A Pell Frischmann geoenvironmental consultant attended the site on 26 October 2023 to inspect and sample the new imported replacement soils. At the time of the visit, the soils were stored in sealed bags stacked on pallets. In total, nine soil samples (V201 to V209) were collected from randomly selected bags and submitted to ALS for laboratory geochemical analysis.

The geochemical laboratory analysis results for all nine soil samples passed the soil acceptance criteria (SAC) (asbestos in soils was 'not detected' in any of the samples screened). The laboratory certificates of analysis are presented in Appendix D. The geochemical data from both rounds of verification sampling and analysis has been combined into a single spreadsheet also presented in Appendix D.

5.5 Remediation areas – corrective actions

Two soft-landscaping areas were identified for corrective actions, the area around verification sample V103 and a smaller landscaping area around verification sample V108. The client has confirmed that the following corrective actions have been undertaken for these areas:

V103 area:

- Approximately 5m³ of soil was removed (down to the geotextile), circa 400mm deep.
- Soil was removed in stages and stored in covered stockpiled within the site compound for collection and offsite disposal.
- The newly imported replacement soils were used to reinstate the cover soils.
- Works were undertaken and completed on 10 November 2023.

V108 area:

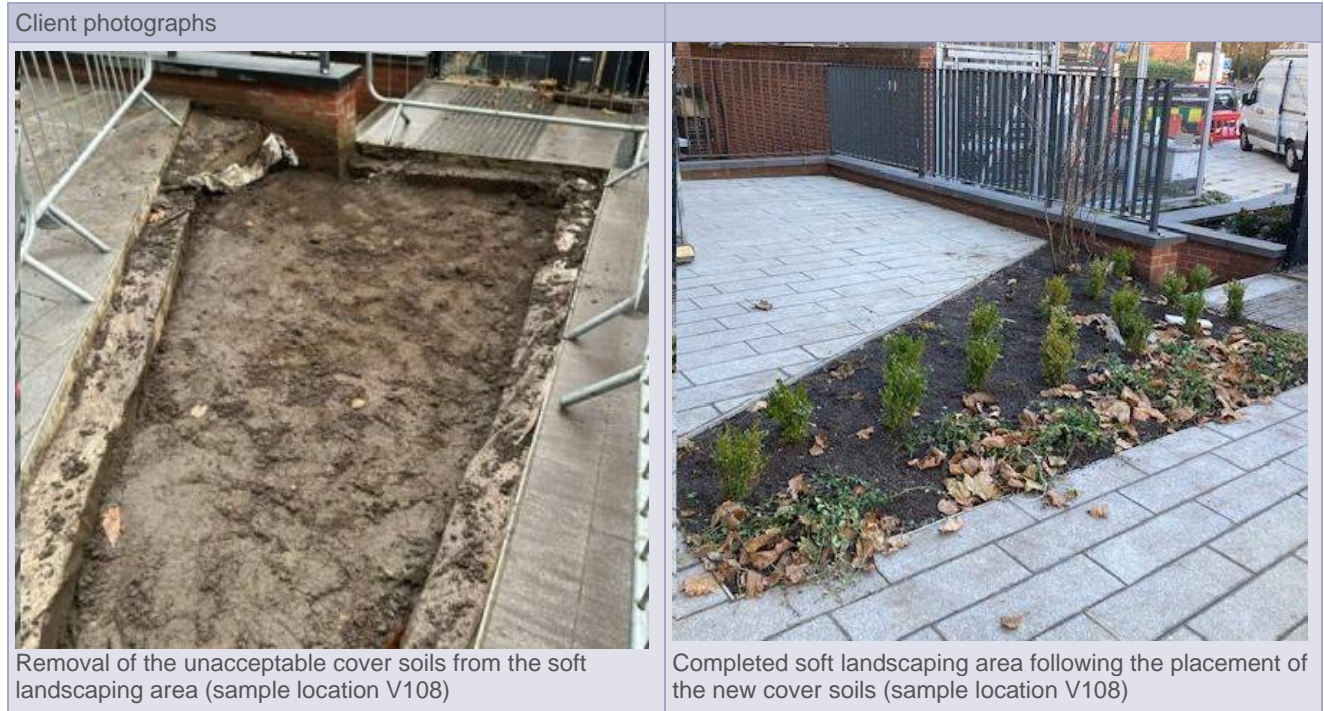
- Approximately 3m³ of soil was removed, circa 400mm deep.
- Soil was removed in stages and stored in covered stockpiled within the site compound for collection and offsite disposal.
- The newly imported replacement soils were used to reinstate the cover soils.
- Works were undertaken and completed on 10 November 2023.

A selection of photographs showing the works being undertaken are presented Figure 5-1. Upon completion, the thickness of the cover soils in both areas was measured by the client and confirmed to meet the minimum required thickness of 300mm.

A plan showing the areas where soils were excavated, removed and replaced is included in the client email dated 15 November 2023 in Appendix E.

Figure 5-1 Remediation areas corrective actions





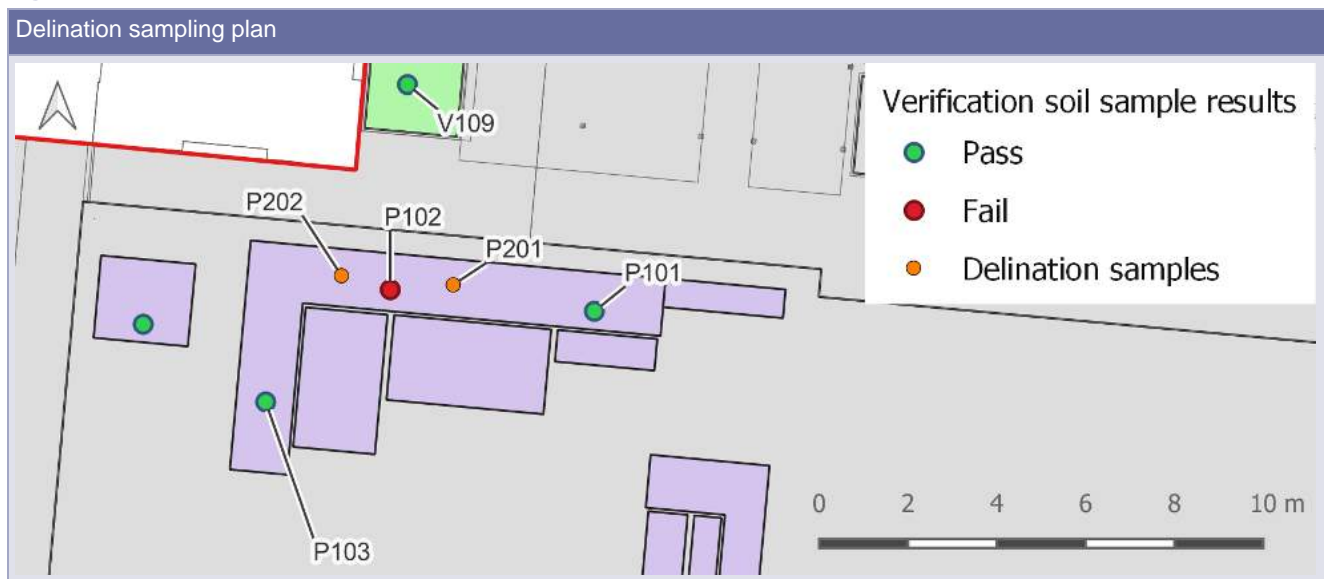
5.6 Terrace gardens

5.6.1 Delineation sampling

During the verification sampling visit (26-Oct-23), soil samples were also obtained from the terrace garden (Level 3) to delineate the potential extent of asbestos in soils in this location. Two soils samples (P201 and P202) were obtained approximately 1m either side of the sample location P102 where asbestos in soils was previously detected, see Figure 5-2.

- The geochemical analysis results for both soil samples pass the soil acceptability criteria (SAC),
- Asbestos in soils was not detected in the delineation samples (P201 and P202).

Figure 5-2 Delineation sample plan



5.6.2 Corrective actions

The delineation results were used to determine the corrective actions for the terrace garden.

- Due to the localised nature of the asbestos in soil, the terrace garden soil was excavated and removed from a 3.5m section centred around location P102.
- Approximately 0.3m³ of substrate and soil was removed down to the drainage board (black plastic crates).
- The soil and substrate were removed in stages and stored in a covered stockpile within the site compound for collection and offsite disposal.
- The newly imported replacement soil was used to restore this area.
- Works were undertaken and completed on 11 November 2023.

Photographs of showing the works being undertaken are included in Figure 5-3, overleaf and a plan showing the areas of 'corrective actions' is included in the client email dated 15 November 2023 included in Appendix E.

Figure 5-3 Corrective actions



5.7 Disposal of unacceptable soil

The unacceptable cover soils that were excavated and removed as part of the corrective actions described above were removed from site.

The waste soils, totalling circa 8m³, were collected and transported by London Rock Supplies Limited to Keltbray's waste transfer facility at Dock Road, Silvertown, London on 15 November 2023. A copy of the waste transfer note is provided in Appendix G.

6 Conclusions

With respect to the land contamination verification process for the London Institute of Healthcare Engineering (LIHE) development:

- A suitable geotextile has been recorded at the base of cover soils in the soft landscaped areas.
- A suitable thickness of cover soil has been placed and recorded above the geotextile.
- The soils are geochemically 'suitable for use' based on comparison between the measured concentrations in the verification soil samples and the remediation Soil Acceptability Criteria.
- Unexpected contamination has not encountered during construction.

Recommendations: The management and maintenance company responsible for the areas of soft landscaping should be made area aware of the following to maintain the remedial measures at the LIHE development:

1. To prevent future damage to the cover system layers - excavation within the soft-landscaped areas must remain above the geotextile and shall be limited to shallow depths less than cover soil thickness in the soft landscaped areas.
2. If the geotextile is encountered, it must remain in place to prevent the clean cover soils from mixing with the underlying 'pre-development' soils/Made Ground and therefore should not be cut, damaged or removed.
3. If works are required at depths greater than the cover system then all layers of the cover system will need to be reinstated to ensure that the cover system is continuous in these areas.

Appendix A Geotextile technical datasheet

FasTrack 609 Orange

FasTrack 609 orange woven geotextile, 1500N, 75g/m² - 4.5m x 100m



DESCRIPTION

FasTrack 609 orange woven geotextile, 1500N, 75g/m² - 4.5m x 100m roll

SPECIFICATION

General information

Stock code	GTSG/FASTRACK/609/O
Range	FasTrack
Third party certified	UKCA CE
Roll sizes	4.5m x 100m
Geotextile product range	FasTrack

Geotextile properties

Material		Polypropylene
Tensile strength (MD)	EN ISO 10319	18kN/m
Tensile strength (CMD)	EN ISO 10319	10kN/m
Elongation at max load (MD)	EN ISO 10319	25%
Elongation at max load (CMD)	EN ISO 10319	25%
Dynamic perforation resistance	EN ISO 13433	19mm
CBR puncture resistance	EN ISO 12236	1500N

Dynamic cone drop	EN ISO 13433	19mm
Water permeability	EN ISO 11058	16L/m ² .s
Characteristic opening size	EN ISO 12956	300µm
Weight	EN ISO 9864	75g/m ²

NOTES

This product is suitable for high visibility and its bright colour alerts excavators of potential dangers.

1. Wrekin Products Ltd is continually seeking to improve our products and therefore reserves the right to alter product specifications without prior notice.
2. It is the responsibility of all users to satisfy themselves the above data is current.
3. Installation details are available on request.



Appendix B Pre-import soil information



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Simon Sivyer
H. Sivyer Transport Ltd
160 Sydenham Road
London
SE26 5JZ

17th March 2023
Our Ref: TOHA/23/7819/2/SS
Your Ref: PO 181962

Dear Sirs

Topsoil Analysis: Trugrow Blends

We have completed the analysis of the soil sample recently submitted, referenced *Sample 2: 65/35 Blend* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes. In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the H. Sivyer Transport Ltd site.

SAMPLE EXAMINATION

The sample was described as a brown (Munsell Colour 10YR 4/3), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure*. The sample was slightly stony and contained a high proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

* This appraisal of soil structure was made from examination of a disturbed sample(s). Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

Tim O'Hare Associates LLP
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www.toha.co.uk



Plate 1: Topsoil 2: 65/35 Blend Sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sandy loam* texture class. However, further detailed particle size analysis revealed the sample to have a high proportion of particles in the *very fine* (0.05-0.15mm) fraction. Topsoils such as this are prone to self-compaction when initially placed in a landscape environment, which can lead to limited drainage and poor aeration, particularly if the soil does not display a well-defined structure. To reduce the risk of self-compaction, we recommend placing this soil to a maximum depth of 300mm, which is in line with BS3882:2015, section A.3.

The stone content of the sample was low and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.3). This pH value would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 µS/cm) given in BS3882:2015 – Table 1.

Organic Matter and Fertility Status

The sample was well supplied with organic matter and all major plant nutrients. The sample contained a level of extractable potassium (1549 mg/l) that exceeded the maximum permissible value given in BS3882:2015 – Table 1 (1500 mg/l).

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to BS3882:2015 - Table 1: Notes 3 and 4, there is a recommendation to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceed their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in BS3882:2015 – Table 1.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).

From the soil examination and subsequent laboratory analysis, the sample was described as an alkaline, non-saline, non-calcareous, slightly stony, fine sandy loam with a weak structure. The sample was well supplied with organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their guideline values.

Based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided:

- the topsoil is placed to a maximum depth of 300mm;
- the soil's physical condition is satisfactory and compaction is avoided.

The topsoil was largely compliant with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil), with the exception of the high elevated potassium level. This is considered a minor non-compliance when reviewed in the context of all the other results and given the intended use of the topsoil.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of BS3882:2015.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Zoe Duffin
MBiol
Graduate Soil Scientist



Aaron Cross
BSc MSc
Soil Scientist

For and on behalf of Tim O'Hare Associates LLP



Client:	H Siver Transport Ltd
Project:	Trugrow Blends
Job:	Topsoil Analysis - BS3882:2015
Date:	23/02/23
Job Ref No:	TOHA/23/7819/2/SS

Sample Reference		Accreditation	
Clay (<0.002mm)	%	UKAS	
Silt (0.002-0.05mm)	%	UKAS	
Very Fine Sand (0.05-0.15mm)	%	UKAS	
Fine Sand (0.15-0.25mm)	%	UKAS	
Medium Sand (0.25-0.50mm)	%	UKAS	
Coarse Sand (0.50-1.0mm)	%	UKAS	
Very Coarse Sand (1.0-2.0mm)	%	UKAS	
Total Sand (0.05-2.0mm)	%	UKAS	
Texture Class (UK Classification)	-	UKAS	
Stones (2-20mm)	% DW	GLP	
Stones (20-50mm)	% DW	GLP	
Stones (>50mm)	% DW	GLP	

Sample 2: 65/35 Blend

14
11
49
9
7
4
6
75
SL
4
0
0

pH Value (1:2.5 water extract)	units	UKAS	
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS	
Exchangeable Sodium Percentage	%	UKAS	
Organic Matter (LOI)	%	UKAS	
Total Nitrogen (Dumas)	%	UKAS	
C : N Ratio	ratio	UKAS	
Extractable Phosphorus	mg/l	UKAS	
Extractable Potassium	mg/l	UKAS	
Extractable Magnesium	mg/l	UKAS	

8.3
1467
3138
4.8
10.0
0.33
17
40
1549
200

Total Arsenic (As)	mg/kg	MCERTS	
Total Cadmium (Cd)	mg/kg	MCERTS	
Total Chromium (Cr)	mg/kg	MCERTS	
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	
Total Copper (Cu)	mg/kg	MCERTS	
Total Lead (Pb)	mg/kg	MCERTS	
Total Mercury (Hg)	mg/kg	MCERTS	
Total Nickel (Ni)	mg/kg	MCERTS	
Total Selenium (Se)	mg/kg	MCERTS	
Total Zinc (Zn)	mg/kg	MCERTS	
Water Soluble Boron (B)	mg/kg	MCERTS	
Total Cyanide (CN)	mg/kg	MCERTS	
Total (mono) Phenols	mg/kg	MCERTS	

9
0.3
22
< 1.8
29
77
< 0.3
15
< 1.0
98
3.5
< 1.0
< 1.0

Naphthalene	mg/kg	MCERTS	
Acenaphthylene	mg/kg	MCERTS	
Acenaphthene	mg/kg	MCERTS	
Fluorene	mg/kg	MCERTS	
Phenanthrene	mg/kg	MCERTS	
Anthracene	mg/kg	MCERTS	
Fluoranthene	mg/kg	MCERTS	
Pyrene	mg/kg	MCERTS	
Benzo(a)anthracene	mg/kg	MCERTS	
Chrysene	mg/kg	MCERTS	
Benzo(b)fluoranthene	mg/kg	MCERTS	
Benzo(k)fluoranthene	mg/kg	MCERTS	
Benzo(a)pyrene	mg/kg	MCERTS	
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	
Dibenzo(a,h)anthracene	mg/kg	MCERTS	
Benzo(g,h,i)perylene	mg/kg	MCERTS	
Total PAHs (sum USEPA16)	mg/kg	MCERTS	

< 0.05
0.23
0.07
0.2
3
0.53
4.5
3.9
2.6
2.2
2.6
1.4
2
0.98
< 0.05
1.1
25.2

Aliphatic TPH >C5 - C6	mg/kg	MCERTS	
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	
Aromatic TPH >C5 - C7	mg/kg	MCERTS	
Aromatic TPH >C7 - C8	mg/kg	MCERTS	
Aromatic TPH >C8 - C10	mg/kg	MCERTS	
Aromatic TPH >C10 - C12	mg/kg	MCERTS	
Aromatic TPH >C12 - C16	mg/kg	MCERTS	
Aromatic TPH >C16 - C21	mg/kg	MCERTS	
Aromatic TPH >C21 - C35	mg/kg	MCERTS	
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	

< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.001
< 0.001
< 0.001
< 1.0
2.5
< 10
12
19

Benzene	mg/kg	MCERTS	
Toluene	mg/kg	MCERTS	
Ethylbenzene	mg/kg	MCERTS	
p & m-xylene	mg/kg	MCERTS	
o-xylene	mg/kg	MCERTS	
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

SL = SANDY LOAM

Visual Examination

The sample was described as a brown (Munsell Colour 10YR 4/3), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure. The sample was slightly stony and contained a high proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Results of analysis should be read in conjunction with the report they were issued with.

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Zoe Duffin
MBiol
Graduate Soil Scientist



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Drew Wetherell
Bourne Amenity Ltd
The Wharf
Rye Road
Newenden
Kent TN18 5QG

25th July 2023
Our Ref: TOHA/23/1018/5/SS
Your Ref: PO 120618

Dear Sirs

Soil Analysis Report: Lightweight Topsoil

We have completed the analysis of the soil sample recently submitted, referenced *Lightweight Topsoil*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the material for use as an intensive lightweight substrate in a rooftop or podium garden environment.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing, waste designation purposes or for any project-specific application, especially after the soil has left the Bourne Amenity Ltd site.

SAMPLE EXAMINATION

The sample was described as a very dark brown (Munsell Colour 10YR 2/2), slightly moist, friable, very slightly calcareous, LOAMY SAND with a single grain structure. The sample was very slightly stony, with the exception of frequent lightweight expanded clay aggregate particles (leca). The sample contained a moderate proportion of organic fines and occasional woody fragments. No deleterious materials, unusual odours, roots or rhizomes of pernicious weeds were observed.

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Plate 1: Lightweight Topsoil Sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- bulk density (oven dry, field capacity, saturated);
- saturated hydraulic conductivity;
- visible contaminants (>2mm);
- pH and electrical conductivity values;
- calcium carbonate;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (Sb, As, B, Ba, Be, Cd, Cr, Cr VI, Cu, Pb, Hg, Ni, Se, V, Zn);
- soluble sulphate, elemental sulphur, acid volatile sulphide;
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. Further detailed particle size analysis found the sample to have a predominance of *medium sand* (0.25-0.50mm) and smaller proportions of *coarse sand* (0.50-1.0mm). This is usually suitable for topsoil in rooftop or podium garden applications as reasonable porosity levels are generally maintained in a consolidated state and the risk of particle interpacking is reduced. The sample should therefore provide adequate drainage and aeration properties for these applications.

With the exception of 'leca' particles, the sample contained a very low proportion of 'stone' sized material (>2mm).

Bulk Density and Saturated Hydraulic Conductivity

The sample displayed a bulk density at Field Capacity of 1.47 Mg/m³, which is reasonably low compared to that of standard topsoil. The suitability of the bulk density result should be confirmed by the project engineer for the recipient site.

The saturated hydraulic conductivity of the sample (18 mm/hour) indicates that the substrate is sufficiently permeable and should demonstrate adequate drainage performance for use in rooftop or podium garden environments. Soils used in these environments need to have satisfactory drainage performance to avoid stagnation (and therefore excess weight) and to enable efficient conveyance of water into the drainage system.

The suitability of the bulk density and the drainage properties should be confirmed by the project engineer.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.2). This pH value would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderately high. Although the growth of many plant species (including amenity turf) are unlikely to be affected by this level of salinity, it is possible that salt sensitive species, including emergent seedlings, could show reduced growth potential.

The electrical conductivity value by CaSO₄ extract (3408 µS/cm) exceeded our maximum recommended value (3300 µS/cm).

Organic Matter and Fertility Status

The sample was well supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

In the absence of site-specific criteria, the concentrations that affect human health have been assessed for *residential with homegrown produce* end-use against the Suitable For Use Levels (S4ULs) presented in the LQM/CIEH S4ULs for Human Health Risk Assessment (2015) and the DEFRA SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that exceed their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded their guideline values.

CONCLUSION

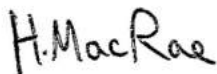
The purpose of the analysis was to determine the suitability of the material for use as an intensive lightweight substrate in a roof garden or podium landscape environment.

From the sample examination and laboratory analysis, the substrate was described as a strongly alkaline, saline, slightly calcareous loamy sand with a single grain structure. The sample was virtually stone-free with the exception of 'leca' particles. Moderate to high reserves of organic matter and major plant nutrients were recorded. Of the potential contaminants determined, none exceeded their respective guideline values.


The topsoil blend represented by this sample is a little rich, indicated by the elevated electrical conductivity result and borderline potassium content. The proportion of soluble salts should reduce in time once the material is wetted by rain or irrigation water. However, it is recommended that the quantity and quality of the compost component used in the blend is reviewed in this instance.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Harriet MacRae
BSc MSc
Graduate Soil Scientist



Matthew Heins
BSc (Hons) MSc SoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Client:	Bourne Amenity Limited
Project:	Lightweight Topsoil
Job:	Physical and Horticultural Properties
Date:	25/07/2023
Job Ref No:	TOHA/23/1018/5/SS

Sample Reference		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.063mm)	%	UKAS
Very Fine Sand (0.05-0.15mm)	%	UKAS
Fine Sand (0.15-0.25mm)	%	UKAS
Medium Sand (0.25-0.50mm)	%	UKAS
Coarse Sand (0.50-1.0mm)	%	UKAS
Very Coarse Sand (1.0-2.0mm)	%	UKAS
Total Sand (0.05-2.0mm)		UKAS
Texture Class (UK Classification)	-	UKAS
Stones (2-20mm)	% DW	UKAS
Stones (20-50mm)	% DW	UKAS
Stones (>50mm)	% DW	UKAS

Lightweight Topsoil

10
2
2
8
40
29
9
88
LS
1
0
0

Saturated Hydraulic Conductivity	mm/hr	A2LA
Bulk Density (when Oven Dried)	Mg/m ³	UKAS
Bulk Density (at Field Capacity)	Mg/m ³	UKAS
Bulk Density (at Saturation)	Mg/m ³	UKAS

18
1.15
1.47
1.46

pH Value (1:2.5 water extract)	units	UKAS
Calcium Carbonate	%	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Exchangeable Sodium Percentage	%	UKAS
Organic Matter (LOI)	%	UKAS
Total Nitrogen (Dumas)	%	UKAS
C : N Ratio	ratio	UKAS
Extractable Phosphorus	mg/l	UKAS
Extractable Potassium	mg/l	UKAS
Extractable Magnesium	mg/l	UKAS

8.2
2
1698
3408
12.3
9.4
0.41
13
101
1436
153

Visible Contaminants: Plastics >2.00mm	%	UKAS
Visible Contaminants: Sharps >2.00mm	%	UKAS

0
0

SL =SANDY LOAM

Visual Examination

The sample was described as a very dark brown (Munsell Colour 10YR 2/2), slightly moist, friable, very slightly calcareous, LOAMY SAND with a single grain structure. The sample was very slightly stony, with the exception of frequent lightweight expanded clay aggregate particles (leca). The sample contained a moderate proportion of organic fines and occasional woody fragments. No deleterious materials, unusual odours, roots or rhizomes of pernicious weeds were observed.

H. MacRae

Harriet MacRae
BSc MSc
Graduate Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with

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Client:	Bourne Amenity Limited
Project:	Lightweight Topsoil
Job:	Chemical Properties
Date:	25/07/2023
Job Ref No:	TOHA/23/1018/5/SS

Sample Reference		Accreditation
Total Antimony (Sb)	mg/kg	MCERTS
Total Arsenic (As)	mg/kg	MCERTS
Total Barium (Ba)	mg/kg	MCERTS
Total Beryllium (Be)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Vanadium (V)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS
Elemental Sulphur (S)	mg/kg	MCERTS

Lightweight Topsoil

< 1.0
18
35
0.39
< 0.2
17
< 1.8
22
23
< 0.3
19
< 1.0
30
96
2.5
< 1.0
< 1.0
240

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benzo(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

< 0.05
< 0.05
< 0.05
< 0.05
0.11
< 0.05
0.76
0.57
0.17
0.2
0.17
0.08
0.11
0.06
< 0.05
0.09
2.3

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 8.0
10
10
< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 10
< 10
< 10

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
p & m-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Asbestos Screen	ND/D	ISO 17025
-----------------	------	-----------

Not-detected

H. MacRae

Harriet MacRae
BSc MSc
Graduate Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with

The contents of this certificate shall not be reproduced without the express written permission of Tim O'Hare Associates LLP.

Bauder Ltd

Substrate testing results

Alfa Aggregates, Roof Garden Substrate

19 July 2023

STRI Research

CONTENTS

Introduction	3
Materials tested	3
Assessments	3
Specification Sheet	4

Introduction

- Company Bauder Ltd submitted a substrate for testing to give information on the physical & chemical characteristics.
- Testing was carried out by STRI's laboratory, Bingley (GPS reference 53.8474 and -1.8579).

Material tested

- One material was submitted for testing:
- Sample Reference: Alfa Aggregates Roof Garden Substrate (STRI ref: A20282-1)

Assessments

- All assessments were carried out according to BS:8616, result values refer only to the substrate sample tested. BS:8616 green roof substrate testing methods have been adapted from FLL testing procedures and therefore results are not directly comparable

Physical Assessments	Particle Size Distribution
Bulk Density when oven dried (g cm ⁻³)	Stones (>8 mm)
Bulk Density at field capacity (g cm ⁻³)	Coarse gravel (8-4 mm)
Calculated bulk density at saturation (g cm ⁻³)	Fine gravel (4-2 mm)
Particle Density (g cm ⁻³)	Very coarse sand (2-1 mm)
Field Capacity (% v/v)	Coarse sand (1.0-0.5 mm)
Total Porosity (%)	Medium sand (0.5-0.25 mm)
Porosity at Field Capacity (%)	Fine sand (0.250-0.125 mm)
Saturated Hydraulic Conductivity (mm min ⁻¹)	Very fine sand (0.125-0.050 mm)
	Silt (0.050-0.002 mm)
	Clay (<0.002 mm)
Chemical Assessments	
Organic Matter (%)	
pH	
EC (mS cm ⁻¹)	
Heavy Metals (Lead, Copper, Zinc, Cadmium & Nickel) (mg l ⁻¹)	
Plant Available Phosphate & Potassium (ml l ⁻¹)	
Total N (%)	
C:N Ratio	

Specification Sheet

Physical and selected chemical properties of Bauder Ltd, Alfa Aggregates Roof Garden substrate. Values refer only to the substrate sample tested.

	Substrate X
Substrate Density	
Bulk Density when oven dried	0.83 g cm ⁻³
Bulk Density at field capacity	1.21 g cm ⁻³
Calculated bulk density at saturation	1.21 g cm ⁻³
Particle Density	1.34 g cm ⁻³
Water & Air	
Field Capacity	37.8 %
Total Porosity	38.3 %
Porosity at Field Capacity	0.5 %
Saturated Hydraulic Conductivity	12.4 mm min ⁻¹
Chemical Assessments	
Organic Matter	4.1 %
pH	6.5
EC	2.39 mS cm ⁻¹
Plant Available Phosphate	24 mg l ⁻¹
Plant Available Potassium	152 mg l ⁻¹
Total Nitrogen	0.05 %
Lead	0.7 mg l ⁻¹
Nickel	0.8 mg l ⁻¹
Copper	2.4 mg l ⁻¹
Cadmium	0.1 mg l ⁻¹
Zinc	1.1 mg l ⁻¹
C:N Ratio	47.16
Particle Size Distribution	% by weight
Stones (>8 mm)	0.1
Coarse gravel (8-4 mm)	12.0
Fine gravel (4-2 mm)	31.3
Very coarse sand (2-1 mm)	17.1
Coarse sand (1.0-0.5 mm)	9.3
Medium sand (0.5-0.25 mm)	6.1
Fine sand (0.250-0.125 mm)	4.9
Very fine sand (0.125-0.050 mm)	5.7
Silt (0.050-0.002 mm)	12.5
Clay (<0.002 mm)	1.0

Signed:

A handwritten signature in black ink that reads "Michael Bann".

(Laboratory Manager)

Date: 19 July 2023

STRI Group
St Ives Estate, Bingley
West Yorkshire BD16 1AU
t +44 (0)1274 565131
e enquiries@strigroup.com
strigroup.com



Appendix C Soil delivery tickets

H SIVYER
(TRANSPORT) LTD.
3 Herringham Road
Charlton
London
SE7 8NJ

Tel: 0208 778 1384
Fax: 0208 659 3185
Email: orders@hsivyer.com
Web:



Proof of Delivery

Ticket No: 1231552/1

Driver: COURTNEY MCKAY

Vehicle Reg: KU68NFD

Job Date: 23/09/23

Customer: LONDON ROCK SUPPLIES LTD

Acc Code: LON017

Order Number: NEIL

Account:

Cheque:

Cash:

Card:

Remarks/Special Instructions:

Date: 23/09/2023 Arrive:06:52 Depart:08:45

Address: P C COONEY
C/O MORGAN SINDALL SITE
ST THOMAS HOSPITAL
LAMBETH PALACE ROAD
LONDON
SE1 7EH

PRODUCTS DELIVERED

QUANTITY	UNIT	PRODUCT
1.00	LOAD	TRU GROW (BS3882)

Chargeable Waiting time: 93mins

The above job has been completed satisfactorily. All materials supplied Conform to the required standards.

Customers ordering vehicles off the public highway do so at their own risk.

Please note waiting time is chargeable after 20 minutes on site

Collection Signature:

Print: courtney

Delivery Signature

Print: cosmit

H SIVYER
(TRANSPORT) LTD.
3 Herringham Road
Charlton
London
SE7 8NJ

Tel: 0208 778 1384
Fax: 0208 659 3185
Email: orders@hsivyer.com
Web:



Proof of Delivery

Ticket No: 1199407/1

Driver: JIMMY SSIMBWA

Vehicle Reg: KN21EKO

Job Date: 18/07/23

Customer: LONDON ROCK SUPPLIES LTD

Acc Code: LON017

Order Number: NEIL

Account:

Cheque:

Cash:

Card:

Remarks/Special Instructions:

Date: 18/07/2023 Arrive:11:52 Depart:12:05

Address: LONDON ROCK
ST THOMAS HOSPITAL
WESTMINSTER BRIDE ROAD
LONDON
SE1 7EH

PRODUCTS DELIVERED

QUANTITY	UNIT	PRODUCT
1.00	LOAD	TRU GROW (BS3882)

Chargeable Waiting time: -mins

The above job has been completed satisfactorily. All materials supplied Conform to the required standards.

Customers ordering vehicles off the public highway do so at their own risk.

Please note waiting time is chargeable after 20 minutes on site

Collection Signature:

Print: Jimmy

Delivery Signature

Print: Valentin

H SIVYER
(TRANSPORT) LTD.
3 Herringham Road
Charlton
London
SE7 8NJ

Tel: 0208 778 1384
Fax: 0208 659 3185
Email: orders@hsivyer.com
Web:



Proof of Delivery

Ticket No: 1196713/1

Driver: JASHANPREET SINGH

Vehicle Reg: KN15MKU

Job Date: 14/07/23

Customer: LONDON ROCK SUPPLIES LTD

Acc Code: LON017

Order Number: NEIL

Account:

Cheque:

Cash:

Card:

Remarks/Special Instructions:

Date: 14/07/2023 Arrive:08:54 Depart:09:05

Address: P C COONEY
C/O MORGAN SINDALL SITE
THE CORE
ST THOMASS HOSPITAL
BRIDGE RD
SE1 7EH

PRODUCTS DELIVERED

QUANTITY	UNIT	PRODUCT
1.00	LOAD	TRU GROW (BS3882)

Chargeable Waiting time: -mins

The above job has been completed satisfactorily. All materials supplied Conform to the required standards.

Customers ordering vehicles off the public highway do so at their own risk.

Please note waiting time is chargeable after 20 minutes on site

Collection Signature:

Print: Steve

Delivery Signature

Print: bogdan

H SIVYER
(TRANSPORT) LTD.
3 Herringham Road
Charlton
London
SE7 8NJ

Tel: 0208 778 1384
Fax: 0208 659 3185
Email: orders@hsivyer.com
Web:



Proof of Delivery

Ticket No: 1199088/1

Driver: JIMIELEE BROWN

Vehicle Reg: KN65AAE

Job Date: 18/07/23

Customer: LONDON ROCK SUPPLIES LTD

Acc Code: LON017

Order Number: NEIL

Account:

Cheque:

Cash:

Card:

Remarks/Special Instructions:

Date: 18/07/2023 Arrive:08:05 Depart:08:26

Address: P C COONEY
C/O MORGAN SINDALL SITE
THE CORE
ST THOMASS HOSPITAL
BRIDGE RD
SE1 7EH

PRODUCTS DELIVERED

QUANTITY	UNIT	PRODUCT
1.00	LOAD	TRU GROW (BS3882)

Chargeable Waiting time: 1mins

The above job has been completed satisfactorily. All materials supplied Conform to the required standards.

Customers ordering vehicles off the public highway do so at their own risk.

Please note waiting time is chargeable after 20 minutes on site

Collection Signature:

Print: now

Delivery Signature


Print: D .Ciocan

 ACTION ROADWAYS LTD	Docket Number: 81492297		Total Pallets: 1
	Order Number: 533038	Request Depot: 058	
	Despatched: 31/07/2023	Collect Depot: 058	Total Weight: 500
	Service: TMTL		
Collected From:	Delivery To:		Delivery Depot:
	Bauder Limited Fenland Flat Roofing LIHE - Kings College St Thomas Hospital Westminster London . 07880186936 / / 01473257671 / SE1 7EH		062

Remarks:
Pre 10.30 RIGID ONLY 0.5x2m² offload required London Institute for Healthcare Engineering .



THE WORDS UNEXAMINED OR UNCHECKED WILL NOT BE ACCEPTED AS A CONDITIONAL SIGNATURE RECEIVED IN GOOD ORDER AND CONDITION

SIGNATURE The signature for this delivery was captured digitally and NOT signed on the original paperwork. The receiver did not sign this document, however this was the signature captured relating to this delivery.		ARRIVAL TIME 09:50	
Customer Signature  X _____ Received in Good Condition - Julian		DATE 01/08/2023	TIME 10:07
		COP N	COP SIGNED N

PRINT NAME Julian	CLAUSE NOTES
---------------------------------	--------------

OVERNIGHT AND ECONOMY DISTRIBUTION OF PALLETISED GOODS THROUGH THE U.K. AND EUROPE. ALL GOODS CARRIED SUBJECT TO R.H.A CONDITIONS. COPIES AVAILABLE UPON REQUEST

DELIVERY NOTE

palletline

AM DELIVERY

DROP:	1
VEHICLE:	FJ66 UMZ
RUN:	1
DRIVER:	DAVE
SYSTEM:	Palletline
DEPOT:	027

CON #:	2005151
REFERENCE:	AA33603

SERVICE:	
DUE:	2023-08-01 12:00:00

COLLECTION ADDRESS
ALFA AGGREGATE PRODUCTS LTD KINGSLEY WORKS KINGSLEY NR CHEADLE STAFFORDSHIRE ST10 2DQ

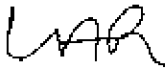
DELIVERY ADDRESS
BAUDER LTD/FENLAND FLAT ROOF LONDON INSTITUTE OF HEALTHCARE LIHE KINGS COLLEGE WESTMINSTER BRIDGE ROAD ST THOMAS HOSPITAL LONDON SE1 7EH

PALLET INFO	
Lifts:	3
Sizes:	FP: 3
Weight:	3,000 Kgs

SPECIAL INSTRUCTIONS
AM RIGID VEHICLE Taillift: Yes Handball: No

BOOKING INFORMATION	
BIN Name:	
BIN Ref:	
BIN Notes:	

COMMENTS

SIGN:	
PRINT:	Lar
DATE:	01/08/2023
TIME:	08:48



45416290

The signature for this delivery was captured digitally and NOT signed on the original paperwork. This receiver did not sign this document, however this was the signature captured relating to this consignment.

All goods carried under RHA conditions of carriage, copies available upon request.

DELIVERY NOTE

palletline

AM DELIVERY

DROP:	1
VEHICLE:	YJ66 VVZ
RUN:	1
DRIVER:	DAVE
SYSTEM:	Palletline
DEPOT:	027

CON #:	2035691
REFERENCE:	AA33999

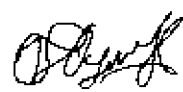
SERVICE:	
DUE:	2023-10-03 12:00:00

COLLECTION ADDRESS	DELIVERY ADDRESS	PALLET INFO
ALFA AGGREGATE PRODUCTS LTD KINGSLEY WORKS KINGSLEY NR CHEADLE STAFFORDSHIRE ST10 2DQ	BAUDER LTD FENLAND FLAT ROOFING LIHE KINGS COLLEGE WESTMINSTER BRIDGE ROAD ST THOMAS HOSPITAL LONDON SE1 7EH	Lifts: 2 FP: 2 Sizes: Weight: 2,000 Kgs

SPECIAL INSTRUCTIONS
AM RIGID VEHICLE
Taillift: Yes Handball: No

BOOKING INFORMATION	
BIN Name:	
BIN Ref:	
BIN Notes:	

COMMENTS


SIGN:	
PRINT:	Julian
DATE:	03/10/2023
TIME:	11:27



45916608

The signature for this delivery was captured digitally and NOT signed on the original paperwork. This receiver did not sign this document, however this was the signature captured relating to this consignment.


All goods carried under RHA conditions of carriage, copies available upon request.

 ACTION ROADWAYS LTD	Docket Number: 82284083		Total Pallets: 2
	Order Number: 543716	Request Depot: 058	
	Despatched: 02/10/2023	Collect Depot: 058	Total Weight: 1500
	Service: AMTL		

Collected From:	Delivery To:	Delivery Depot:
	Bauder Limited Fenland Flat Roofing London Institute for Healthcare Kings College St. Th Westminster Bridge Road London . 07880186936 / / 01473257671 / SE1 7EH	062


Remarks: AM RIGID ONLY 0.5x2m ² offload Req .	
---	--

THE WORDS UNEXAMINED OR UNCHECKED WILL NOT BE ACCEPTED AS A CONDITIONAL SIGNATURE RECEIVED IN GOOD ORDER AND CONDITION


SIGNATURE		ARRIVAL TIME	
The signature for this delivery was captured digitally and NOT signed on the original paperwork. The receiver did not sign this document, however this was the signature captured relating to this delivery.		10:50	
Customer Signature  X _____ Received in Good Condition - David		DATE	TIME
		03/10/2023	10:51
		COP	COP SIGNED
		N	N

PRINT NAME	CLAUSE NOTES
David	


OVERNIGHT AND ECONOMY DISTRIBUTION OF PALLETISED GOODS THROUGH THE U.K. AND EUROPE. ALL GOODS CARRIED SUBJECT TO R.H.A CONDITIONS, COPIES AVAILABLE UPON REQUEST

 ACTION ROADWAYS LTD	Docket Number: 82377086		Total Pallets: 1
	Order Number: 544881	Request Depot: 058	
	Despatched: 09/10/2023	Collect Depot: 058	Total Weight: 250
	Service: AMTL		

Collected From:	Delivery To:	Delivery Depot:
	Bauder Limited Fenland Flat Roofing LIHE King College Westminster Bridge Road St. Thomas's Hospital London . 07880186936 / / 01473257671 / SE1 7EH	062

Remarks: AM RIGID ONLY 0.5x2m ² Please email vehicle registration number and haulier name to Dave to pass t .	
---	--

THE WORDS UNEXAMINED OR UNCHECKED WILL NOT BE ACCEPTED AS A CONDITIONAL SIGNATURE RECEIVED IN GOOD ORDER AND CONDITION

SIGNATURE		ARRIVAL TIME	
The signature for this delivery was captured digitally and NOT signed on the original paperwork. The receiver did not sign this document, however this was the signature captured relating to this delivery.		10:57	
Customer Signature  X _____ Received in Good Condition - David	DATE	TIME	
	10/10/2023	11:00	
	COP	COP SIGNED	
	N	N	

PRINT NAME	CLAUSE NOTES
David	

OVERNIGHT AND ECONOMY DISTRIBUTION OF PALLETISED GOODS THROUGH THE U.K. AND EUROPE. ALL GOODS CARRIED SUBJECT TO R.H.A CONDITIONS, COPIES AVAILABLE UPON REQUEST



438435. Serial No: 38716

Date: 02/10/2023	Delivery Address:		
Customer: BOURNE	SKIDMORES OF HERTFORD		
Customer Ref: 123593	ST. THOMAS HOSPITAL		
Collection Address: YARD	MOREAN SINALL		
	LAMBETH PLACE ROAD		
	SE 1 7EH		
Vehicle Reg.No:	Delivery Instructions:		
Drivers Signature:	KYLE - 07967 144079		
Print Name:	Crossrail Delivery	Y	N
	if Y, ensure vehicle is correctly equipped with all necessary equipment		

Description of Goods: 360 polybags intensive Topsoil

Hazards

If Risk acceptable, tick each box, if uncertain contact office for further instruction

Delivery Site Access/Egress		Lone Working	
Ground Conditions		Overhead Obstruction	
Exclusion Zone		Site Assistance	
D/Bar Vehicle/Trailer dropped (Y/N)		Other	

Drawbar Trailer Drop

Trailer Required uncoupling to gain access to site (to be signed by site representative)

Signature:	Print Name:
------------	-------------

Waiting Time

Time on site:	Time off site:	Total time on site:
Signature:	Print Name:	

Received in Good Condition

Customer Signature:	Print Name:	Date:
---------------------	-------------	-------

Disclaimer

Any discrepancies should be notified within 24hrs of delivery. It is hereby understood and agreed that Foley & Miles Ltd. shall not be held liable for any damage to the Customer's property or ground surface, during the delivery of goods onto the Customer's property by request, as a result of the ground surface being insufficient to withstand the weight of the delivery vehicle and/ or load. Or any damage caused during unloading under instructions given by the customer where advice has been given by the company's agent as to the potential risk.

Customer Signature: Date:

Date:	02/10/2023	Delivery Address:		
Customer:	BOURNE	SKIDMORES OF HERTFORD		
Customer Ref:	123593	ST. THOMAS HOSPITAL		
Collection Address:	YARD	MOREAN SINALL		
		LAMBETH PLACE ROAD		
		SE 1 7EH		
Vehicle Reg.No:		Delivery Instructions:		
Drivers Signature:		KYLE - 07967 144079		
Print Name:		Crossrail Delivery	Y	N
		if Y, ensure vehicle is correctly equipped with all necessary equipment		

Description of Goods:	360 polybags intensive Topsoil
-----------------------	--------------------------------

Hazards

If Risk acceptable, tick each box, if uncertain contact office for further instruction

Delivery Site Access/Egress		Lone Working	
Ground Conditions		Overhead Obstruction	
Exclusion Zone		Site Assistance	
D/Bar Vehicle/Trailer dropped (Y/N)		Other	

Drawbar Trailer Drop

Trailer Required uncoupling to gain access to site (to be signed by site representative)

Signature:	Print Name:
------------	-------------

Waiting Time

Time on site:	Time off site:	Total time on site:
Signature:	Print Name:	

Received in Good Condition

Customer Signature:	Print Name:	Date:
---------------------	-------------	-------

Disclaimer

Any discrepancies should be notified within 24hrs of delivery. It is hereby understood and agreed that Foley & Miles Ltd. shall not be held liable for any damage to the Customer's property or ground surface, during the delivery of goods onto the Customer's property by request, as a result of the ground surface being insufficient to withstand the weight of the delivery vehicle and/or load. Or any damage caused during unloading under instructions given by the customer where advice has been given by the company's agent as to the potential risk.

Customer Signature: Date:

Appendix D Verification geochemical results

LHE Remediation verification Soil Acceptability Criteria Screening	Strata	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 1	Topsoil 2	Topsoil 2	Topsoil 2	Topsoil 2	Topsoil 2	Topsoil 2	Topsoil 2	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	Topsoil 3	
	Location rpt	V101	V103	V105	V107	V108	V109	V110	V112	V114	P101	P102	P103	P104	P105	P201	P202	V201	V202	V203	V204	V205	V206	V207	V208	V209			
	Depth (mbgl)	0.2	0.1	0.2	0.3	0.1	0.05	0.2	0.1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sampled Date	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	4/10/23	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20	27/10/20



Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Pell Frischmann
Burrator House
Peninsula Park
Rydon Lane
Exeter
Devon
EX2 7NT

Attention: Samara Hyde

CERTIFICATE OF ANALYSIS

Date of report Generation: 13 October 2023
Customer: Pell Frischmann
Sample Delivery Group (SDG): 231005-37
Your Reference: 104920
Location: London Institute of Healthcare Engineering
Report No: 707362
Order Number:

We received 17 samples on Thursday October 05, 2023 and 14 of these samples were scheduled for analysis which was completed on Thursday October 12, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager



1291



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
28730481	P101	ES1	0.00 - 0.00	04/10/2023
28730496	P102	ES1	0.00 - 0.00	04/10/2023
28730511	P103	ES1	0.00 - 0.00	04/10/2023
28730523	P104	ES1	0.00 - 0.00	04/10/2023
28730530	P105	ES1	0.00 - 0.00	04/10/2023
28730549	V101	ES1	0.20	04/10/2023
28730541	V102	ES1	0.10	04/10/2023
28730452	V103	ES1	0.10	03/10/2023
28730564	V104	ES1	0.05	03/10/2023
28730578	V105	ES1	0.20	03/10/2023
28730600	V107	ES1	0.30	03/10/2023
28730620	V108	ES1	0.10	03/10/2023
28730638	V109	ES1	0.05	03/10/2023
28730655	V110	ES1	0.20	03/10/2023
28730671	V112	ES1	0.10	03/10/2023
28730687	V113	ES1	0.05	03/10/2023
28730465	V114	ES1	0.20	04/10/2023

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water
- Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Results Legend	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	28730481	28730496	28730511	28730523	28730530	28730549	28730452	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE215)	S
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Asbestos Quantification - Full	All	NDPs: 0 Tests: 3		X							X	
Coronene	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
EPH CWG GC (S)	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 14		X	X	X	X	X	X	X	X	X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Loss on Ignition in soils	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Metals in solid samples by OES	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
PAH by GCMS	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Phenols by HPLC (S)	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X
TPH CWG GC (S)	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water
- Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Results Legend	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type		
		28730481	28730496	28730511	28730523	28730530	28730549	28730452	250g Amber Jar (ALE210)	1kg TUB with Handle	S	S	S
	P101	P102	P103	P104	P105	V101	V103	0.00 - 0.00	250g Amber Jar (ALE210)	1kg TUB with Handle	S	S	S
	ES1	ES1	ES1	ES1	ES1	ES1	ES1	0.00 - 0.00	250g Amber Jar (ALE210)	1kg TUB with Handle	S	S	S
	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.20	0.10	250g Amber Jar (ALE210)	1kg TUB with Handle	S	S	S	
	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	1kg TUB with Handle	S	S	S	
	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	60g VOC (ALE215)	1kg TUB with Handle	S	S	S	
	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	1kg TUB with Handle	S	S	S	
	S	S	S	S	S	S	S	S	S	S	S	S	
VOC MS (S)	All	NDPs: 0 Tests: 14											
		X	X	X	X	X	X	X	X	X	X	X	

28730465	V114	ES1	0.20	1kg TUB with Handle 60g VOC (ALE215)	S			
28730671	V112	ES1	0.10	250g Amber Jar (ALE210)	S	X		
				1kg TUB with Handle	S			
28730655	V110	ES1	0.20	60g VOC (ALE215)	S	X		
				250g Amber Jar (ALE210)	S			
28730638	V109	ES1	0.05	1kg TUB with Handle	S			
				60g VOC (ALE215)	S	X		
28730620	V108	ES1	0.10	250g Amber Jar (ALE210)	S			
				1kg TUB with Handle	S			
				60g VOC (ALE215)	S	X		
28730600	V107	ES1	0.30	250g Amber Jar (ALE210)	S			
				1kg TUB with Handle	S			
				60g VOC (ALE215)	S	X		
28730578	V105	ES1	0.20	250g Amber Jar (ALE210)	S			
				1kg TUB with Handle	S			
				60g VOC (ALE215)	S	X		



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Superseded Report:

Results Legend	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
<p>X Test</p> <p>N No Determination Possible</p> <p>Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other</p>	28730465	V114	ES1	0.20	250g Amber Jar (ALE210) 60g VOC (ALE215)	S S
Coronene	All		NDPs: 0 Tests: 14	X		
EPH CWG GC (S)	All		NDPs: 0 Tests: 14	X		
GRO by GC-FID (S)	All		NDPs: 0 Tests: 14		X	
Hexavalent Chromium (s)	All		NDPs: 0 Tests: 14	X		
Loss on Ignition in soils	All		NDPs: 0 Tests: 14	X		
Metals in solid samples by OES	All		NDPs: 0 Tests: 14	X		
PAH 16 & 17 Calc	All		NDPs: 0 Tests: 14	X		
PAH by GCMS	All		NDPs: 0 Tests: 14	X		
pH	All		NDPs: 0 Tests: 14	X		
Phenols by HPLC (S)	All		NDPs: 0 Tests: 14	X		
Sample description	All		NDPs: 0 Tests: 14	X		
Total Organic Carbon	All		NDPs: 0 Tests: 14	X		
TPH CWG GC (S)	All		NDPs: 0 Tests: 14	X		
VOC MS (S)	All		NDPs: 0 Tests: 14			X



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Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
28730481	P101	0.00 - 0.00	Dark Brown	Sand	Stones	Vegetation
28730496	P102	0.00 - 0.00	Dark Brown	Sand	Stones	Vegetation
28730511	P103	0.00 - 0.00	Dark Brown	Sand	Stones	Vegetation
28730523	P104	0.00 - 0.00	Dark Brown	Sand	Stones	Vegetation
28730530	P105	0.00 - 0.00	Dark Brown	Sand	Stones	None
28730549	V101	0.20	Dark Brown	Sandy Loam	Vegetation	Stones
28730452	V103	0.10	Dark Brown	Loamy Sand	Vegetation	Tile/Insulation Board
28730578	V105	0.20	Dark Brown	Sandy Loam	Stones	None
28730600	V107	0.30	Dark Brown	Loamy Sand	Stones	Vegetation
28730620	V108	0.10	Dark Brown	Sandy Loam	Stones	None
28730638	V109	0.05	Dark Brown	Sandy Loam	Stones	Vegetation
28730655	V110	0.20	Dark Brown	Sandy Loam	Stones	Vegetation
28730671	V112	0.10	Dark Brown	Sandy Loam	Stones	Vegetation
28730465	V114	0.20	Dark Brown	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend		Customer Sample Ref.	P101	P102	P103	P104	P105	V101	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Soil/Solid (S)	0.00 - 0.00 Soil/Solid (S)	0.00 - 0.00 Soil/Solid (S)	0.00 - 0.00 Soil/Solid (S)	0.00 - 0.00 Soil/Solid (S)	0.20 Soil/Solid (S)	
M	mCERTS accredited.		04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023
aq	Aqueous / settled sample.		00:00	00:00	00:00	00:00	00:00	00:00	00:00
diss,filtr	Dissolved / filtered sample.		05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
tot.unfilt	Total / unfiltered sample.		231005-37	231005-37	231005-37	231005-37	231005-37	231005-37	231005-37
*	Subcontracted - refer to subcontractor report for accreditation status.		28730481	28730496	28730511	28730523	28730530	28730549	28730549
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		ES1	ES1	ES1	ES1	ES1	ES1	ES1
(F)	Trigger breach confirmed								
1-4456	Sample deviation (see appendix)								
Component	LOD/Units		Method						
Moisture Content Ratio (% of as received sample)	%	PM024	5.5	14	16	19	22	14	
Loss on ignition	<0.7 %	TM018	5.8	4.13	4.28	4.02	3.78	7.03	
Phenol	<0.01 mg/kg	TM062 (S)	0.0952	<0.01	<0.01	<0.01	<0.01	<0.01	
Cresols	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Xylenols	<0.015 mg/kg	TM062 (S)	0.0635	0.0702	0.0595	0.0372	0.064	<0.015	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	0.159	0.0702	0.0595	<0.035	0.064	<0.035	
Organic Carbon, Total	<0.2 %	TM132	1.1	1.73	2.65	1.59	1.46	3.51	
pH	1 pH Units	TM133	7.97	8.59	8.69	8.6	8.47	8.06	
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	
Antimony	<0.6 mg/kg	TM181	<0.6	<0.6	1.08	<0.6	<0.6	1.79	
Arsenic	<0.6 mg/kg	TM181	5.53	10.2	12.6	9.41	8.64	8.22	
Barium	<0.6 mg/kg	TM181	117	135	168	138	134	63.4	
Cadmium	<0.02 mg/kg	TM181	0.0893	0.182	0.417	0.0952	0.0613	0.105	
Chromium	<0.9 mg/kg	TM181	10.6	18.3	28.4	22.4	19.5	14.4	
Copper	<1.4 mg/kg	TM181	17.6	41.7	44.2	40.6	38.7	22.8	
Lead	<0.7 mg/kg	TM181	8.35	9.71	17	11.1	9.3	69	
Mercury	<0.1 mg/kg	TM181	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Molybdenum	<0.1 mg/kg	TM181	1.08	2.29	2.69	2.45	2.76	0.543	
Nickel	<0.2 mg/kg	TM181	13.9	16.8	19.7	24.7	18	10	
Selenium	<1 mg/kg	TM181	<1	<1	<1	<1	<1	<1	
Vanadium	<0.2 mg/kg	TM181	23.9	30.1	61.8	32.8	29.4	29.1	
Zinc	<1.9 mg/kg	TM181	71.4	148	263	154	129	95.8	
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304		0.0154					
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304		<0.001					
Additional Asbestos Components (Using TM048)		TM304		None					
Analysts Comments		TM304		N/A					
Asbestos Quantification - Total - %	<0.001 %	TM304		0.0154					
PAH, Total Detected USEPA 16 + Coronene	<0.318 mg/kg	TM410	<0.318	0.369	0.42	0.507	<0.318	4.22	
Coronene	<0.2 mg/kg	TM410	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend		Customer Sample Ref.	V103	V105	V107	V108	V109	V110
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730452 ES1	0.20 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730578 ES1	0.30 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730600 ES1	0.10 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730620 ES1	0.05 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730638 ES1	0.20 Soil/Solid (S) 03/10/2023 00:00 05/10/2023 231005-37 28730655 ES1
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss,filtr	Dissolved / filtered sample.							
tot.unfiltr	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-456@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Moisture Content Ratio (% of as received sample)	%	PM024	20	17	18	12	13	15
Loss on ignition	<0.7 %	TM018	7.4 M	6.83 M	7.19 M	5.59 M	7.21 M	6.58 M
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	0.0117 M
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 M	<0.035 M	<0.035 M	<0.035 M	<0.035 M	<0.035 M
Organic Carbon, Total	<0.2 %	TM132	2.86 M	2.77 M	2.75 M	2.79 M	3.35 M	2.84 M
pH	1 pH Units	TM133	8.55 M	8.48 M	8.77 M	8.65 M	8.15 M	8.1 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 M	<0.6 M	<0.6 M	<0.6 M	<0.6 M	<0.6 M
Antimony	<0.6 mg/kg	TM181	1.43 #	1.01 #	0.822 #	0.986 #	1.7 #	0.732 #
Arsenic	<0.6 mg/kg	TM181	8.69 M	7.46 M	7.88 M	9.23 M	7.39 M	7.91 M
Barium	<0.6 mg/kg	TM181	65.3 #	54.8 #	65 #	60.6 #	77.7 #	57.3 #
Cadmium	<0.02 mg/kg	TM181	<0.02 M	0.0292 M	0.0282 M	0.826 M	0.0709 M	0.0706 M
Chromium	<0.9 mg/kg	TM181	27.2 M	19.2 M	17.3 M	12.4 M	11.8 M	15.4 M
Copper	<1.4 mg/kg	TM181	30.6 M	21.1 M	23.8 M	29.8 M	25.9 M	29.9 M
Lead	<0.7 mg/kg	TM181	57.2 M	55.3 M	48 M	44.7 M	109 M	79.3 M
Mercury	<0.1 mg/kg	TM181	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	0.108 M
Molybdenum	<0.1 mg/kg	TM181	1.07 #	0.394 #	0.481 #	0.613 #	0.592 #	0.545 #
Nickel	<0.2 mg/kg	TM181	13.8 M	10.9 M	12 M	12.8 M	8.86 M	10.2 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Vanadium	<0.2 mg/kg	TM181	31.2 #	31.4 #	30.8 #	28.2 #	27.3 #	28.9 #
Zinc	<1.9 mg/kg	TM181	91.6 M	91.2 M	70.7 M	73.8 M	97 M	82.4 M
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	<0.001 #			<0.001 #		
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	<0.001 #			<0.001 #		
Additional Asbestos Components (Using TM048)		TM304	None #			None #		
Analysts Comments		TM304	N/A			N/A		
Asbestos Quantification - Total - %	<0.001 %	TM304	<0.001 #			<0.001 #		
PAH, Total Detected USEPA 16 + Coronene	<0.318 mg/kg	TM410	2.04	3.96	2.91	2.57	14.9	7.35
Coronene	<0.2 mg/kg	TM410	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend		Customer Sample Ref.	V112	V114			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10	0.20			
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)			
aq	Aqueous / settled sample.		03/10/2023	04/10/2023			
diss,filtr	Dissolved / filtered sample.		00:00	00:00			
tot.unfilt	Total / unfiltered sample.		05/10/2023	05/10/2023			
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37			
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	28730671	28730465				
(F)	Trigger breach confirmed	ES1	ES1				
1.4.4.6@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Moisture Content Ratio (% of as received sample)	%	PM024	15	12			
Loss on ignition	<0.7 %	TM018	7.5	7.13	M	M	
Phenol	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	M	M	
Cresols	<0.01 mg/kg	TM062 (S)	<0.01	0.0114	M	M	
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015	<0.015	M	M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035	<0.035	M	M	
Organic Carbon, Total	<0.2 %	TM132	3.14	3.08	M	M	
pH	1 pH Units	TM133	8.1	7.97	M	M	
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	M	M	
Antimony	<0.6 mg/kg	TM181	1.24	1.49	#	#	
Arsenic	<0.6 mg/kg	TM181	9.48	9.23	M	M	
Barium	<0.6 mg/kg	TM181	62.5	64.5	#	#	
Cadmium	<0.02 mg/kg	TM181	0.0622	0.0832	M	M	
Chromium	<0.9 mg/kg	TM181	16.1	18	M	M	
Copper	<1.4 mg/kg	TM181	26.8	24.7	M	M	
Lead	<0.7 mg/kg	TM181	79.9	78.8	M	M	
Mercury	<0.1 mg/kg	TM181	<0.1	<0.1	M	M	
Molybdenum	<0.1 mg/kg	TM181	0.635	1.08	#	#	
Nickel	<0.2 mg/kg	TM181	11.4	10.8	M	M	
Selenium	<1 mg/kg	TM181	<1	<1	#	#	
Vanadium	<0.2 mg/kg	TM181	33.7	30.7	#	#	
Zinc	<1.9 mg/kg	TM181	105	82.9	M	M	
PAH, Total Detected USEPA 16 + Coronene	<0.318 mg/kg	TM410	3.68	3.84			
Coronene	<0.2 mg/kg	TM410	<0.2	<0.2			



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref.	P101	P102	P103	P104	P105	V101	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.20	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37	231005-37	231005-37	231005-37	231005-37	231005-37
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28730481	28730496	28730511	28730523	28730530	28730549	28730549
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1	ES1
1-4*5@	Sample deviation (see appendix)								
Component	LOD/Units		Method						
Naphthalene-d8 % recovery**	%	TM218	97.1	99.1	98	97.9	99.3	98.7	
Acenaphthene-d10 % recovery**	%	TM218	101	97.4	100	97.4	99.5	98.7	
Phenanthrene-d10 % recovery**	%	TM218	109	99.3	108	101	104	105	
Chrysene-d12 % recovery**	%	TM218	105	99.9	109	99.2	101	105	
Perylene-d12 % recovery**	%	TM218	104	102	108	99.1	101	104	
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	<0.009 M	<0.009 M	<0.009 M	<0.009 M	<0.045 M	
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 M	<0.012 M	<0.012 M	<0.012 M	<0.06 M	
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 M	<0.008 M	<0.008 M	<0.008 M	<0.04 M	
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.05 M	
Phenanthrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 M	<0.015 M	0.0232 M	0.0227 M	0.299 M	
Anthracene	<0.016 mg/kg	TM218	<0.016 M	<0.016 M	<0.016 M	<0.016 M	<0.016 M	<0.08 M	
Fluoranthene	<0.017 mg/kg	TM218	0.0271 M	0.0492 M	0.0667 M	0.0679 M	0.0555 M	0.743 M	
Pyrene	<0.015 mg/kg	TM218	0.0228 M	0.0379 M	0.0495 M	0.0511 M	0.0408 M	0.634 M	
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0161 M	0.037 M	0.0449 M	0.0419 M	0.0328 M	0.379 M	
Chrysene	<0.01 mg/kg	TM218	0.014 M	0.0454 M	0.0443 M	0.0509 M	0.0401 M	0.414 M	
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0256 M	0.0707 M	0.0755 M	0.0825 M	0.0566 M	0.55 M	
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 M	0.022 M	0.0265 M	0.0277 M	<0.014 M	0.221 M	
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.015 M	0.0413 M	0.0444 M	0.0572 M	0.0306 M	0.422 M	
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 M	0.0313 M	0.0332 M	0.0499 M	0.024 M	0.277 M	
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 M	<0.023 M	<0.023 M	<0.023 M	<0.115 M	
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 M	0.0341 M	0.0345 M	0.0543 M	<0.024 M	0.279 M	
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.118 M	0.369 M	0.42 M	0.507 M	0.303 M	4.22 M	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref.	V103	V105	V107	V108	V109	V110
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10	0.20	0.30	0.10	0.05	0.20
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37	231005-37	231005-37	231005-37	231005-37
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28730452	28730578	28730600	28730620	28730638	28730655
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Naphthalene-d8 % recovery**	%	TM218	101	101	98.5	100	104	105
Acenaphthene-d10 % recovery**	%	TM218	98.5	101	98.7	100	102	101
Phenanthrene-d10 % recovery**	%	TM218	100	106	104	104	107	102
Chrysene-d12 % recovery**	%	TM218	104	109	102	103	108	99.6
Perylene-d12 % recovery**	%	TM218	104	110	101	102	107	95
Naphthalene	<0.009 mg/kg	TM218	<0.045 M	<0.045 M	0.0119 M	<0.045 M	0.0348 M	<0.045 M
Acenaphthylene	<0.012 mg/kg	TM218	<0.06 M	<0.06 M	0.0352 M	<0.06 M	0.0535 M	<0.06 M
Acenaphthene	<0.008 mg/kg	TM218	<0.04 M	<0.04 M	<0.008 M	<0.04 M	0.167 M	<0.04 M
Fluorene	<0.01 mg/kg	TM218	<0.05 M	<0.05 M	<0.01 M	<0.05 M	0.128 M	<0.05 M
Phenanthrene	<0.015 mg/kg	TM218	<0.075 M	0.262 M	0.163 M	0.106 M	1.72 M	0.333 M
Anthracene	<0.016 mg/kg	TM218	<0.08 M	<0.08 M	0.0369 M	<0.08 M	0.504 M	0.0994 M
Fluoranthene	<0.017 mg/kg	TM218	0.286 M	0.619 M	0.423 M	0.385 M	2.76 M	1.11 M
Pyrene	<0.015 mg/kg	TM218	0.263 M	0.528 M	0.366 M	0.348 M	2.31 M	0.968 M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.193 M	0.347 M	0.261 M	0.239 M	1.22 M	0.557 M
Chrysene	<0.01 mg/kg	TM218	0.231 M	0.387 M	0.289 M	0.236 M	1.17 M	0.623 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.335 M	0.59 M	0.424 M	0.396 M	1.41 M	1.09 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.139 M	0.214 M	0.158 M	0.163 M	0.598 M	0.403 M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.228 M	0.42 M	0.299 M	0.275 M	1.23 M	0.871 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.174 M	0.285 M	0.205 M	0.204 M	0.723 M	0.631 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.115 M	<0.115 M	0.0297 M	<0.115 M	0.0971 M	<0.115 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.189 M	0.311 M	0.207 M	0.221 M	0.762 M	0.666 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	2.04	3.96	2.91	2.57	14.9	7.35



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref.	V112	V114				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10	0.20				
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)				
aq	Aqueous / settled sample.		03/10/2023	04/10/2023				
diss,filtr	Dissolved / filtered sample.		00:00	00:00				
tot.unfiltr	Total / unfiltered sample.		05/10/2023	05/10/2023				
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37				
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28730671	28730465				
(F)	Trigger breach confirmed		ES1	ES1				
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Naphthalene-d8 % recovery**	%	TM218	101	99.9				
Acenaphthene-d10 % recovery**	%	TM218	100	101				
Phenanthrene-d10 % recovery**	%	TM218	107	109				
Chrysene-d12 % recovery**	%	TM218	108	106				
Perylene-d12 % recovery**	%	TM218	108	104				
Naphthalene	<0.009 mg/kg	TM218	<0.018 M	<0.09 M				
Acenaphthylene	<0.012 mg/kg	TM218	0.0374 M	<0.12 M				
Acenaphthene	<0.008 mg/kg	TM218	<0.016 M	<0.08 M				
Fluorene	<0.01 mg/kg	TM218	<0.02 M	<0.1 M				
Phenanthrene	<0.015 mg/kg	TM218	0.191 M	0.248 M				
Anthracene	<0.016 mg/kg	TM218	0.0532 M	<0.16 M				
Fluoranthene	<0.017 mg/kg	TM218	0.64 M	0.704 M				
Pyrene	<0.015 mg/kg	TM218	0.562 M	0.638 M				
Benz(a)anthracene	<0.014 mg/kg	TM218	0.329 M	0.328 M				
Chrysene	<0.01 mg/kg	TM218	0.351 M	0.37 M				
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.498 M	0.485 M				
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.183 M	0.168 M				
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.354 M	0.362 M				
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.238 M	0.257 M				
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.046 M	<0.23 M				
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.242 M	0.276 M				
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	3.68	3.84				



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	P101	P102	P103	P104	P105	V101	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.20	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / filtered sample.		04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37	231005-37	231005-37	231005-37	231005-37	231005-37
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28730481	28730496	28730511	28730523	28730530	28730549	28730549
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1	ES1
1-4456@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM089	91.3	95.2	90.3	90.5	92.4	88.5	
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.8 #	<1 #	<1 #	1.34 #	1.09 #	1.38 #	
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	31.8 #	41.9 #	47.4 #	51.8 #	48.6 #	16.5 #	
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	7.7 #	8.37 #	9.36 #	10.5 #	10.4 #	2.53 #	
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	41.3 #	50.9 #	57.7 #	63.6 #	60.1 #	20.8 #	
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	95 #	80.7 #	87.4 #	99.6 #	103 #	84.3 #	
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	5.69 #	2.8 #	2.61 #	3.52 #	4.49 #	6.91 #	
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	35.5 #	21 #	22 #	25.3 #	24.5 #	41.5 #	
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	12.5 #	5.96 #	5.07 #	6.77 #	13.7 #	14.8 #	
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	<1	<1	<1	3.33	
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	53.7	29.8	29.7	36	43.1	63.5	
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	95	80.7	87.4	99.6	103	84.3	
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	V103	V105	V107	V108	V109	V110	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10	0.20	0.30	0.10	0.05	0.20	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231005-37	231005-37	231005-37	231005-37	231005-37	231005-37	231005-37
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28730452	28730578	28730600	28730620	28730638	28730655	28730655
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1	ES1
1-4456	Sample deviation (see appendix)								
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM089	82.2	91.9	81	90.6	89.4	91.9	
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	2.26 #	
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.5 #	3.06 #	<1 #	1.09 #	1.24 #	2.21 #	
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	18.8 #	24 #	12.8 #	13.5 #	14.3 #	19.1 #	
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	3.2 #	3.64 #	1.27 #	2.53 #	1.31 #	2.36 #	
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	23.9	31.6	15	17.2	17.1	26	
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	275	101	43.5	64.3	75.2	74.4	
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	7.79 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	65.9 #	5.77 #	2 #	4.44 #	9.07 #	4.55 #	
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	147 #	47.2 #	20.6 #	33 #	39.1 #	35.5 #	
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	30.7	16.2	5.94	9.65	9.4	8.07	
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	9.66	4.89	<1	1.75	1.19	<1	
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	252	69.4	28.5	47.1	58.1	48.4	
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	275	101	43.5	64.3	75.2	74.4	
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	V112	V114					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss,filtr	Dissolved / filtered sample.								
tot.unfiltr	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4466	Sample deviation (see appendix)								
				0.10 Soil/Solid (S)	0.20 Soil/Solid (S)				
Component	LOD/Units		Method						
GRO Surrogate % recovery**	%	TM089	91.4	84.1					
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1	#	#			
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1	#	#			
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	2.72	1.32	#	#			
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	18.7	20.3	#	#			
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	2.64	2.41					
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	24.2	24					
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	76	76.2					
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01					
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	#	#			
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	#	#			
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	5.28	6.49	#	#			
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	38.9	36.8	#	#			
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	7.18	8.5					
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1					
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	51.8	52.1					
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	76	76.2					
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05					
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05					
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02					



CERTIFICATE OF ANALYSIS

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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Asbestos Identification - Solid Samples

Results Legend

- # ISO17025 accredited.
- M mCERTS accredited.
- * Subcontracted test.
- (F) Trigger breach confirmed
- 1-5&*\$@ Sample deviation (see appendix)

Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
10/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
10/10/2023	Alex Horner	ACM debris in sample	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
10/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
10/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
10/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
11/10/2023	Odhra McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
11/10/2023	Alex Horner	Loose fibres in soil	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Detected
11/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected



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Location: London Institute of Healthcare Engineering

Superseded Report:

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V107ES1 0.30 SOLID 03/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730600 TM048	11/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V108ES1 0.10 SOLID 03/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730620 TM048	11/10/2023	Alex Horner	Loose fibres in soil	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V109ES1 0.05 SOLID 03/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730638 TM048	12/10/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V110ES1 0.20 SOLID 03/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730655 TM048	11/10/2023	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V112ES1 0.10 SOLID 03/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730671 TM048	11/10/2023	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V114ES1 0.20 SOLID 04/10/2023 00:00:00 05/10/2023 05:00:00 231005-37 28730465 TM048	10/10/2023	Alex Horner	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Asbestos Quantification - Full

Results Legend

- # ISO17025 accredited.
- M mCERTS accredited.
- * Subcontracted test.
- (F) Trigger breach confirmed
- 1-5	@ Sample deviation (see appendix)

Additional Asbestos Components	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM	Asbestos Quantification - Total - %	
Cust. Sample Ref. P102ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 04/10/2023 00:00:00 Date Received 05/10/2023 05:00:00 SDG 231005-37 Original Sample 28730496 Method Number TM304	None (#)	N/A	0.0154 (#)	<0.001 (#)	0.0154 (#)
Cust. Sample Ref. V103ES1 Depth (m) 0.10 Sample Type SOLID Date Sampled 03/10/2023 00:00:00 Date Received 05/10/2023 05:00:00 SDG 231005-37 Original Sample 28730452 Method Number TM304	None (#)	N/A	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. V108ES1 Depth (m) 0.10 Sample Type SOLID Date Sampled 03/10/2023 00:00:00 Date Received 05/10/2023 05:00:00 SDG 231005-37 Original Sample 28730620 Method Number TM304	None (#)	N/A	<0.001 (#)	<0.001 (#)	<0.001 (#)



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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Table of Results - Appendix

Method No	Description
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM018	Determination of Loss on Ignition
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM410	Determination of Coronene in soils by GCMS
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM151	Determination of Hexavalent Chromium using Kone analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM304	Asbestos Quantification in Soil: Fibres identified by morphology only
TM048	Identification of Asbestos in Bulk Material
TM062 (S)	Determination of Phenols in Soils by HPLC
TM218	The determination of PAH in soil samples by GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



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Superseded Report:

Test Completion Dates

Lab Sample No(s)	28730481	28730496	28730511	28730523	28730530	28730549	28730452	28730578	28730600	28730620
Customer Sample Ref.	P101	P102	P103	P104	P105	V101	V103	V105	V107	V108
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.20	0.10	0.20	0.30	0.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	11-Oct-2023	11-Oct-2023	11-Oct-2023	10-Oct-2023	11-Oct-2023	11-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023
Asbestos Quantification - Full		12-Oct-2023					12-Oct-2023			12-Oct-2023
Coronene	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
EPH CWG GC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	09-Oct-2023	10-Oct-2023	10-Oct-2023
GRO by GC-FID (S)	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023
Hexavalent Chromium (s)	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023
Loss on Ignition in soils	10-Oct-2023	11-Oct-2023	10-Oct-2023	11-Oct-2023	11-Oct-2023	10-Oct-2023	10-Oct-2023	11-Oct-2023	10-Oct-2023	10-Oct-2023
Metals in solid samples by OES	10-Oct-2023	10-Oct-2023	11-Oct-2023	10-Oct-2023	10-Oct-2023	11-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
PAH 16 & 17 Calc	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
PAH by GCMS	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
pH	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023
Phenols by HPLC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
Sample description	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023
Total Organic Carbon	11-Oct-2023	11-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023	12-Oct-2023
TPH CWG GC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023	09-Oct-2023	10-Oct-2023	10-Oct-2023
VOC MS (S)	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023

Lab Sample No(s)	28730638	28730655	28730671	28730465
Customer Sample Ref.	V109	V110	V112	V114
AGS Ref.	ES1	ES1	ES1	ES1
Depth	0.05	0.20	0.10	0.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	12-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023
Coronene	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
EPH CWG GC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
GRO by GC-FID (S)	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023
Hexavalent Chromium (s)	11-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023
Loss on Ignition in soils	11-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
Metals in solid samples by OES	10-Oct-2023	11-Oct-2023	11-Oct-2023	10-Oct-2023
PAH 16 & 17 Calc	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
PAH by GCMS	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
pH	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023
Phenols by HPLC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
Sample description	06-Oct-2023	06-Oct-2023	06-Oct-2023	06-Oct-2023
Total Organic Carbon	12-Oct-2023	11-Oct-2023	11-Oct-2023	11-Oct-2023
TPH CWG GC (S)	10-Oct-2023	10-Oct-2023	10-Oct-2023	10-Oct-2023
VOC MS (S)	09-Oct-2023	09-Oct-2023	09-Oct-2023	09-Oct-2023



CERTIFICATE OF ANALYSIS

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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

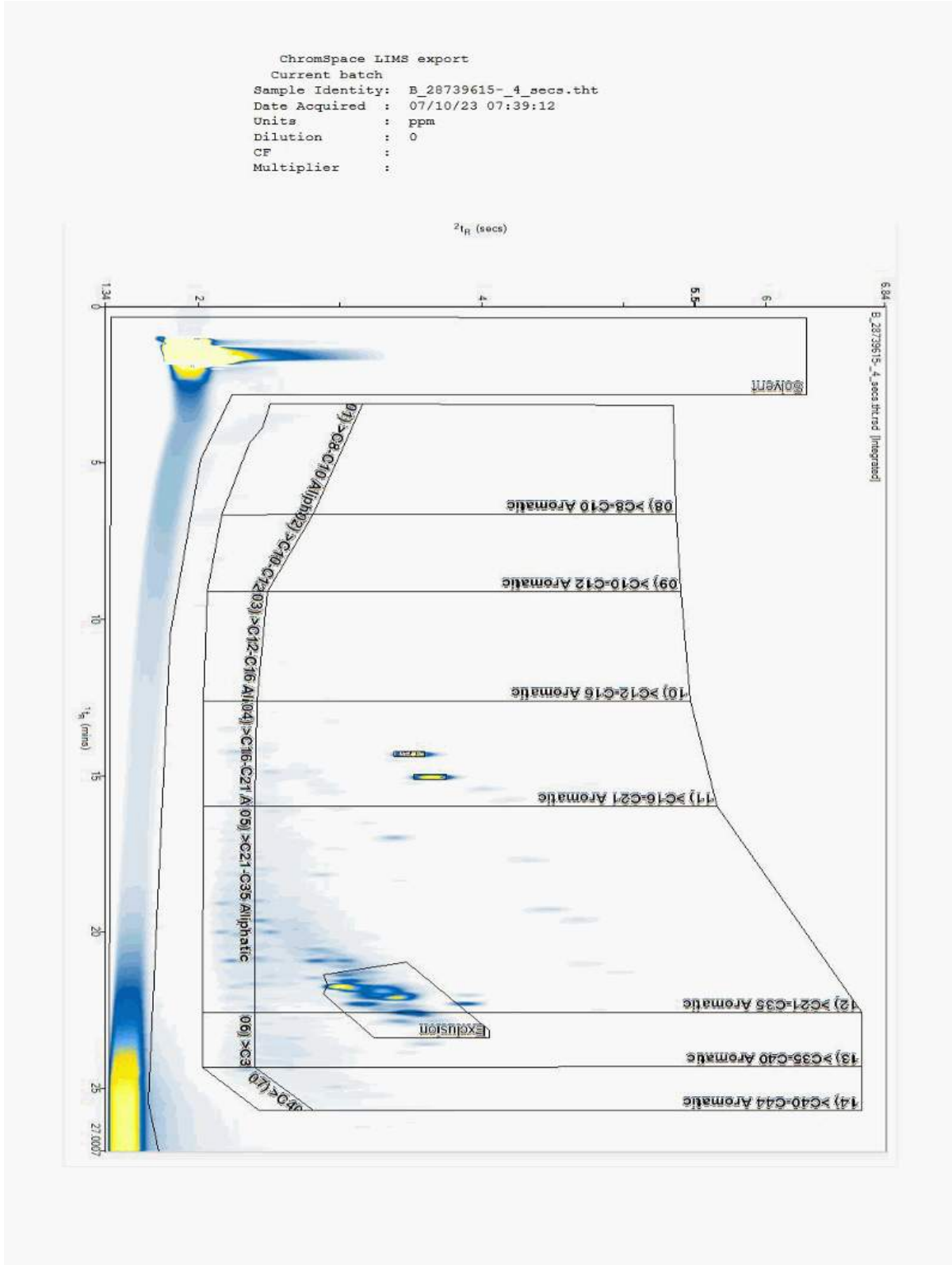
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739615
Sample ID : V105

Depth : 0.20





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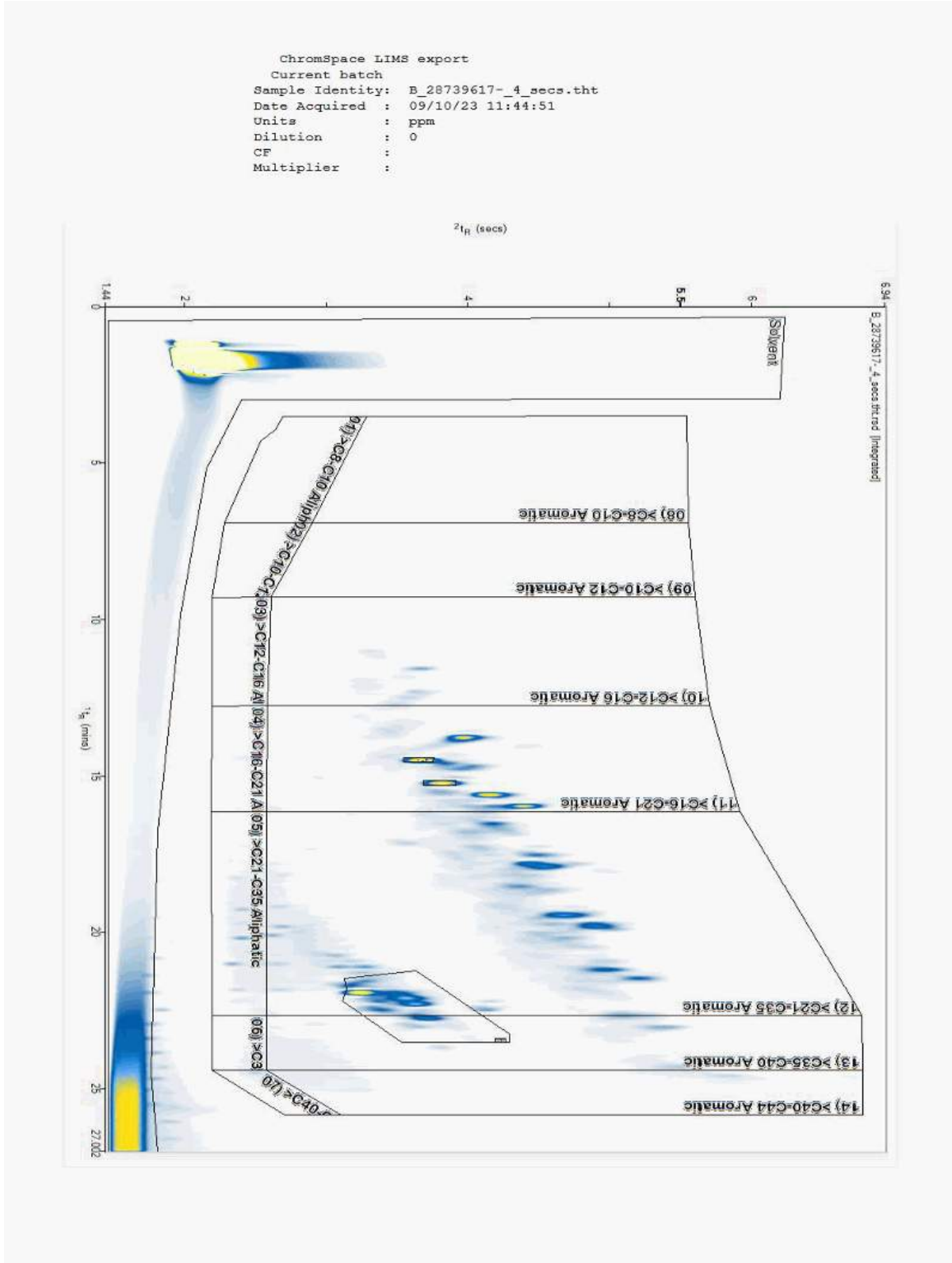
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739617
Sample ID : V103

Depth : 0.10





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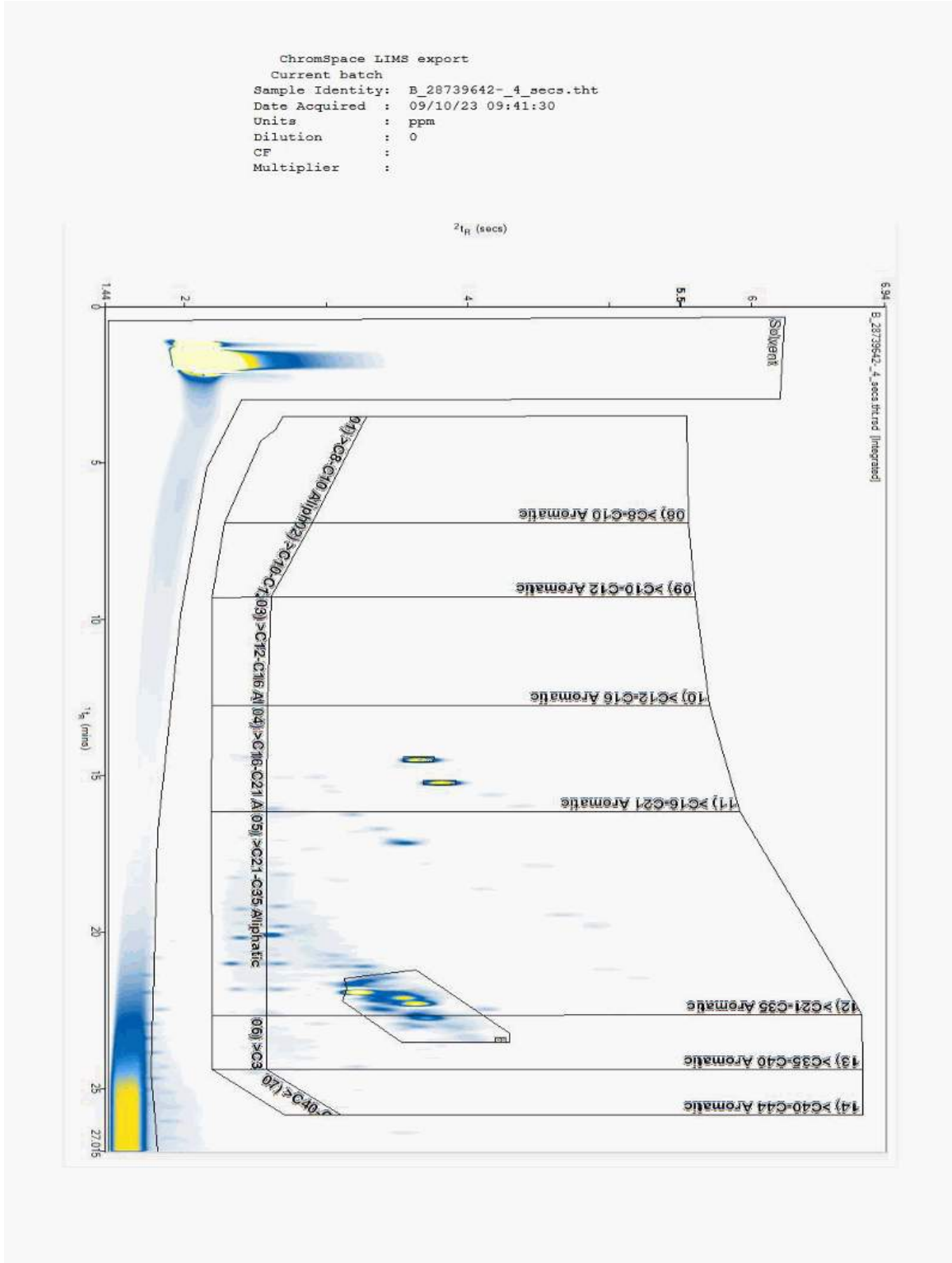
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739642
Sample ID : V112

Depth : 0.10





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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

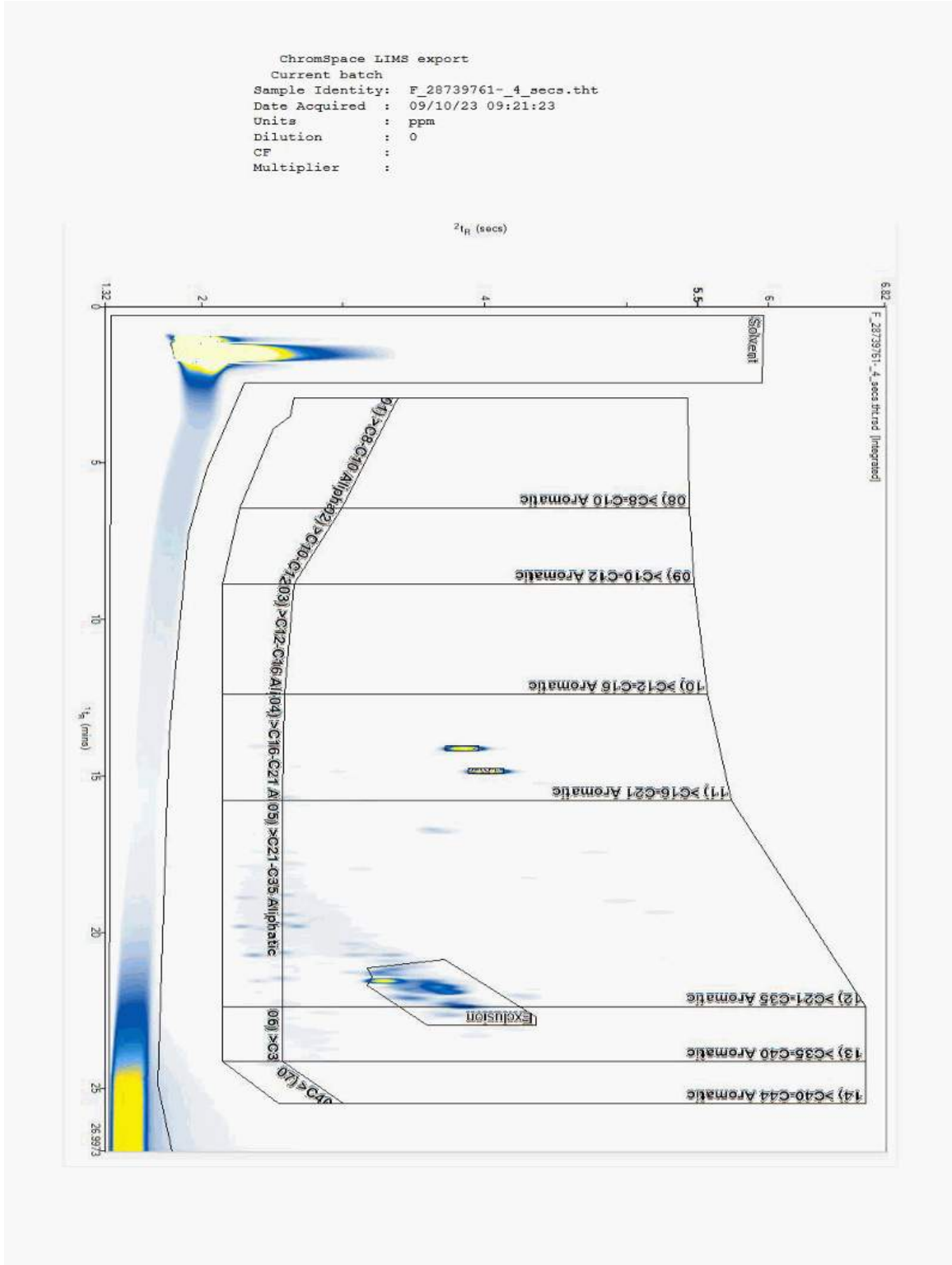
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739761
Sample ID : V107

Depth : 0.30





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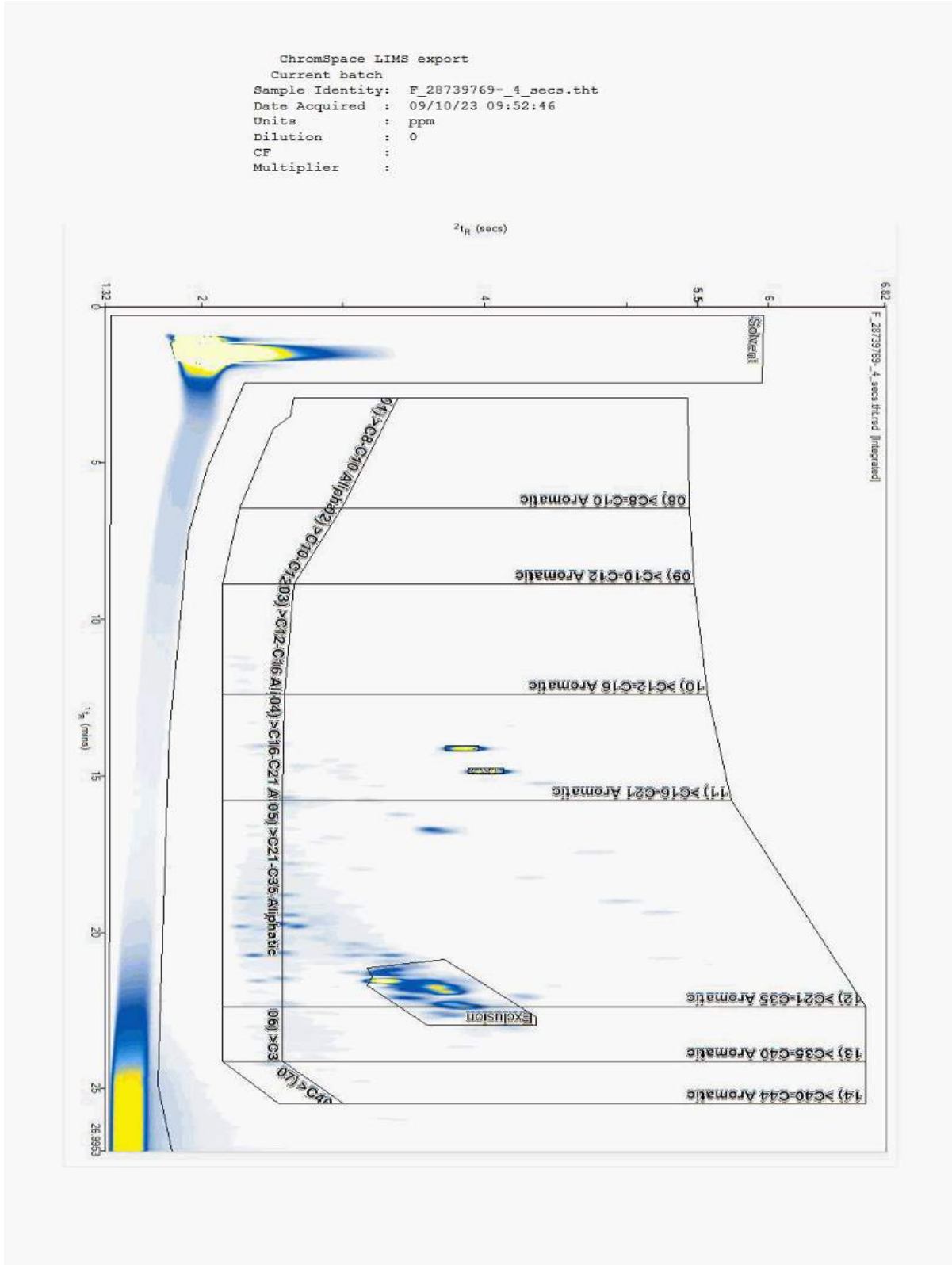
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739769
Sample ID : V110

Depth : 0.20





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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

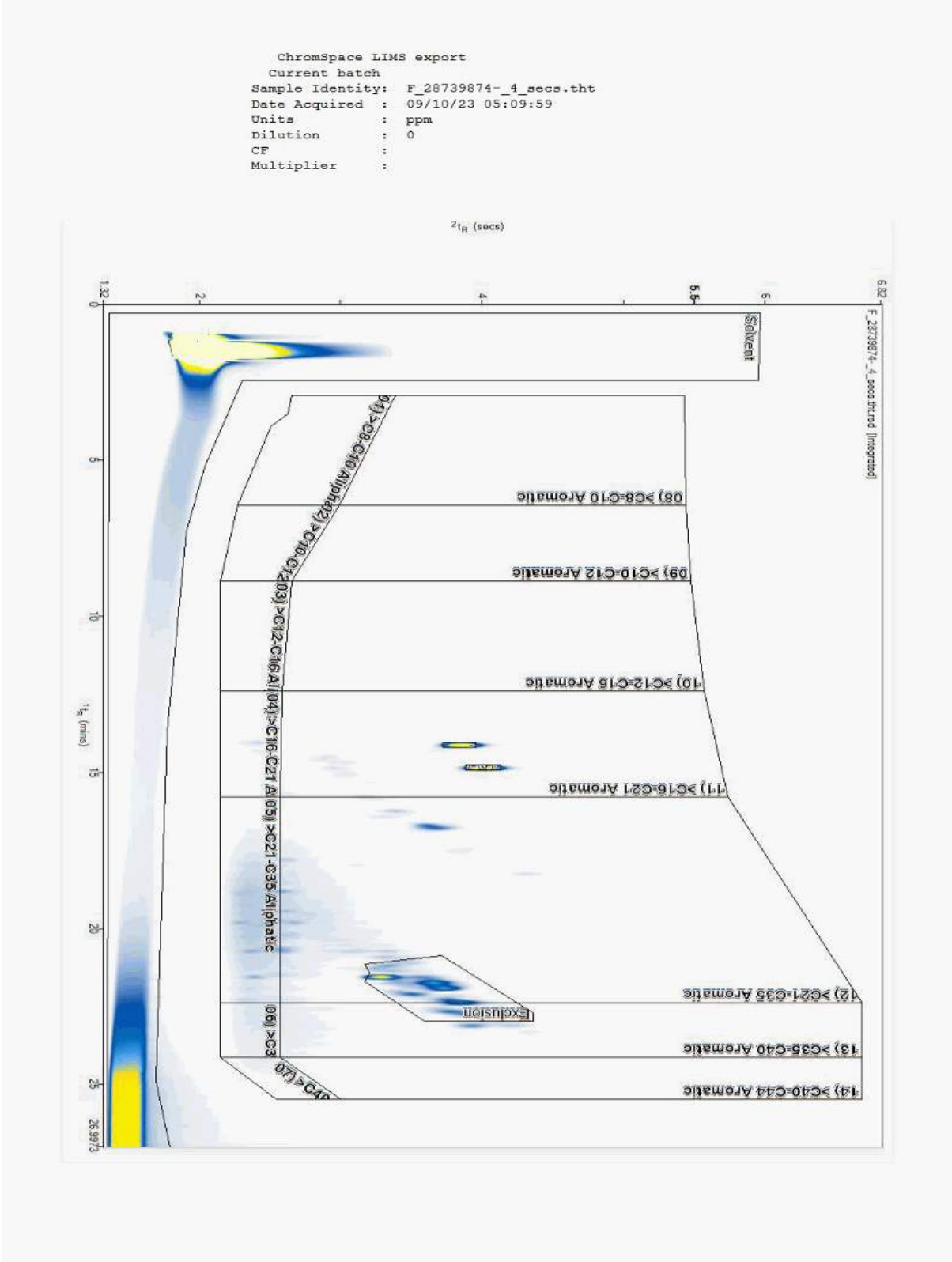
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739874
Sample ID : P103

Depth : 0.00 - 0.00





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Location: London Institute of Healthcare Engineering

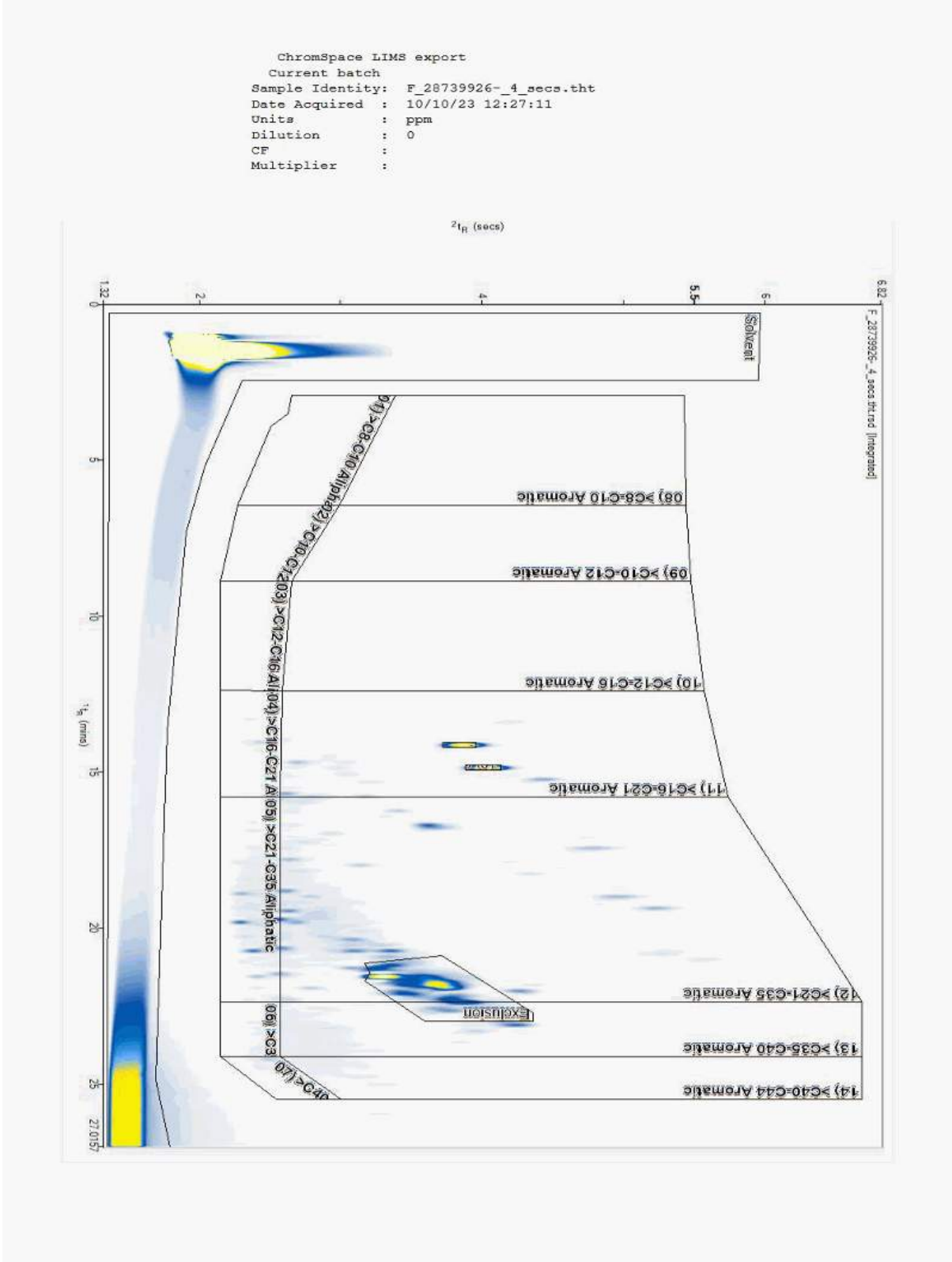
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28739926
Sample ID : V101

Depth : 0.20





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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

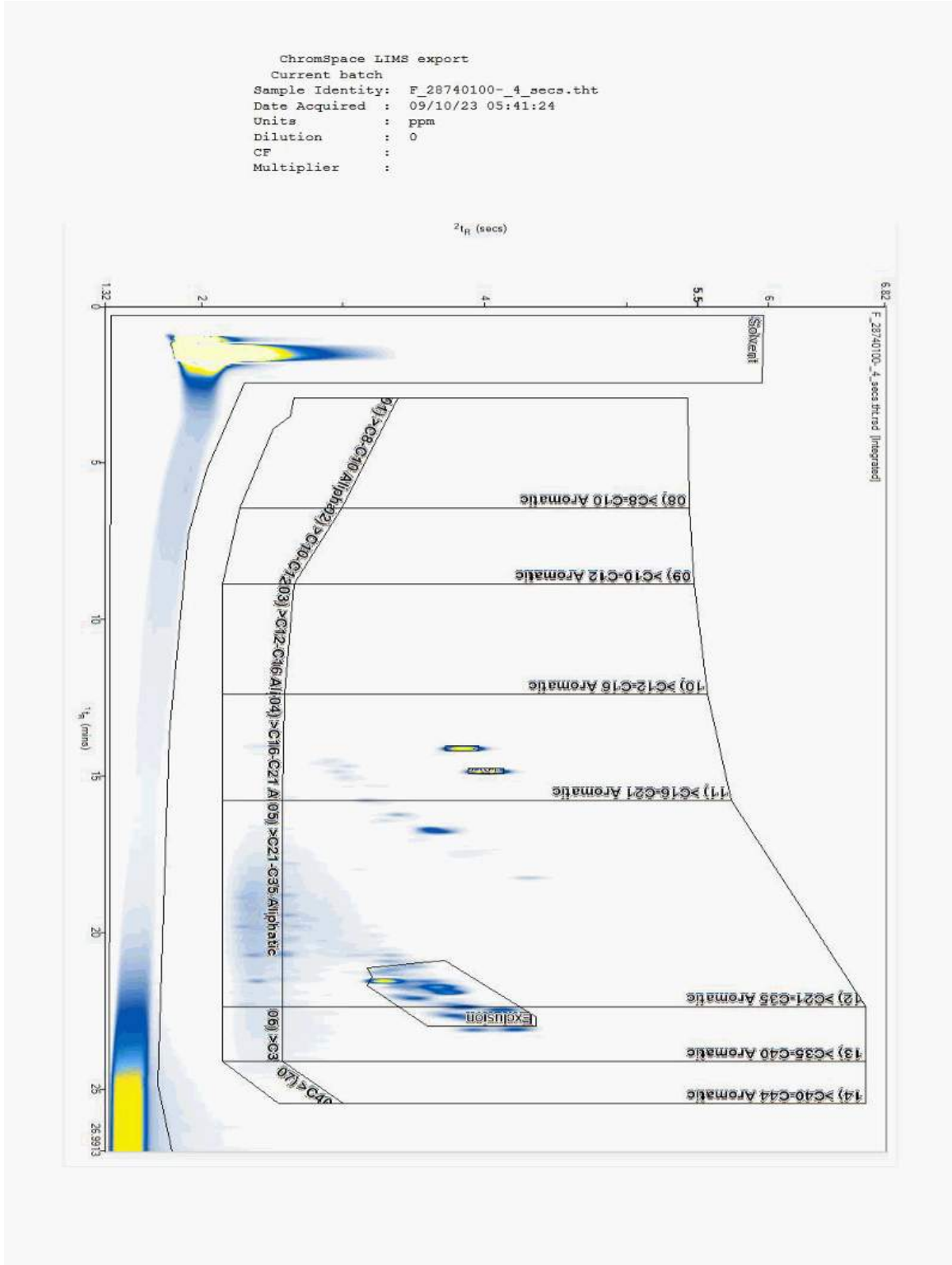
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740100
Sample ID : P104

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

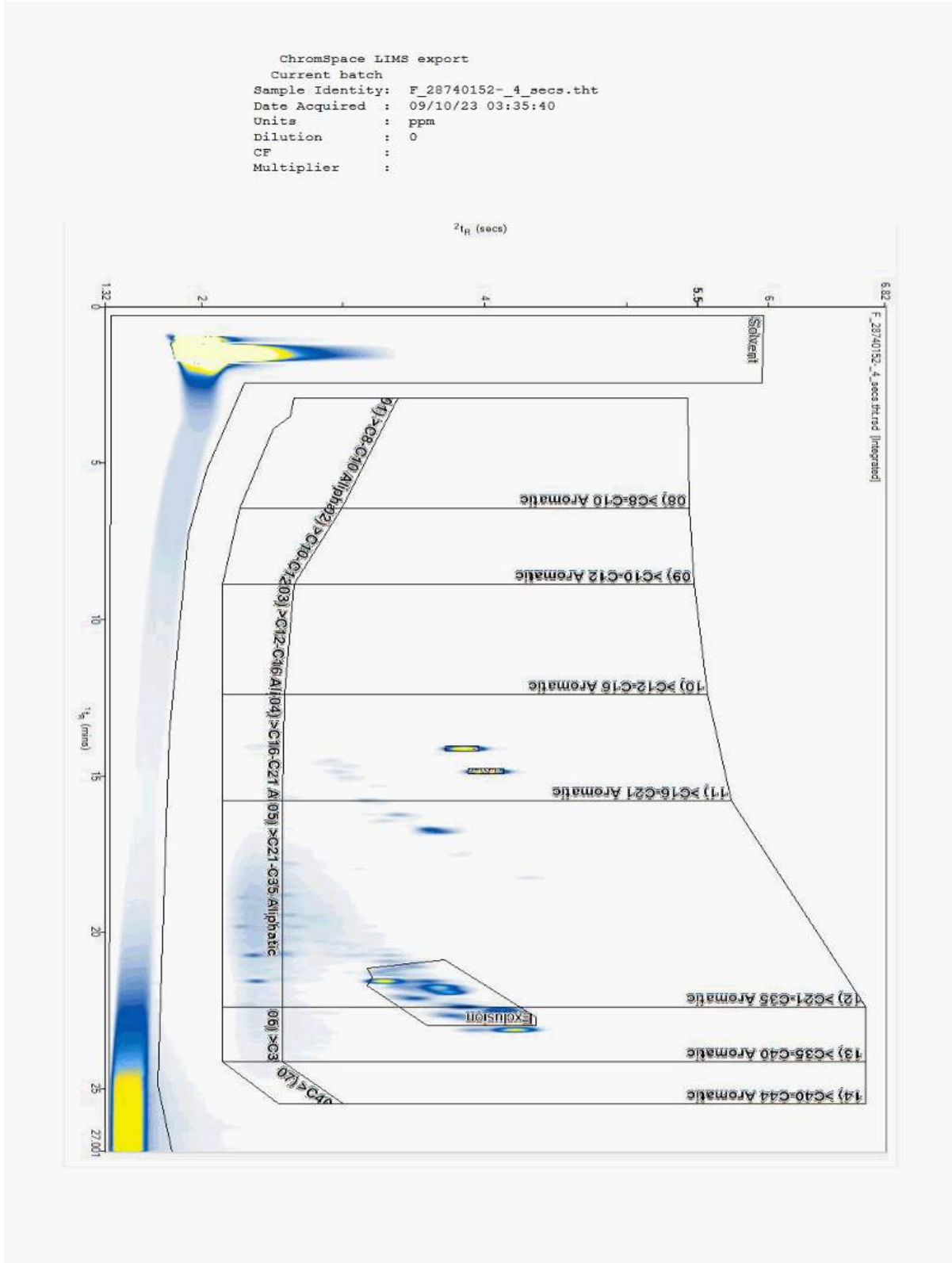
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740152
Sample ID : P105

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

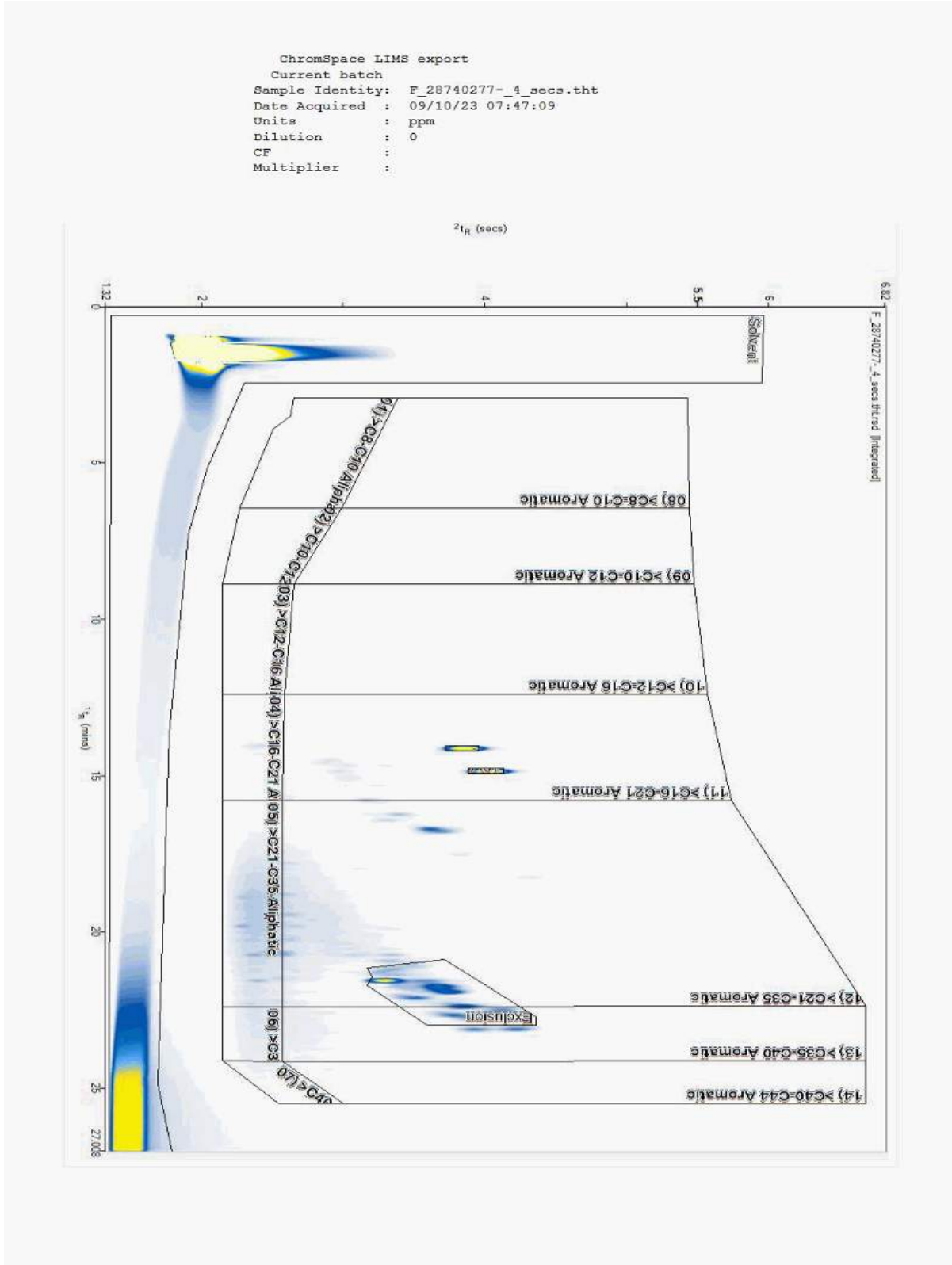
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740277
Sample ID : P102

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

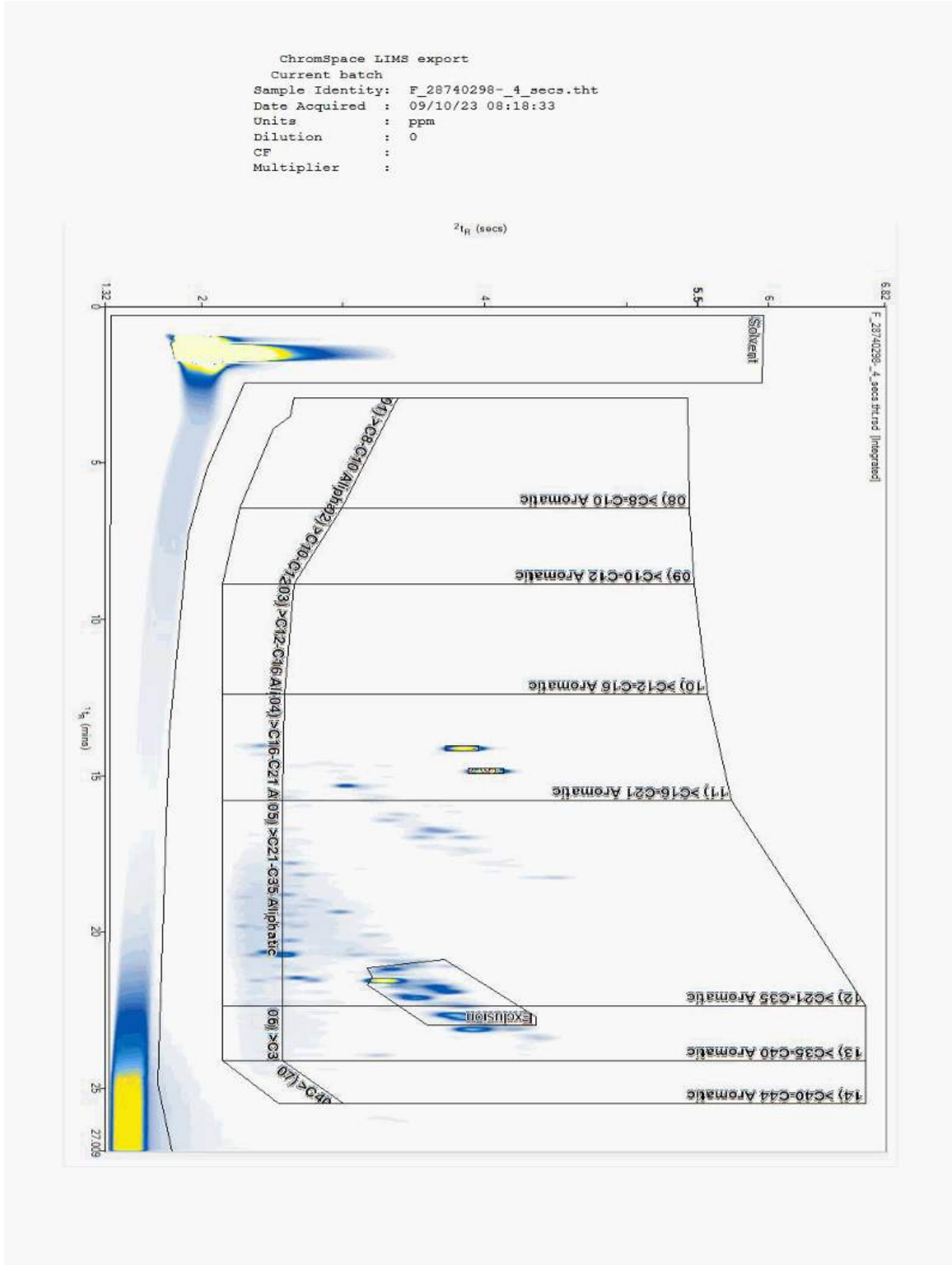
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740298
Sample ID : P101

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

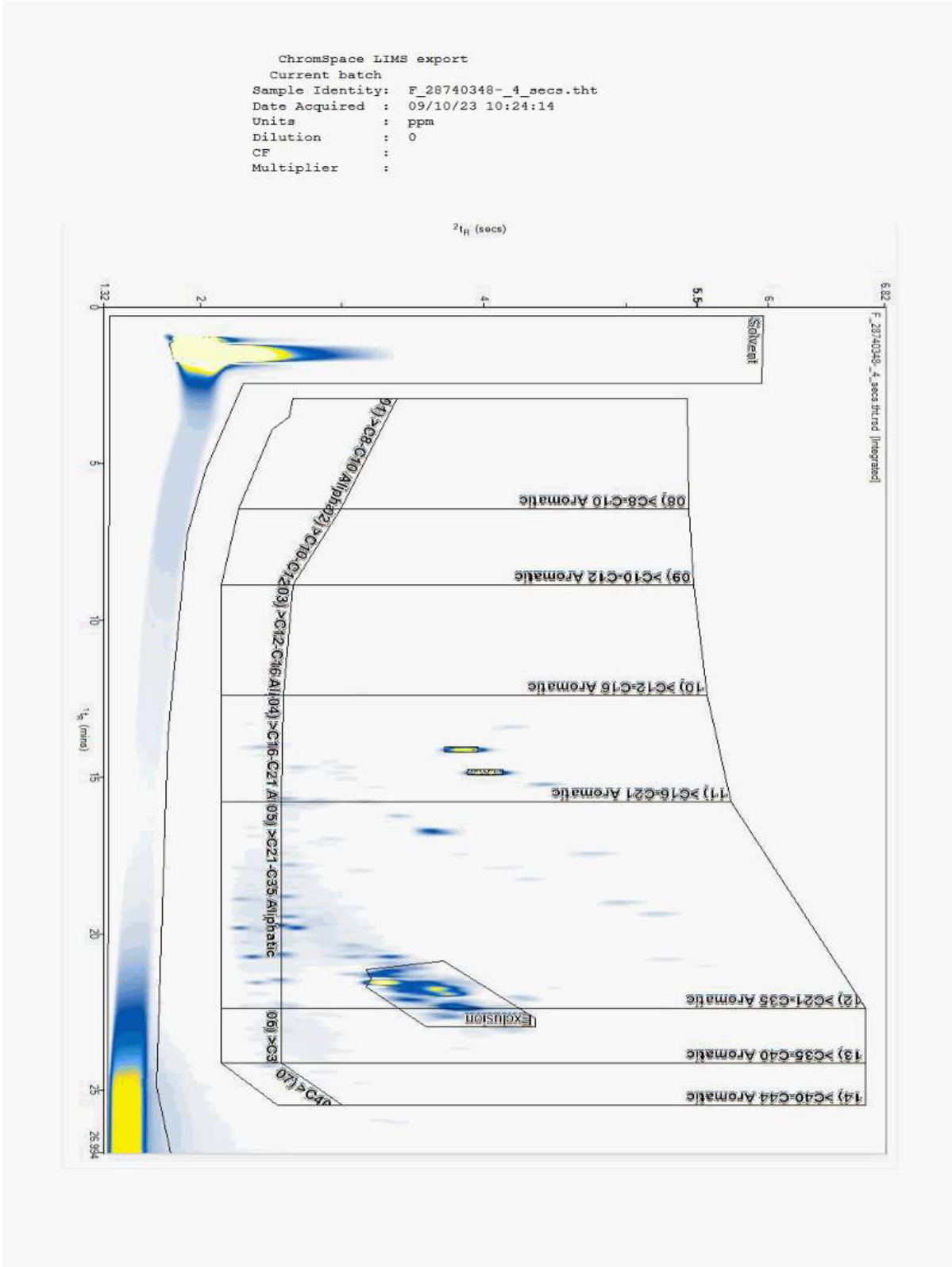
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740348
Sample ID : V114

Depth : 0.20





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Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

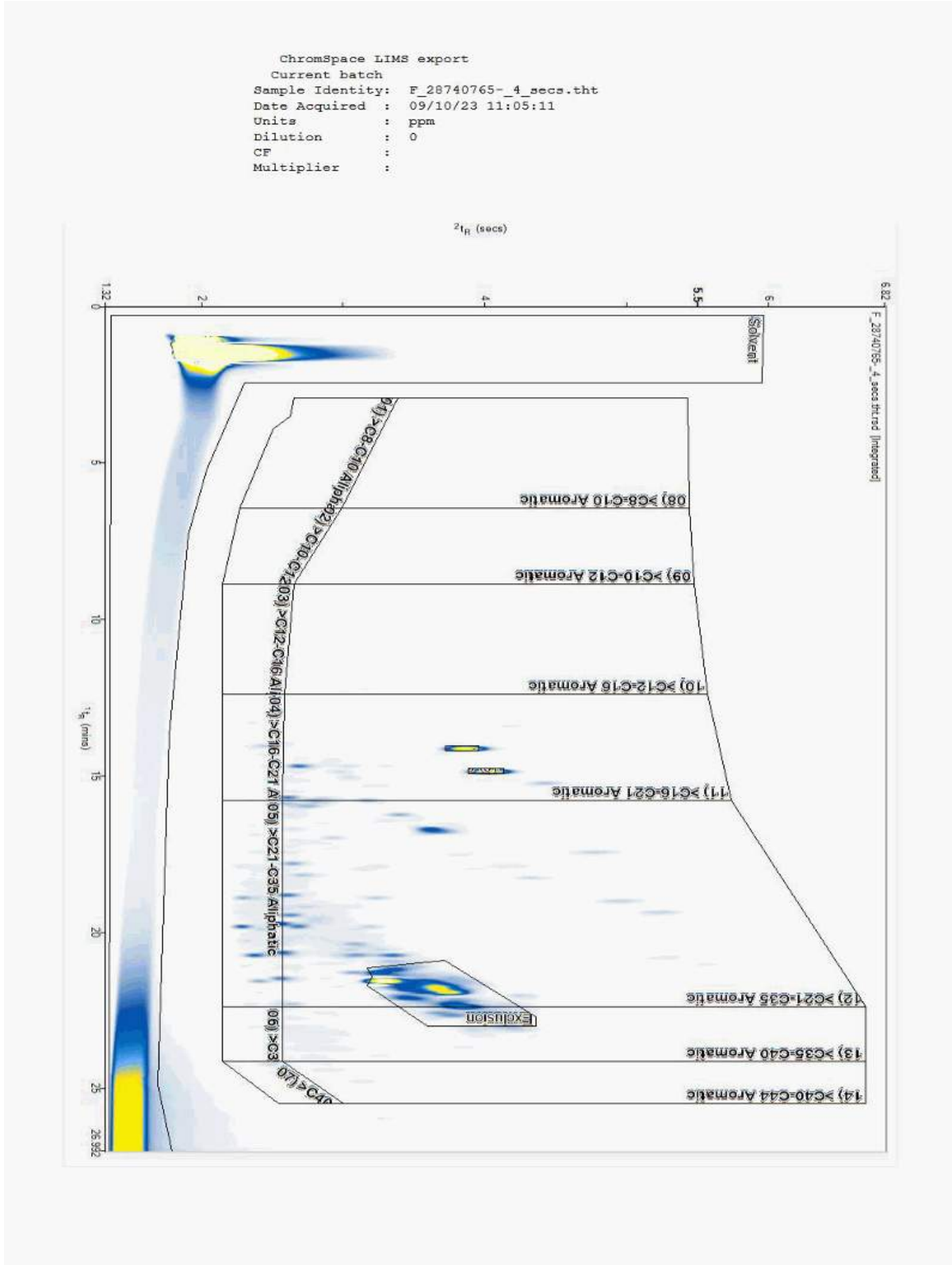
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740765
Sample ID : V109

Depth : 0.05





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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

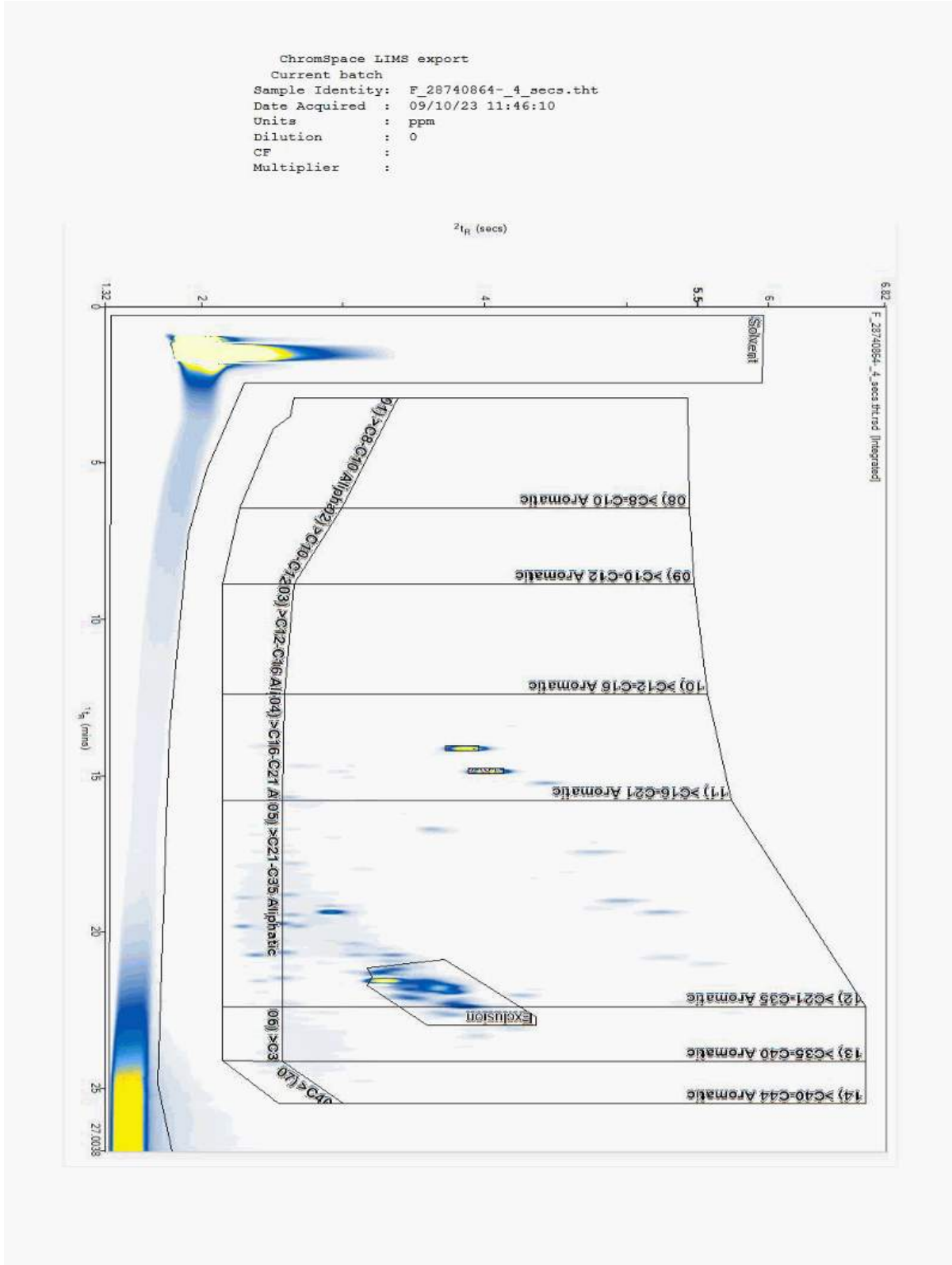
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740864
Sample ID : V108

Depth : 0.10





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SDG: 231005-37
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Report Number: 707362
Location: London Institute of Healthcare Engineering

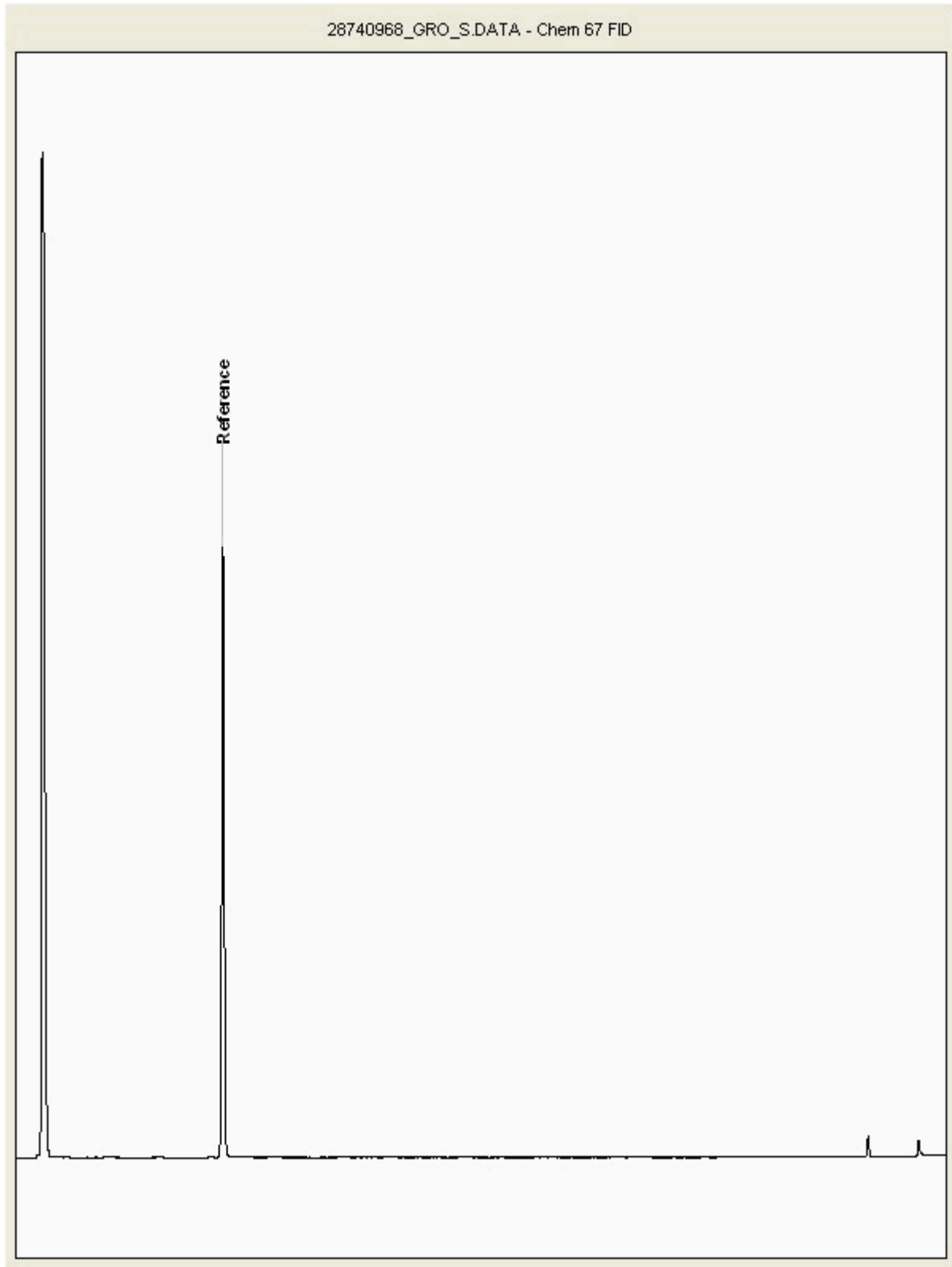
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28740968
Sample ID : V107

Depth : 0.30





CERTIFICATE OF ANALYSIS

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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

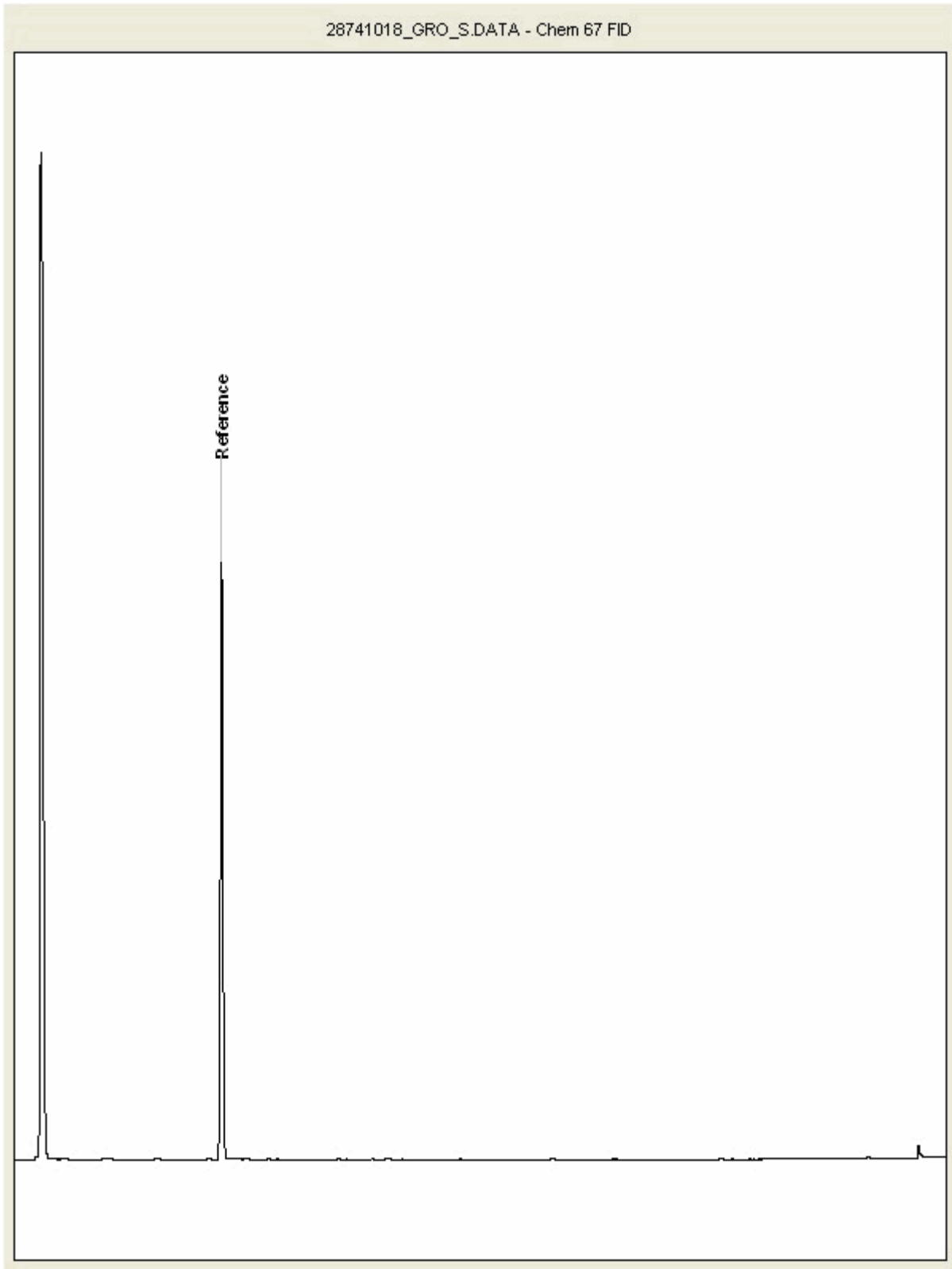
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28741018
Sample ID : V103

Depth : 0.10





CERTIFICATE OF ANALYSIS

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SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

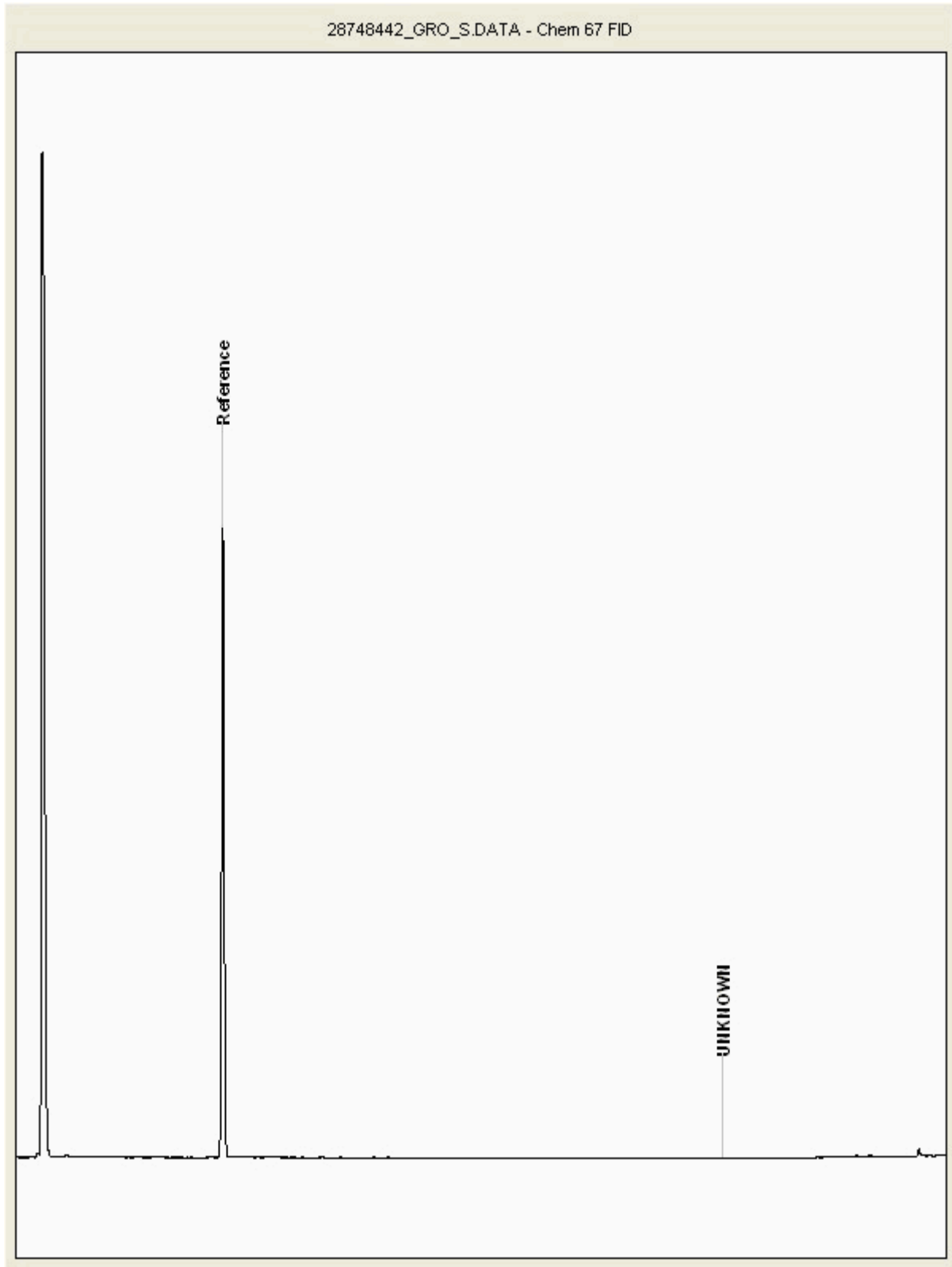
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748442
Sample ID : V105

Depth : 0.20





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

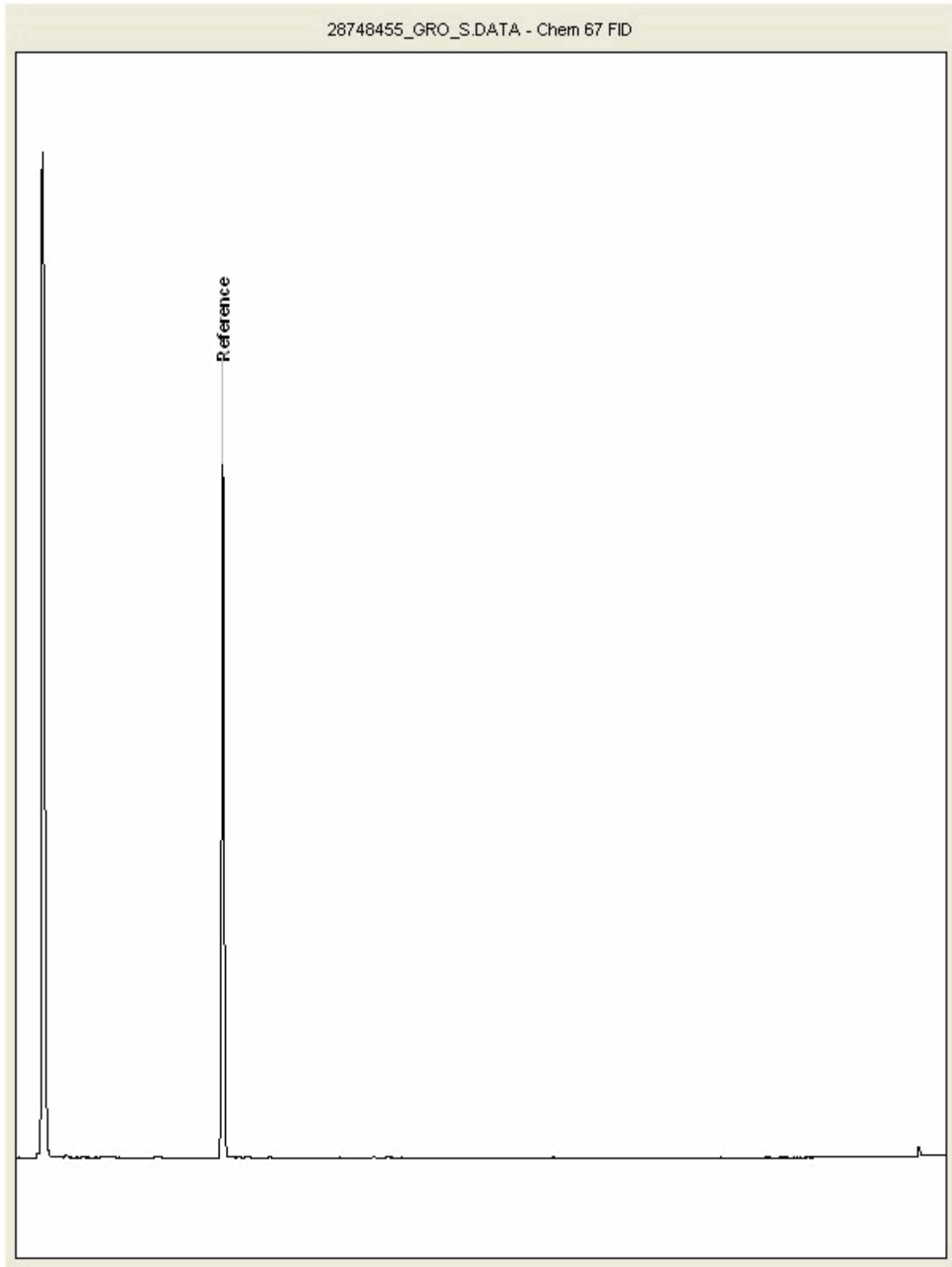
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748455
Sample ID : P102

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

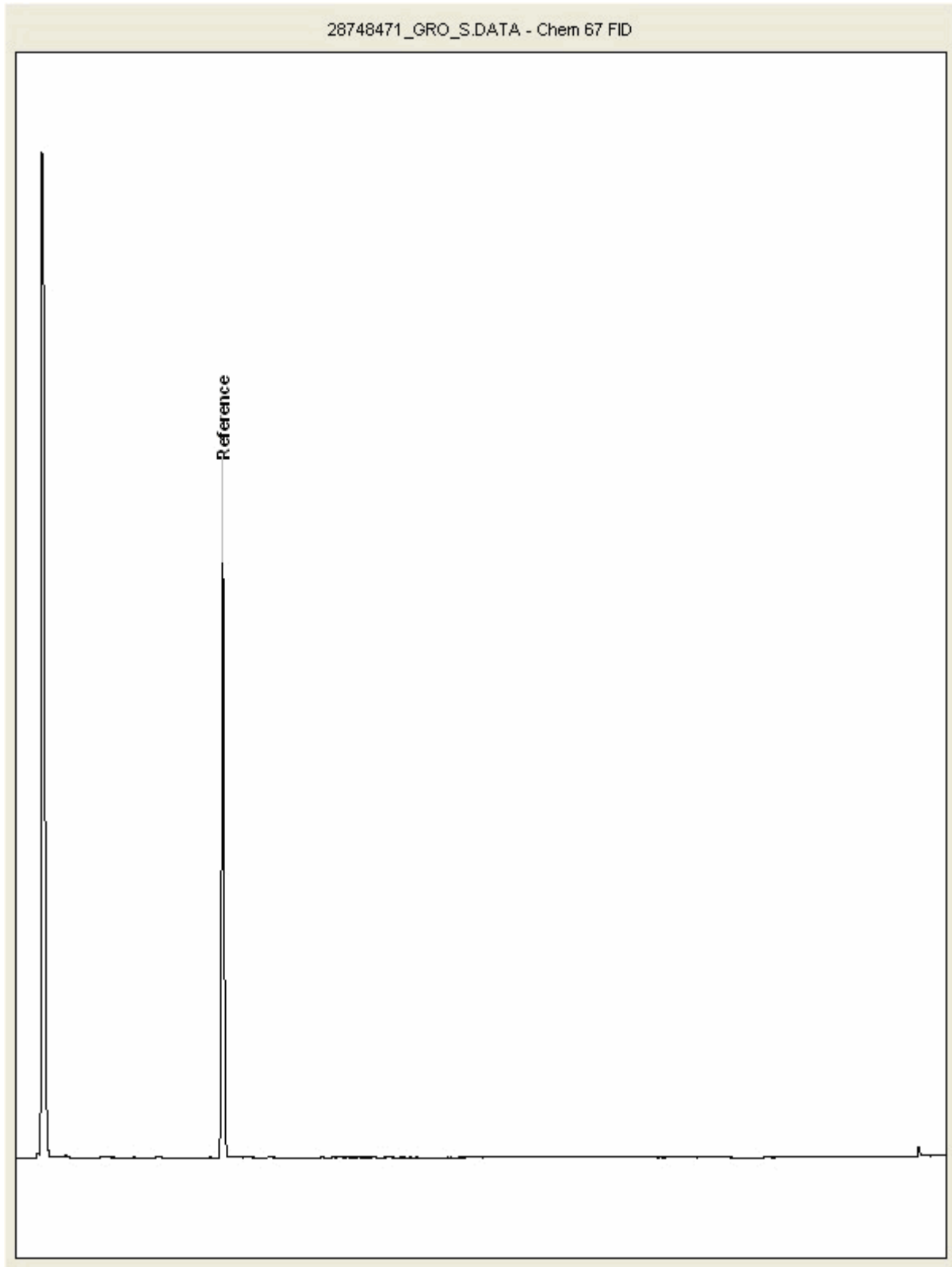
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748471
Sample ID : V109

Depth : 0.05





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

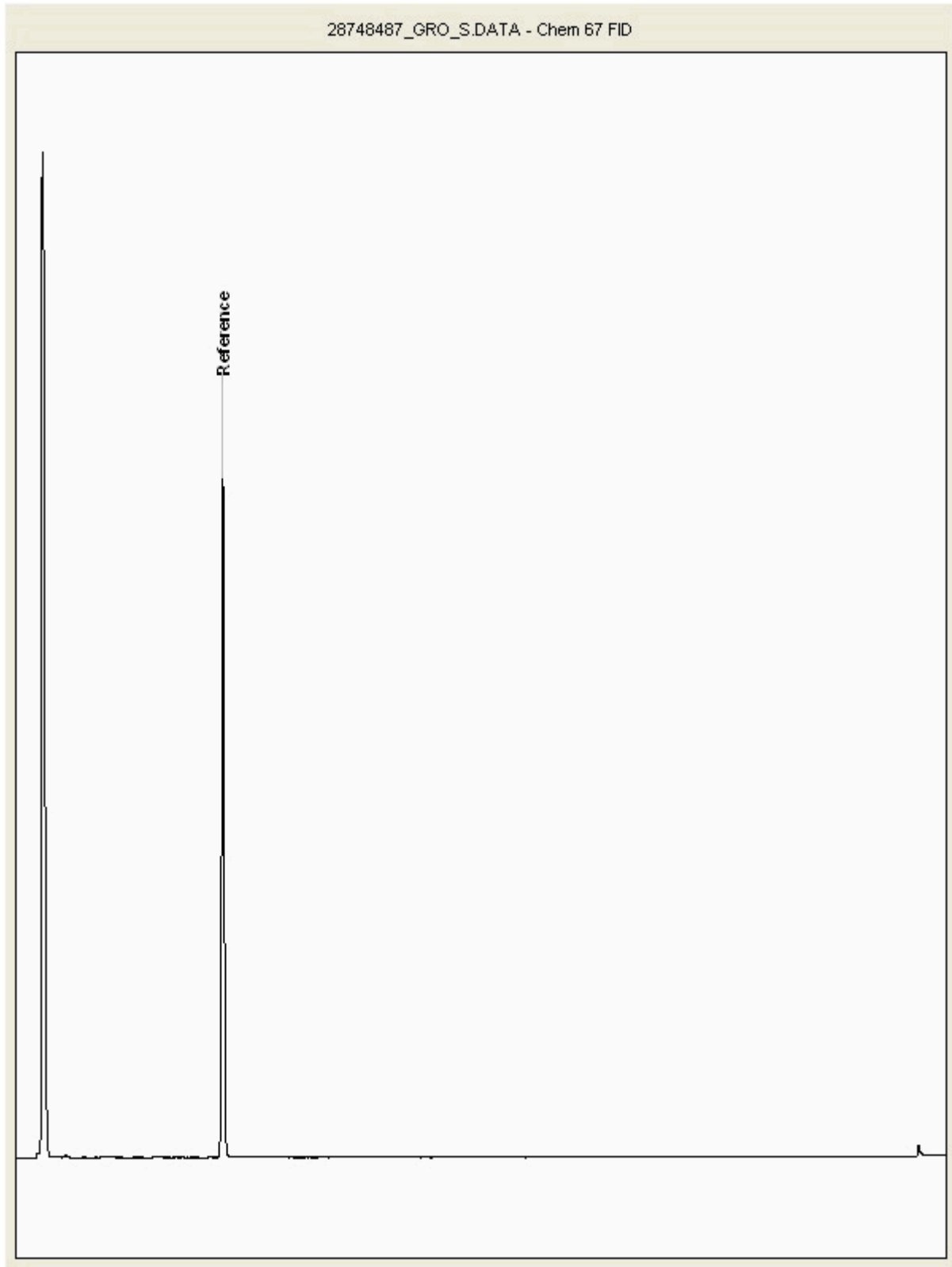
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748487
Sample ID : V112

Depth : 0.10





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

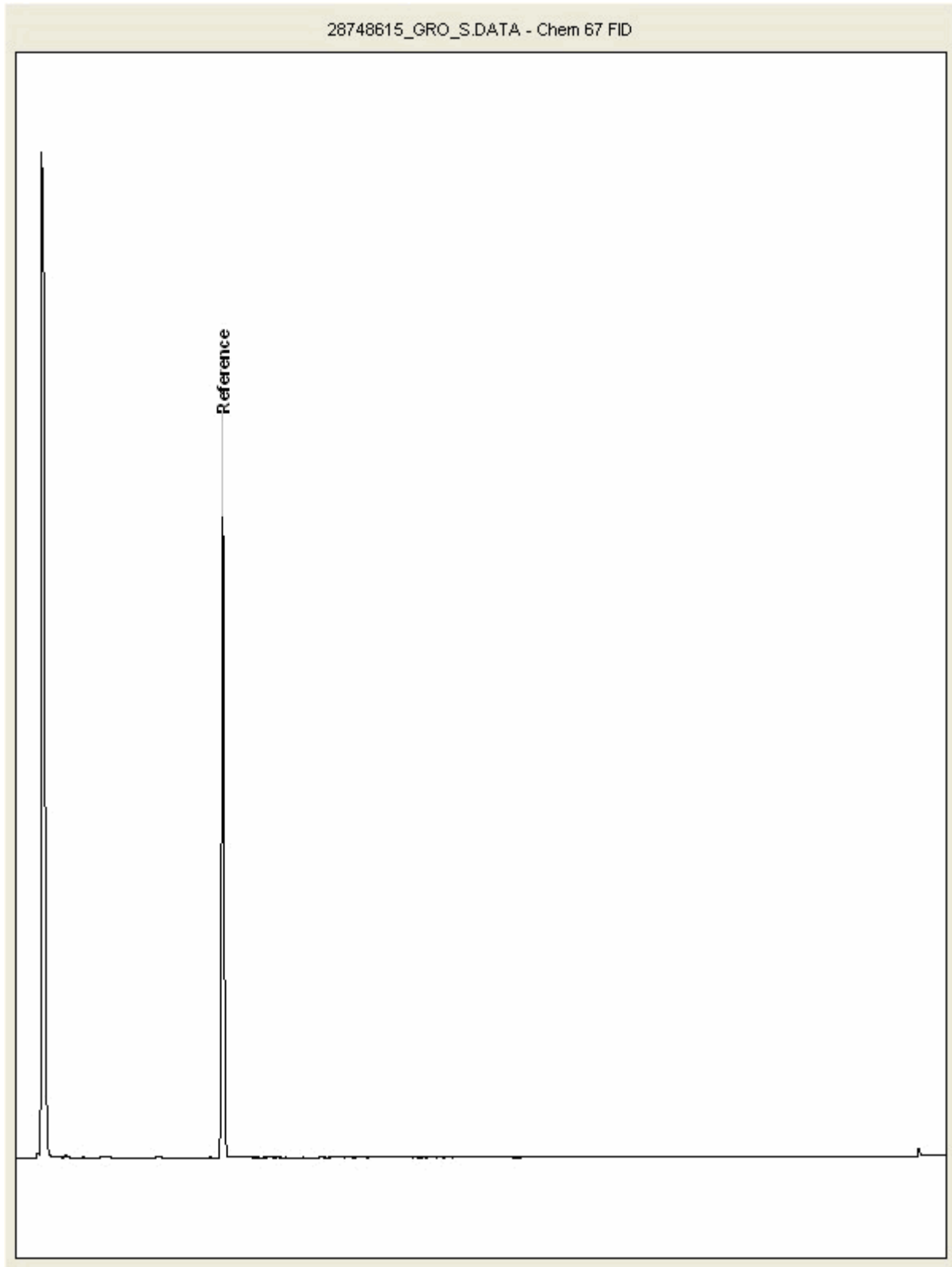
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748615
Sample ID : V110

Depth : 0.20





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

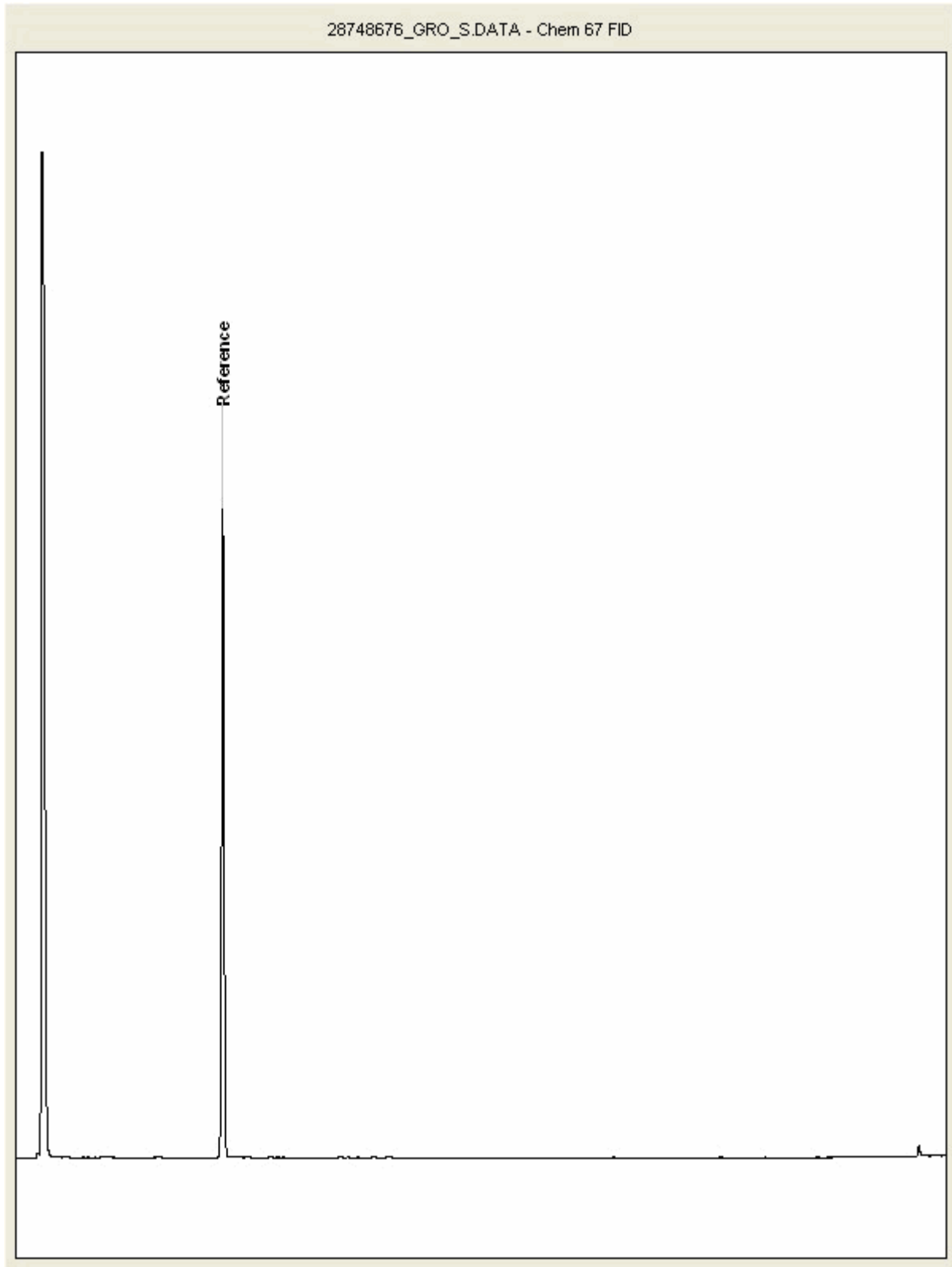
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748676
Sample ID : V108

Depth : 0.10





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

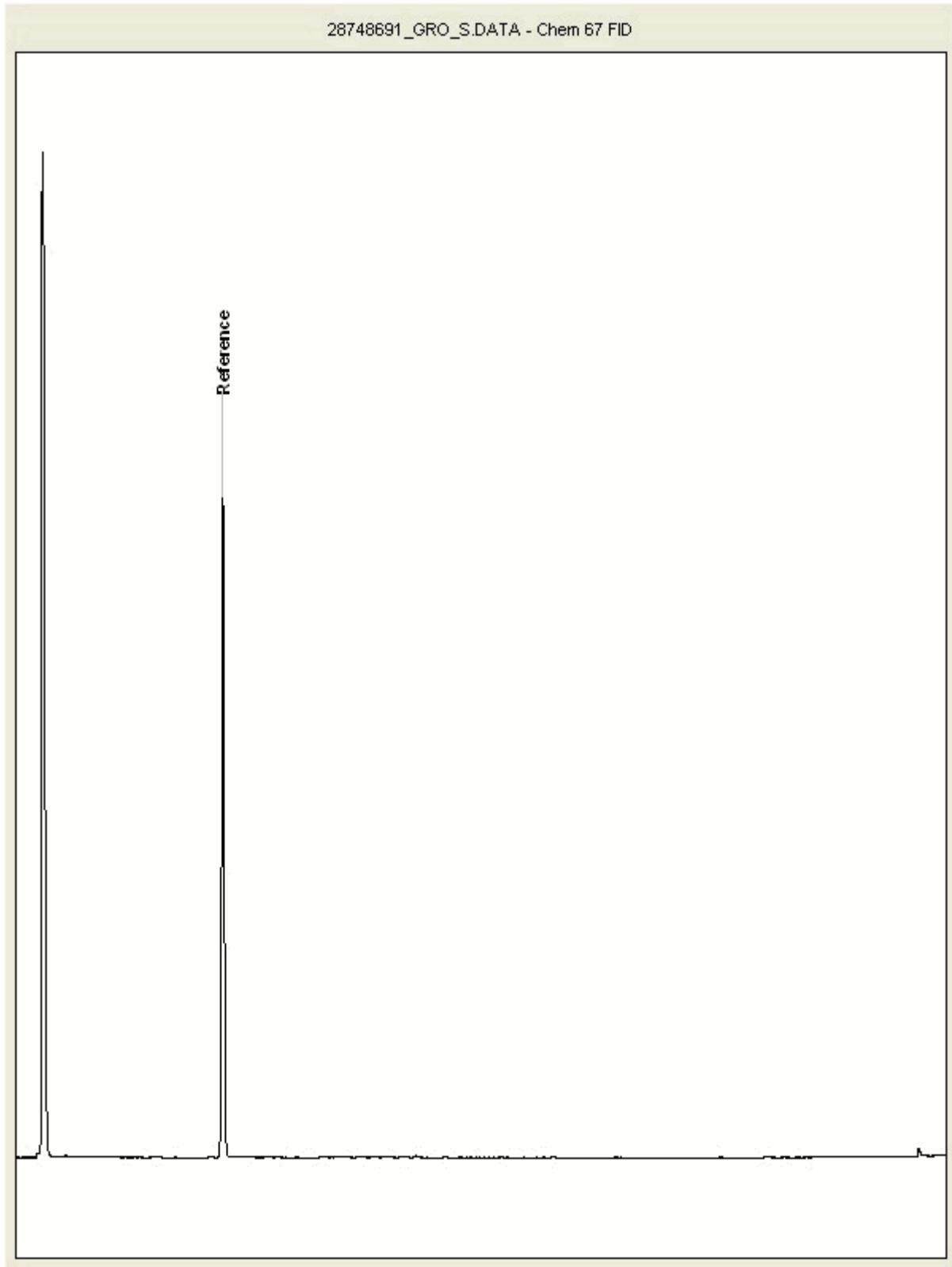
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748691
Sample ID : P101

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

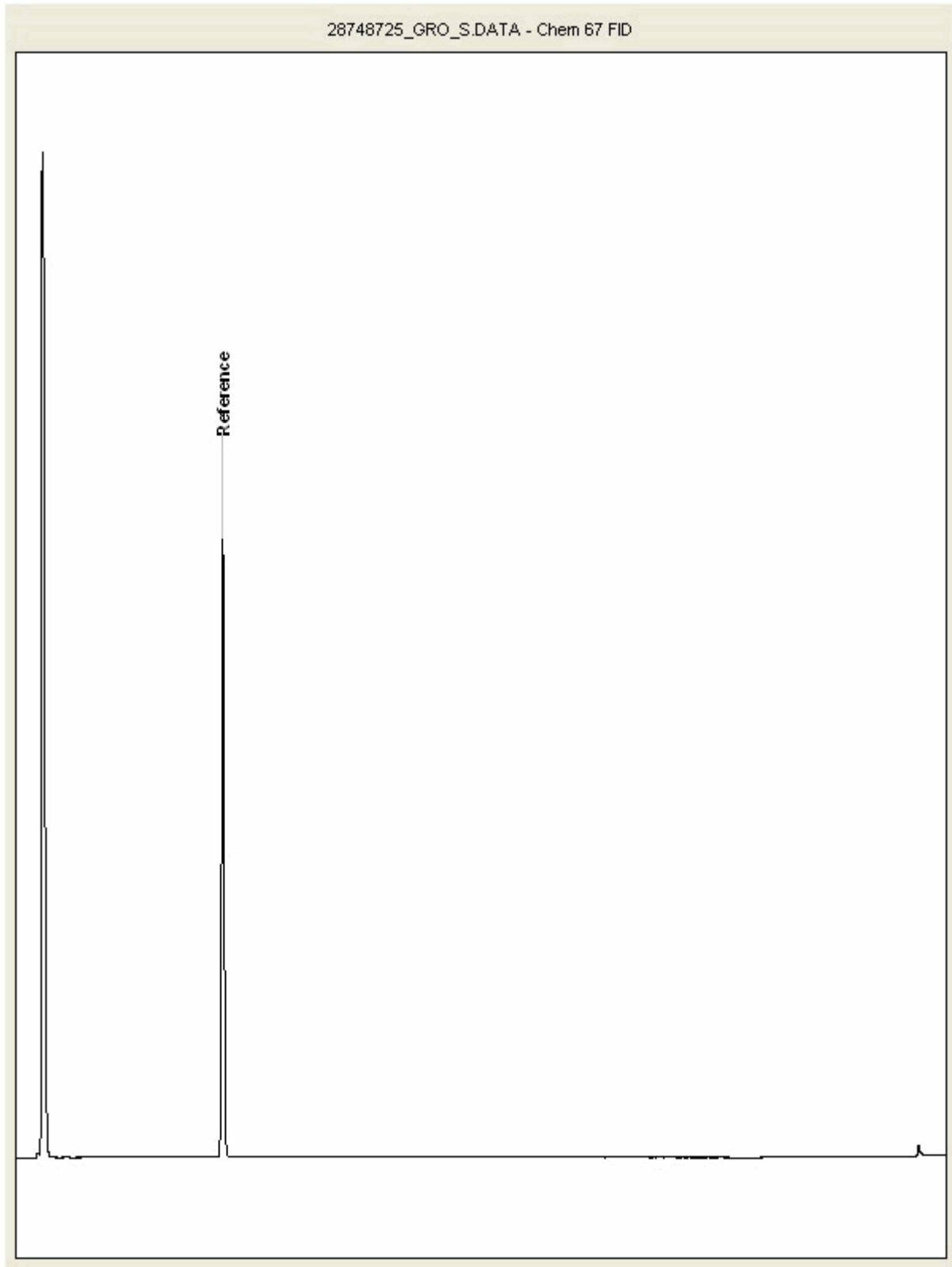
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28748725
Sample ID : V101

Depth : 0.20





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

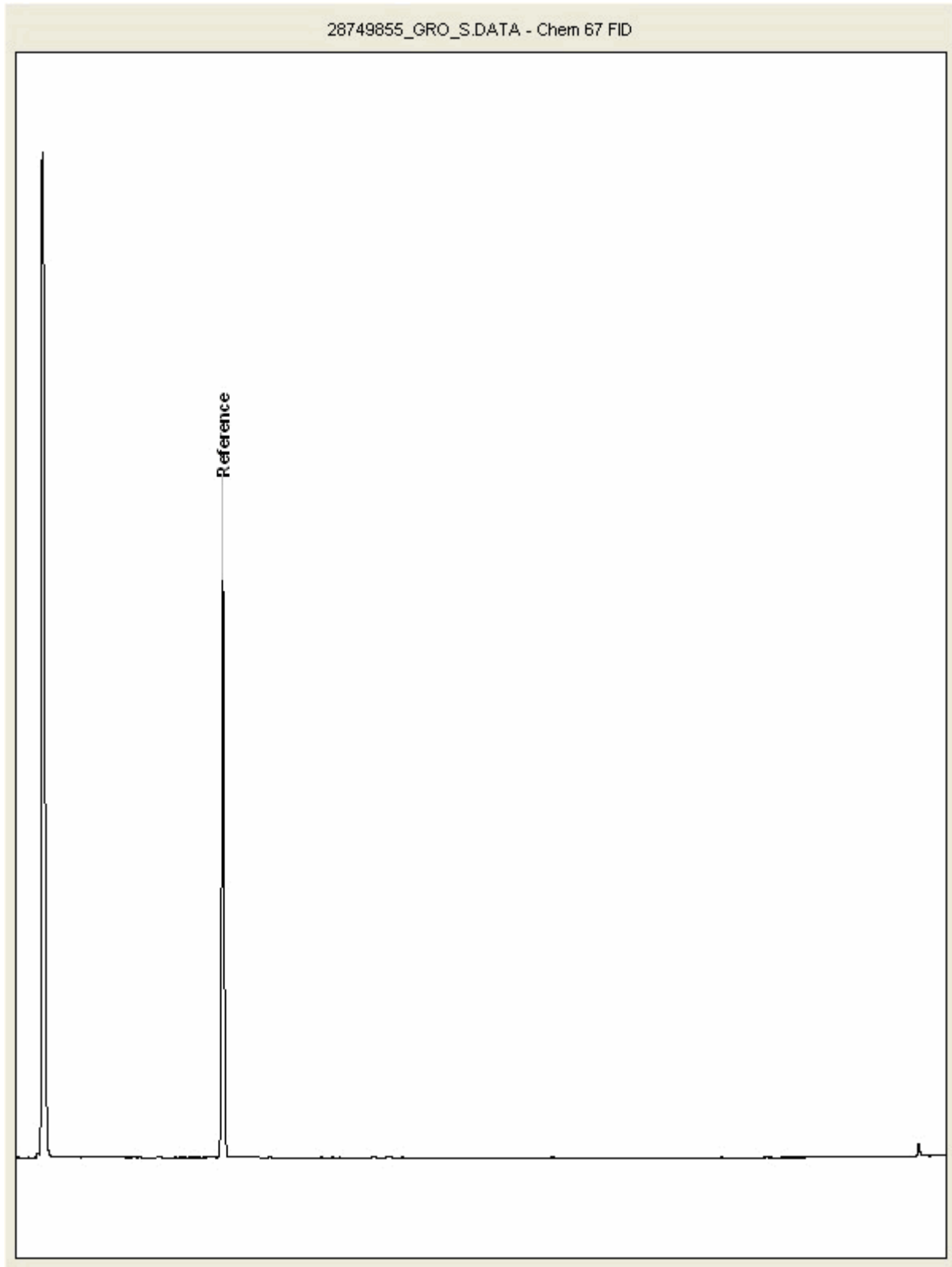
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28749855
Sample ID : V114

Depth : 0.20





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

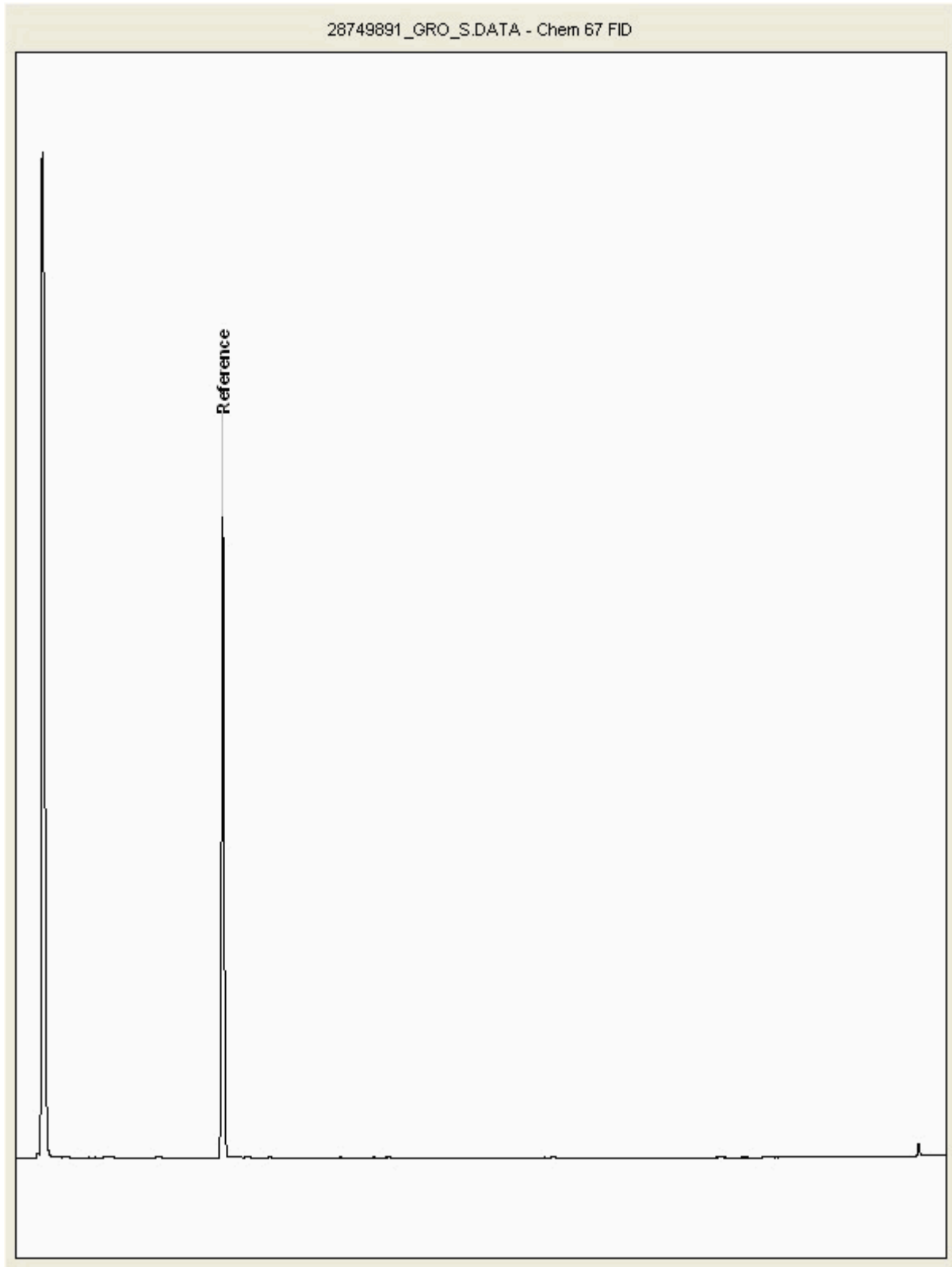
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28749891
Sample ID : P105

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

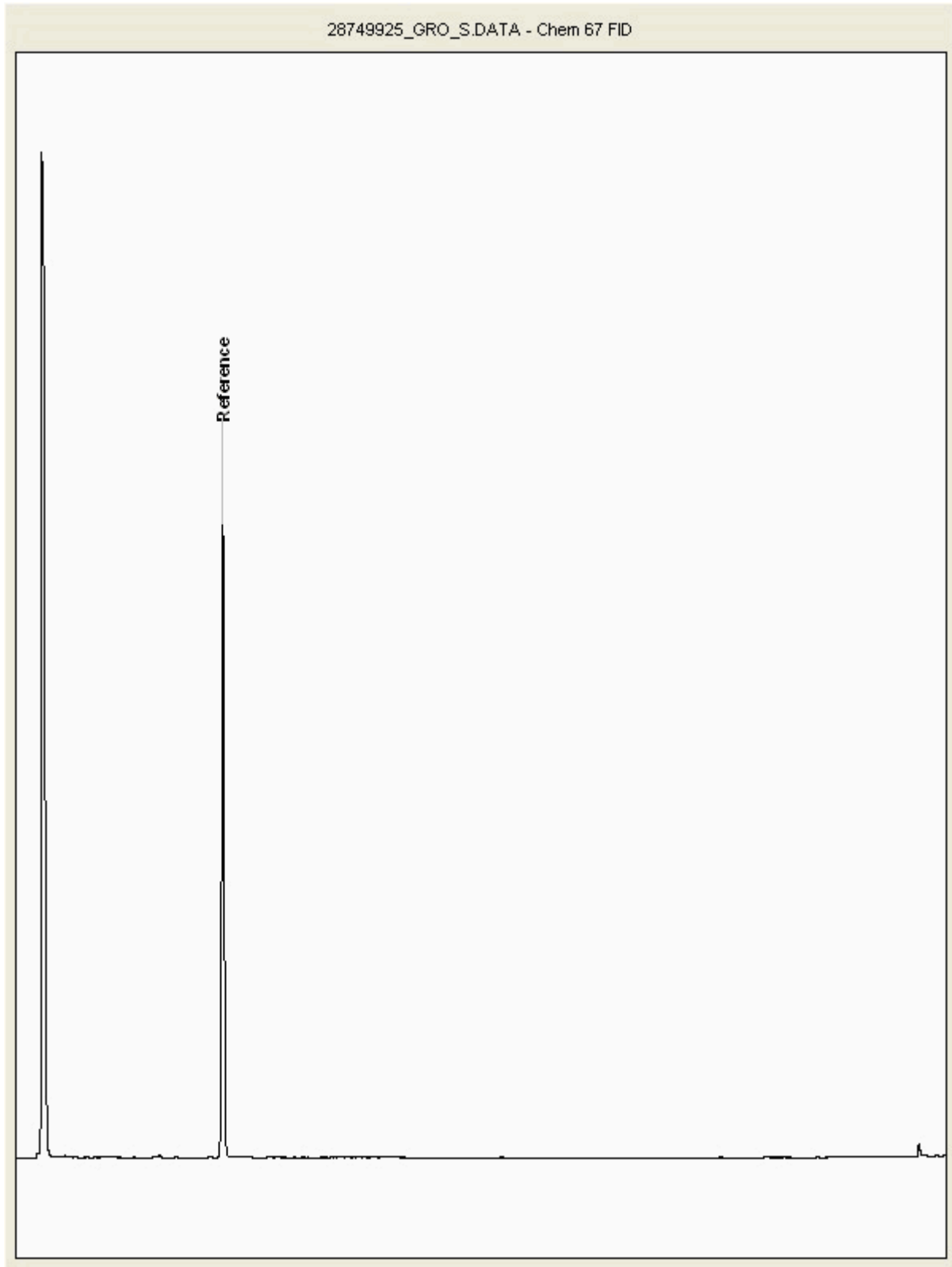
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28749925
Sample ID : P104

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231005-37
Client Ref.: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

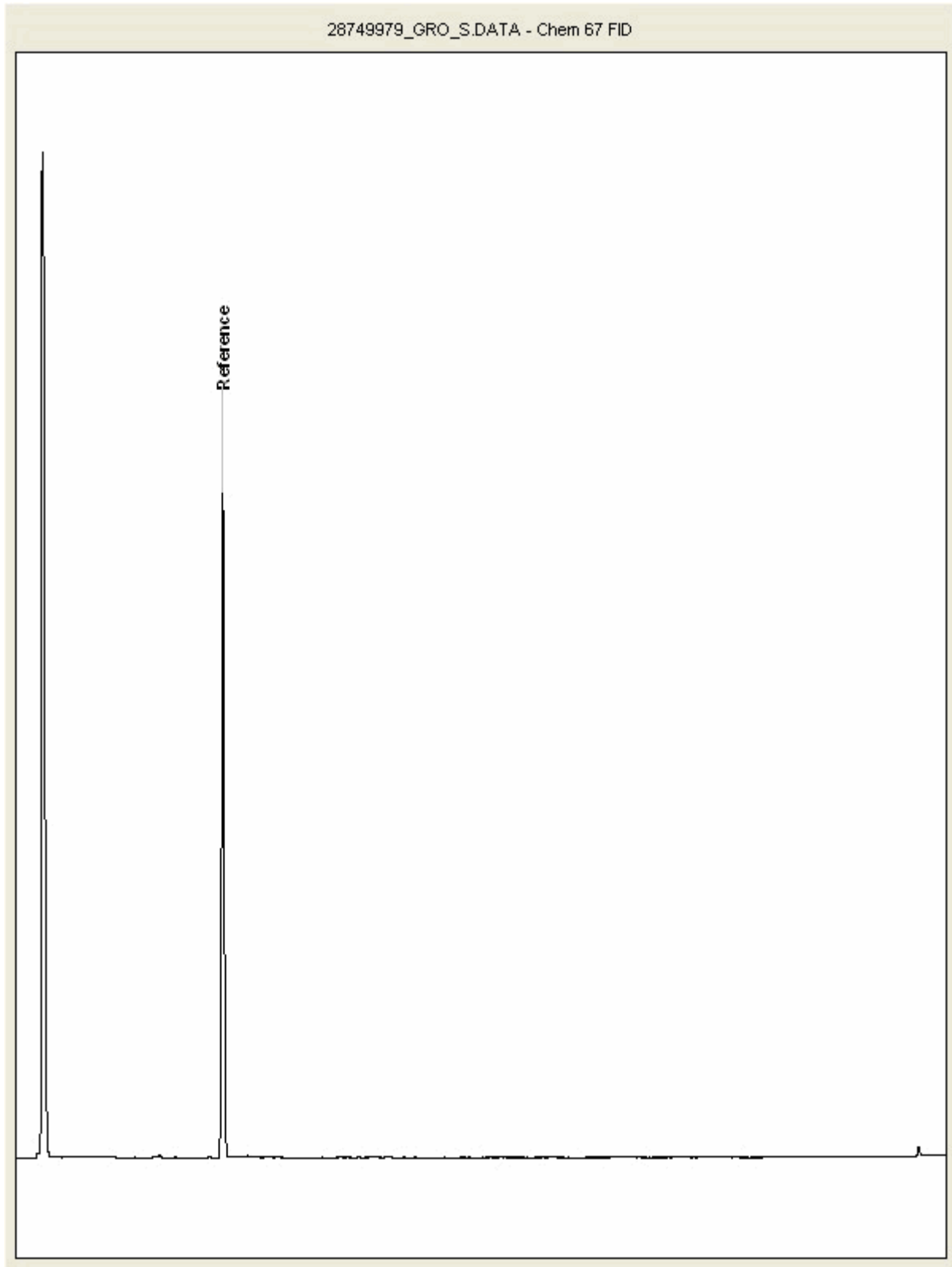
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28749979
Sample ID : P103

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

SDG: 231005-37
Client Ref: 104920

Report Number: 707362
Location: London Institute of Healthcare Engineering

Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Units 7-8 Hawarden Business Park
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Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Pell Frischmann
Burrator House
Peninsula Park
Rydon Lane
Exeter
Devon
EX2 7NT

Attention: Samara Hyde

CERTIFICATE OF ANALYSIS

Date of report Generation: 03 November 2023
Customer: Pell Frischmann
Sample Delivery Group (SDG): 231027-90
Your Reference: 104920
Location: London Institute of Healthcare Engineering
Report No: 709785
Order Number: 30013278

We received 11 samples on Friday October 27, 2023 and 11 of these samples were scheduled for analysis which was completed on Friday November 03, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager



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CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
28853503	P201	ES1	0.00 - 0.00	27/10/2023
28853524	P202	ES1	0.00 - 0.00	27/10/2023
28853531	V201	ES1	0.00 - 0.00	27/10/2023
28853539	V202	ES1	0.00 - 0.00	27/10/2023
28853547	V203	ES1	0.00 - 0.00	27/10/2023
28853553	V204	ES1	0.00 - 0.00	27/10/2023
28853563	V205	ES1	0.00 - 0.00	27/10/2023
28853570	V206	ES1	0.00 - 0.00	27/10/2023
28853577	V207	ES1	0.00 - 0.00	27/10/2023
28853512	V208	ES1	0.00 - 0.00	27/10/2023
28853518	V209	ES1	0.00 - 0.00	27/10/2023

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water
- Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	Test Results										
							28853503	28853524	28853531	28853539	28853547	28853553	28853563	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE215)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Coronene	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PAH by GCMS	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
pH	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VOC MS (S)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
28853503	P201	0.00 - 0.00	Light Brown	Loamy Sand	Stones	Brick
28853524	P202	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853531	V201	0.00 - 0.00	Dark Brown	Sandy Loam	Stones	Vegetation
28853539	V202	0.00 - 0.00	Dark Brown	Loamy Sand	Vegetation	Stones
28853547	V203	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853553	V204	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853563	V205	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853570	V206	0.00 - 0.00	Dark Brown	Loamy Sand	Brick	Stones
28853577	V207	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853512	V208	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation
28853518	V209	0.00 - 0.00	Dark Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend		Customer Sample Ref.	P201	P202	V201	V202	V203	V204
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / filtered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90	231027-90
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853503	28853524	28853531	28853539	28853547	28853553
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Moisture Content Ratio (% of as received sample)	%	PM024	23	21	16	11	13	15
Loss on ignition	<0.7 %	TM018	5.36	5.96	7.79	7.89	9.11	8.21
Phenol	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	0.0238	0.0226	<0.01	0.0118
Cresols	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	0.0357	0.0565	0.0345	0.0236
Xylenols	<0.015 mg/kg	TM062 (S)	0.0524	0.0635	0.0357	0.0339	<0.015	<0.015
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	0.0524	0.0635	0.0952	0.113	<0.035	<0.035
Organic Carbon, Total	<0.2 %	TM132	2.49	2.06	3.19	4.73	3.39	3.32
pH	1 pH Units	TM133	8.72	8.6	7.91	8.72	7.96	8.08
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Antimony	<0.6 mg/kg	TM181	<0.6	<0.6	<0.6	<0.6	<0.6	0.738
Arsenic	<0.6 mg/kg	TM181	8.57	9.28	20.9	22.9	23.3	23.5
Barium	<0.6 mg/kg	TM181	134	134	30.3	28.9	32.8	66.2
Cadmium	<0.02 mg/kg	TM181	0.218	0.206	0.193	0.214	0.231	0.202
Chromium	<0.9 mg/kg	TM181	23.5	18.2	7.37	7.73	9.94	8.65
Copper	<1.4 mg/kg	TM181	32.9	38	14	22.3	24.2	15.2
Lead	<0.7 mg/kg	TM181	11.5	10.4	19.8	22.5	24.5	20.6
Mercury	<0.1 mg/kg	TM181	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	<0.1 mg/kg	TM181	2.18	1.85	0.931	1.28	2.11	0.988
Nickel	<0.2 mg/kg	TM181	16.3	15.4	9.35	11.4	14.7	11.2
Selenium	<1 mg/kg	TM181	<1	<1	<1	<1	<1	<1
Vanadium	<0.2 mg/kg	TM181	33.5	29.9	21.9	24.4	27.4	25.4
Zinc	<1.9 mg/kg	TM181	162	167	86.1	95.4	116	81.6
PAH, Total Detected USEPA 16 + Coronene	<0.318 mg/kg	TM410	<0.318	<0.318	0.418	9.4	0.573	0.664
Coronene	<0.2 mg/kg	TM410	<0.2	<0.2	<0.2	0.237	<0.2	<0.2



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Results Legend		Customer Sample Ref.	V205	V206	V207	V208	V209	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	
aq	Aqueous / settled sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	
tot.unfilt	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853563	28853570	28853577	28853512	28853518	
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	
1.4.4.5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Moisture Content Ratio (% of as received sample)	%	PM024	15	16	12	15	13	
Loss on ignition	<0.7 %	TM018	10.7	9.63	10.9	8.7	8.67	M
Phenol	<0.01 mg/kg	TM062 (S)	<0.01	0.0119	0.0113	<0.01	0.0115	M
Cresols	<0.01 mg/kg	TM062 (S)	0.437	0.0595	0.0565	0.0351	0.207	M
Xylenols	<0.015 mg/kg	TM062 (S)	0.0236	0.0357	0.0226	0.0234	<0.015	M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	0.46	0.107	0.0904	0.0585	0.219	M
Organic Carbon, Total	<0.2 %	TM132	3.97	4.04	4.01	3.36	3.8	M
pH	1 pH Units	TM133	8.31	8.37	8.26	8.1	8.3	M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6	<0.6	M
Antimony	<0.6 mg/kg	TM181	<0.6	<0.6	<0.6	<0.6	0.661	#
Arsenic	<0.6 mg/kg	TM181	20.8	22.6	26.9	23.1	23.3	M
Barium	<0.6 mg/kg	TM181	27.2	28.8	54	26.3	23.7	#
Cadmium	<0.02 mg/kg	TM181	0.254	0.217	0.21	0.195	0.17	M
Chromium	<0.9 mg/kg	TM181	9.25	9.91	9.7	8.5	10.5	M
Copper	<1.4 mg/kg	TM181	17.8	16.6	16.4	13.4	13.1	M
Lead	<0.7 mg/kg	TM181	22.7	24	26.9	21	19.7	M
Mercury	<0.1 mg/kg	TM181	<0.1	<0.1	<0.1	<0.1	<0.1	M
Molybdenum	<0.1 mg/kg	TM181	1.66	1.34	1.28	0.966	0.915	#
Nickel	<0.2 mg/kg	TM181	13.6	11.9	11.5	9.69	10.8	M
Selenium	<1 mg/kg	TM181	<1	<1	<1	<1	<1	#
Vanadium	<0.2 mg/kg	TM181	25.1	24.6	27	24.5	23.8	#
Zinc	<1.9 mg/kg	TM181	111	95.8	87.9	75.3	66.6	M
PAH, Total Detected USEPA 16 + Coronene	<0.318 mg/kg	TM410	0.583	0.625	0.632	0.615	0.844	
Coronene	<0.2 mg/kg	TM410	<0.2	<0.2	<0.2	<0.2	<0.2	



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref.	P201	P202	V201	V202	V203	V204
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / filtered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90	231027-90
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853503	28853524	28853531	28853539	28853547	28853553
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Naphthalene-d8 % recovery**	%	TM218	90.8	88.5	88.8	90.5	88.8	90.7
Acenaphthene-d10 % recovery**	%	TM218	92.1	91.4	93.6	95	92.8	93.3
Phenanthrene-d10 % recovery**	%	TM218	87.3	91	89.7	97.9	95	89.8
Chrysene-d12 % recovery**	%	TM218	91.1	88.9	88.7	95.9	92.7	91.7
Perylene-d12 % recovery**	%	TM218	84.7	82.4	80.7	87.5	85.2	85.2
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	<0.009 M	<0.009 M	<0.009 M	<0.009 M	<0.009 M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 M	<0.012 M	0.0529 M	<0.012 M	<0.012 M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 M	<0.008 M	<0.008 M	<0.008 M	<0.008 M
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	<0.01 M	0.012 M	<0.01 M	<0.01 M
Phenanthrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 M	0.0194 M	0.192 M	0.0216 M	0.0211 M
Anthracene	<0.016 mg/kg	TM218	<0.016 M	<0.016 M	<0.016 M	0.0746 M	<0.016 M	<0.016 M
Fluoranthene	<0.017 mg/kg	TM218	0.0363 M	0.041 M	0.0758 M	1.14 M	0.123 M	0.113 M
Pyrene	<0.015 mg/kg	TM218	0.0273 M	0.0342 M	0.059 M	1.32 M	0.0963 M	0.0886 M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0331 M	0.0334 M	0.0397 M	1.07 M	0.0498 M	0.0686 M
Chrysene	<0.01 mg/kg	TM218	0.0353 M	0.0333 M	0.0472 M	1.02 M	0.0585 M	0.0739 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0473 M	0.0519 M	0.063 M	1.29 M	0.0762 M	0.0996 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 M	0.018 M	0.0215 M	0.466 M	0.0269 M	0.0375 M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0267 M	0.033 M	0.0325 M	1.15 M	0.0442 M	0.0608 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 M	0.024 M	0.0296 M	0.598 M	0.034 M	0.0504 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 M	<0.023 M	0.133 M	<0.023 M	<0.023 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 M	<0.024 M	0.0307 M	0.653 M	0.0425 M	0.0498 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	0.206	0.269	0.418	9.17	0.573	0.664



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref.	V205	V206	V207	V208	V209
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853563	28853570	28853577	28853512	28853518
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1
1-4*5@	Sample deviation (see appendix)						
Component	LOD/Units		Method				
Naphthalene-d8 % recovery**	%	TM218	89.3	89.5	91.3	90.4	90.9
Acenaphthene-d10 % recovery**	%	TM218	92.4	92.8	94.6	95.5	96.8
Phenanthrene-d10 % recovery**	%	TM218	87.6	96.1	89.2	91.1	92.5
Chrysene-d12 % recovery**	%	TM218	89.3	94.1	88.9	86.8	87.8
Perylene-d12 % recovery**	%	TM218	81.8	88.3	81.3	79	80.6
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	<0.009 M	<0.009 M	<0.009 M	<0.009 M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 M	<0.012 M	<0.012 M	<0.012 M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 M	<0.008 M	<0.008 M	<0.008 M
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Phenanthrene	<0.015 mg/kg	TM218	0.0269 M	0.0397 M	0.0189 M	0.0239 M	0.0378 M
Anthracene	<0.016 mg/kg	TM218	<0.016 M	<0.016 M	<0.016 M	<0.016 M	<0.016 M
Fluoranthene	<0.017 mg/kg	TM218	0.116 M	0.135 M	0.11 M	0.108 M	0.161 M
Pyrene	<0.015 mg/kg	TM218	0.0886 M	0.107 M	0.0859 M	0.0828 M	0.126 M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0529 M	0.051 M	0.0617 M	0.0542 M	0.0717 M
Chrysene	<0.01 mg/kg	TM218	0.0657 M	0.0562 M	0.072 M	0.0676 M	0.103 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0812 M	0.0789 M	0.0979 M	0.0985 M	0.118 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.0293 M	0.0304 M	0.0329 M	0.0335 M	0.0417 M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0438 M	0.0449 M	0.0543 M	0.053 M	0.0695 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.0389 M	0.0368 M	0.0491 M	0.0474 M	0.0587 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 M	<0.023 M	<0.023 M	<0.023 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.0392 M	0.045 M	0.0489 M	0.0459 M	0.0573 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	0.582	0.625	0.632	0.615	0.844



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	P201	P202	V201	V202	V203	V204
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / filtered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00
tot.unfiltr	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90	231027-90
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853503	28853524	28853531	28853539	28853547	28853553
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	ES1
1-4456	Sample deviation (see appendix)							
Component	LOD/Units		Method					
GRO Surrogate % recovery**	%	TM089	126	90.7	78.8	78.7	73.7	75.7
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1	<1	<1	<1	<1
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1	1.69	<1	<1	<1
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1	6.48	6.82	8	6.45
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	41.5	31.3	28.6	27.7	29.5	23.5
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	7.17	4.76	2.86	2.8	2.54	2.2
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	49.1	36.5	40.2	37.9	40.6	32.3
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	73.9	54.1	205	118	121	97.7
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	<1	<1	<1	<1
Aromatics >EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	6.44	2.59	1.26	<1
Aromatics >EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	3.87	1.87	24.9	10.2	12	9.29
Aromatics >EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	19.6	14.7	119	59.6	56.6	47.9
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.32	<1	14.8	7.27	10.2	7.48
Aromatics >EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1	3.22	1.22	1.99	<1
Total Aromatics >EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	24.8	17.6	165	79.6	80	65.4
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	73.9	54.1	205	118	121	97.7
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	V205	V206	V207	V208	V209	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	
aq	Aqueous / filtered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	
diss,filtr	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	
tot.unfiltr	Total / unfiltered sample.		27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023	
*	Subcontracted - refer to subcontractor report for accreditation status.		231027-90	231027-90	231027-90	231027-90	231027-90	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		28853563	28853570	28853577	28853512	28853518	
(F)	Trigger breach confirmed		ES1	ES1	ES1	ES1	ES1	
1-4456	Sample deviation (see appendix)							
Component	LOD/Units		Method					
GRO Surrogate % recovery**	%	TM089	73	76.6	76.3	76.6	78.3	
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	5.27 #	14.1 #	7.82 #	7.63 #	9.27 #	
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	25.8 #	216 #	24.9 #	26.3 #	87.9 #	
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	2.61	10.7	2.31	2.13	25	
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	34.2	242	35.3	36.6	123	
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	172	334	105	117	246	
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 #	<1 #	<1 #	<1 #	
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	3.23 #	1.67 #	<1 #	1.89 #	1.33 #	
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	28.3 #	12.9 #	9.82 #	11.4 #	16.7 #	
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	92.8 #	66.8 #	50.4 #	58.8 #	97.3 #	
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	12.9	11	9.17	7.88	7.99	
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	2.36	2.79	1.48	1.27	2.5	
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	137	92.4	70.1	79.9	123	
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	172	334	105	117	246	
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05	<0.05	<0.05	<0.05	
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02	<0.02	<0.02	<0.02	



CERTIFICATE OF ANALYSIS

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SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Asbestos Identification - Solid Samples

Results Legend

- # ISO17025 accredited.
- M mCERTS accredited.
- * Subcontracted test.
- (F) Trigger breach confirmed
- 1-5&*\$@ Sample deviation (see appendix)

Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
02/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. P201ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853503 Method Number TM048									
02/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. P202ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853524 Method Number TM048									
02/11/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V201ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853531 Method Number TM048									
02/11/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V202ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853539 Method Number TM048									
02/11/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V203ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853547 Method Number TM048									
02/11/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V204ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853553 Method Number TM048									
01/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V205ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853563 Method Number TM048									
02/11/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. V206ES1 Depth (m) 0.00 - 0.00 Sample Type SOLID Date Sampled 27/10/2023 00:00:00 Date Received 27/10/2023 05:00:00 SDG 231027-90 Original Sample 28853570 Method Number TM048									



CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V207ES1 0.00 - 0.00 SOLID 27/10/2023 00:00:00 27/10/2023 05:00:00 231027-90 28853577 TM048	01/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V208ES1 0.00 - 0.00 SOLID 27/10/2023 00:00:00 27/10/2023 05:00:00 231027-90 28853512 TM048	02/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	V209ES1 0.00 - 0.00 SOLID 27/10/2023 00:00:00 27/10/2023 05:00:00 231027-90 28853518 TM048	01/11/2023	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

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SDG: 231027-90
Client Ref.: 104920

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Superseded Report:

Table of Results - Appendix

Method No	Description
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM018	Determination of Loss on Ignition
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM410	Determination of Coronene in soils by GCMS
TM048	Identification of Asbestos in Bulk Material
TM062 (S)	Determination of Phenols in Soils by HPLC
TM218	The determination of PAH in soil samples by GC-MS
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM151	Determination of Hexavalent Chromium using Kone analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

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SDG: 231027-90
Client Ref.: 104920

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Superseded Report:

Test Completion Dates

Lab Sample No(s)	28853503	28853524	28853531	28853539	28853547	28853553	28853563	28853570	28853577	28853512
Customer Sample Ref.	P201	P202	V201	V202	V203	V204	V205	V206	V207	V208
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023
Coronene	01-Nov-2023	02-Nov-2023	01-Nov-2023	02-Nov-2023	02-Nov-2023	01-Nov-2023	01-Nov-2023	02-Nov-2023	01-Nov-2023	01-Nov-2023
EPH CWG GC (S)	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023
GRO by GC-FID (S)	31-Oct-2023	31-Oct-2023	01-Nov-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023
Hexavalent Chromium (s)	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023	31-Oct-2023
Loss on Ignition in soils	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023
Metals in solid samples by OES	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023
PAH 16 & 17 Calc	01-Nov-2023	02-Nov-2023	01-Nov-2023	02-Nov-2023	02-Nov-2023	01-Nov-2023	01-Nov-2023	02-Nov-2023	01-Nov-2023	01-Nov-2023
PAH by GCMS	31-Oct-2023	01-Nov-2023	31-Oct-2023	01-Nov-2023	01-Nov-2023	31-Oct-2023	31-Oct-2023	01-Nov-2023	31-Oct-2023	31-Oct-2023
pH	01-Nov-2023	02-Nov-2023	31-Oct-2023	02-Nov-2023	02-Nov-2023	31-Oct-2023	01-Nov-2023	02-Nov-2023	01-Nov-2023	31-Oct-2023
Phenols by HPLC (S)	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	31-Oct-2023	31-Oct-2023	01-Nov-2023	01-Nov-2023	31-Oct-2023
Sample description	28-Oct-2023	30-Oct-2023	28-Oct-2023	30-Oct-2023	30-Oct-2023	28-Oct-2023	28-Oct-2023	30-Oct-2023	28-Oct-2023	28-Oct-2023
Total Organic Carbon	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	02-Nov-2023	03-Nov-2023	02-Nov-2023	02-Nov-2023	03-Nov-2023	03-Nov-2023
TPH CWG GC (S)	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023
VOC MS (S)	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023	01-Nov-2023

Lab Sample No(s)	28853518
Customer Sample Ref.	V209
AGS Ref.	ES1
Depth	0.00 - 0.00
Type	Soil/Solid (S)
Asbestos ID in Solid Samples	01-Nov-2023
Coronene	01-Nov-2023
EPH CWG GC (S)	01-Nov-2023
GRO by GC-FID (S)	31-Oct-2023
Hexavalent Chromium (s)	31-Oct-2023
Loss on Ignition in soils	02-Nov-2023
Metals in solid samples by OES	01-Nov-2023
PAH 16 & 17 Calc	01-Nov-2023
PAH by GCMS	31-Oct-2023
pH	01-Nov-2023
Phenols by HPLC (S)	31-Oct-2023
Sample description	28-Oct-2023
Total Organic Carbon	03-Nov-2023
TPH CWG GC (S)	01-Nov-2023
VOC MS (S)	01-Nov-2023



CERTIFICATE OF ANALYSIS

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SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

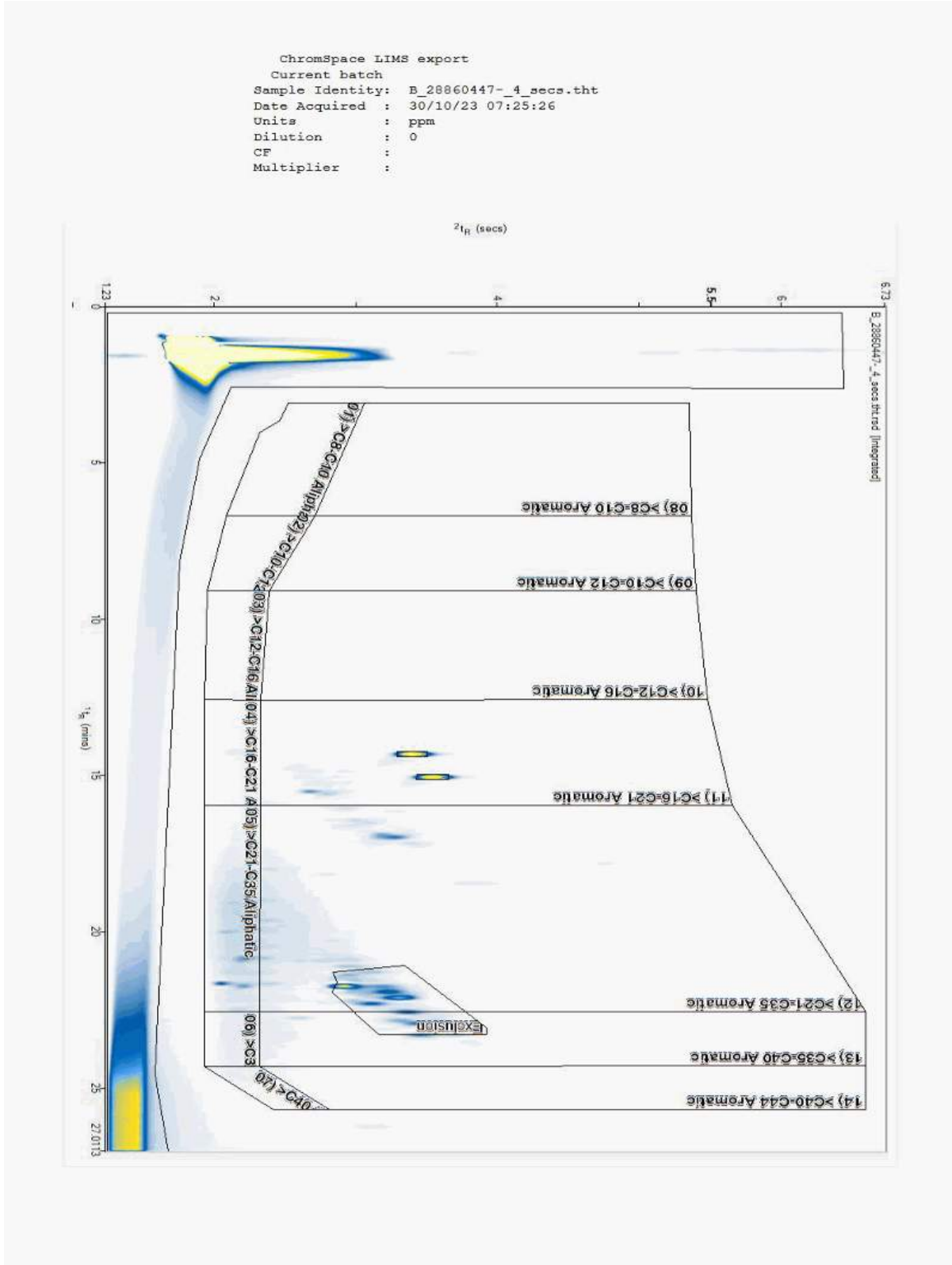
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860447
Sample ID : P201

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

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SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

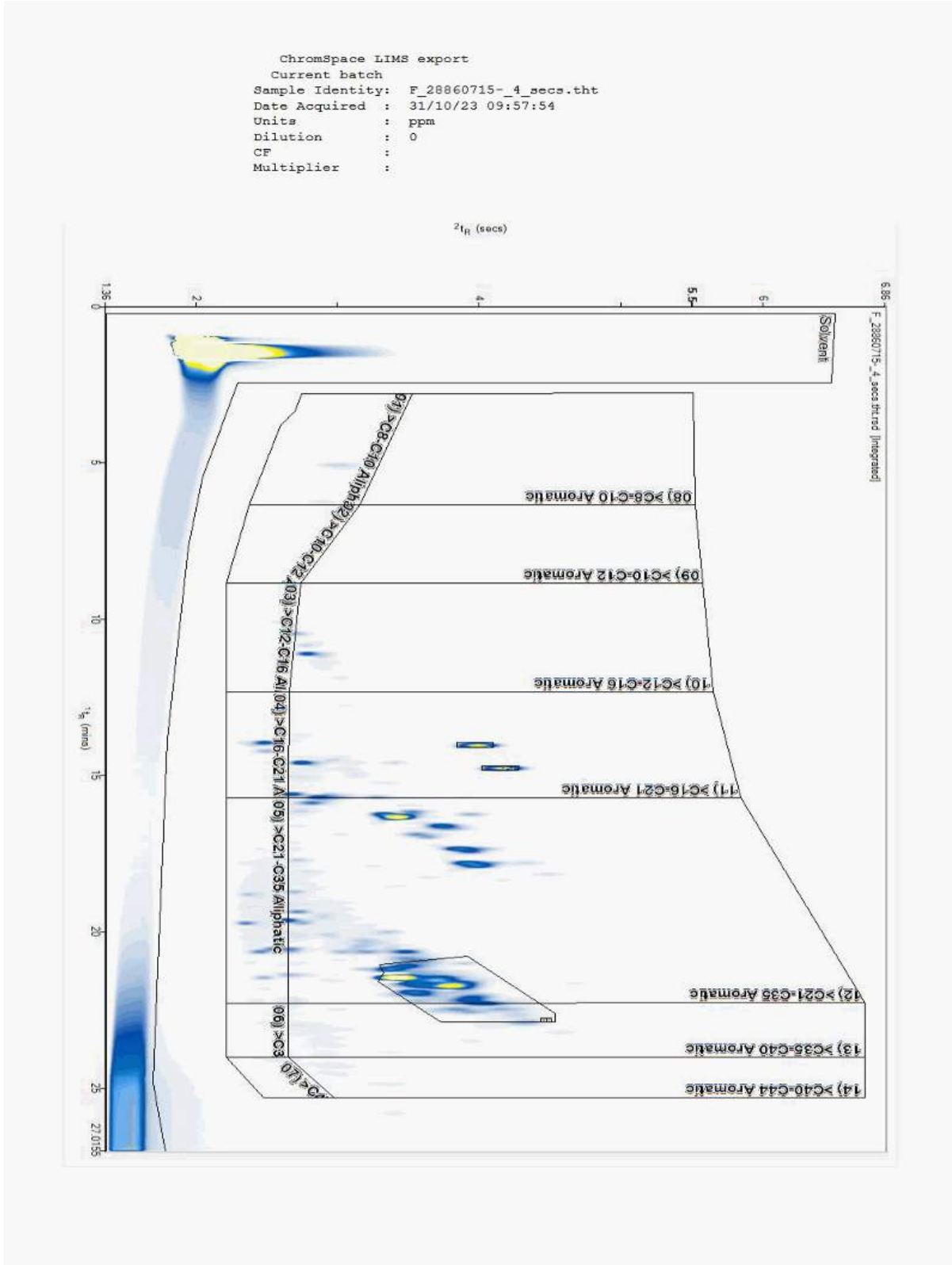
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860715
Sample ID : V201

Depth : 0.00 - 0.00





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Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

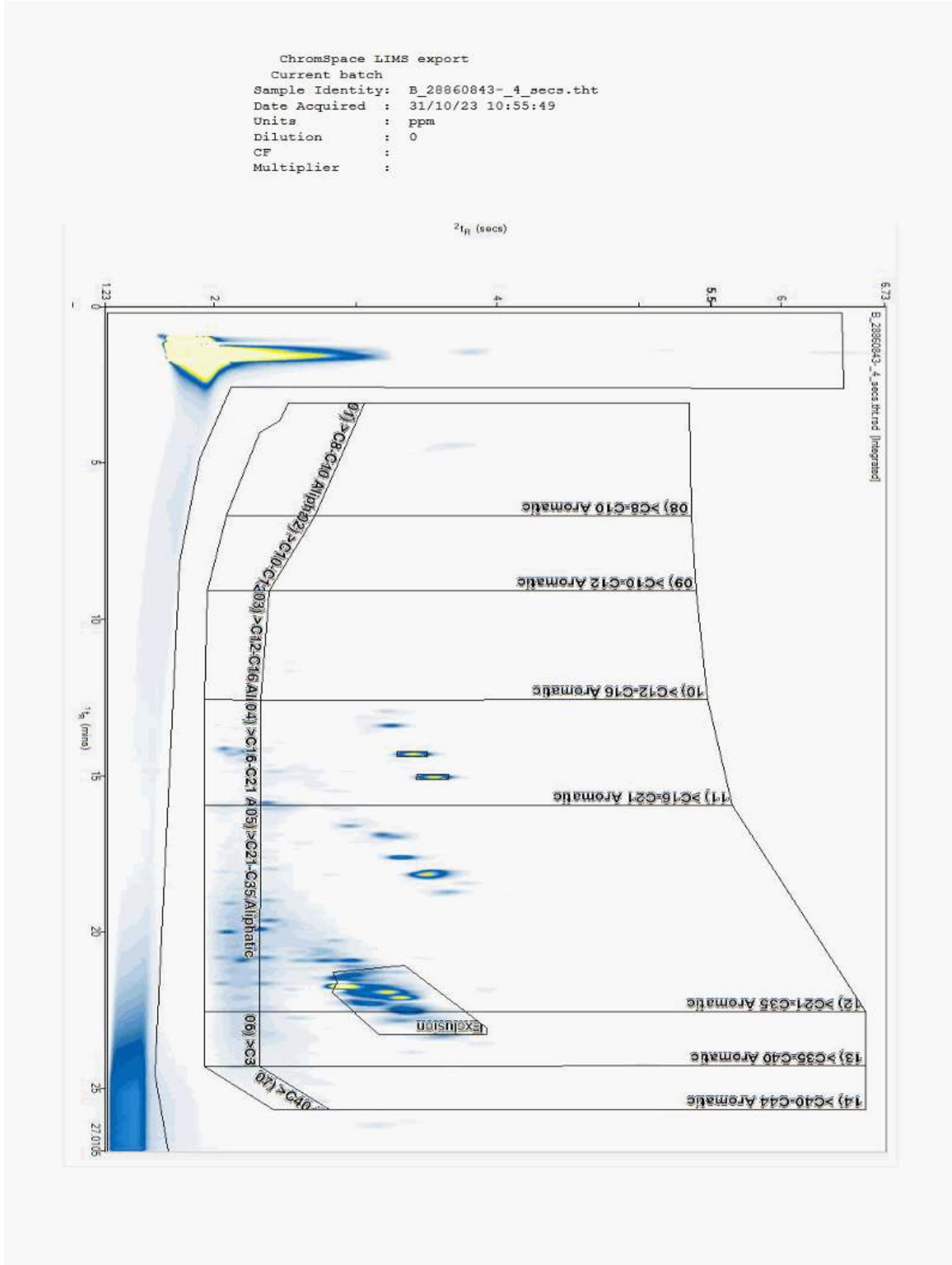
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860843
Sample ID : V209

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

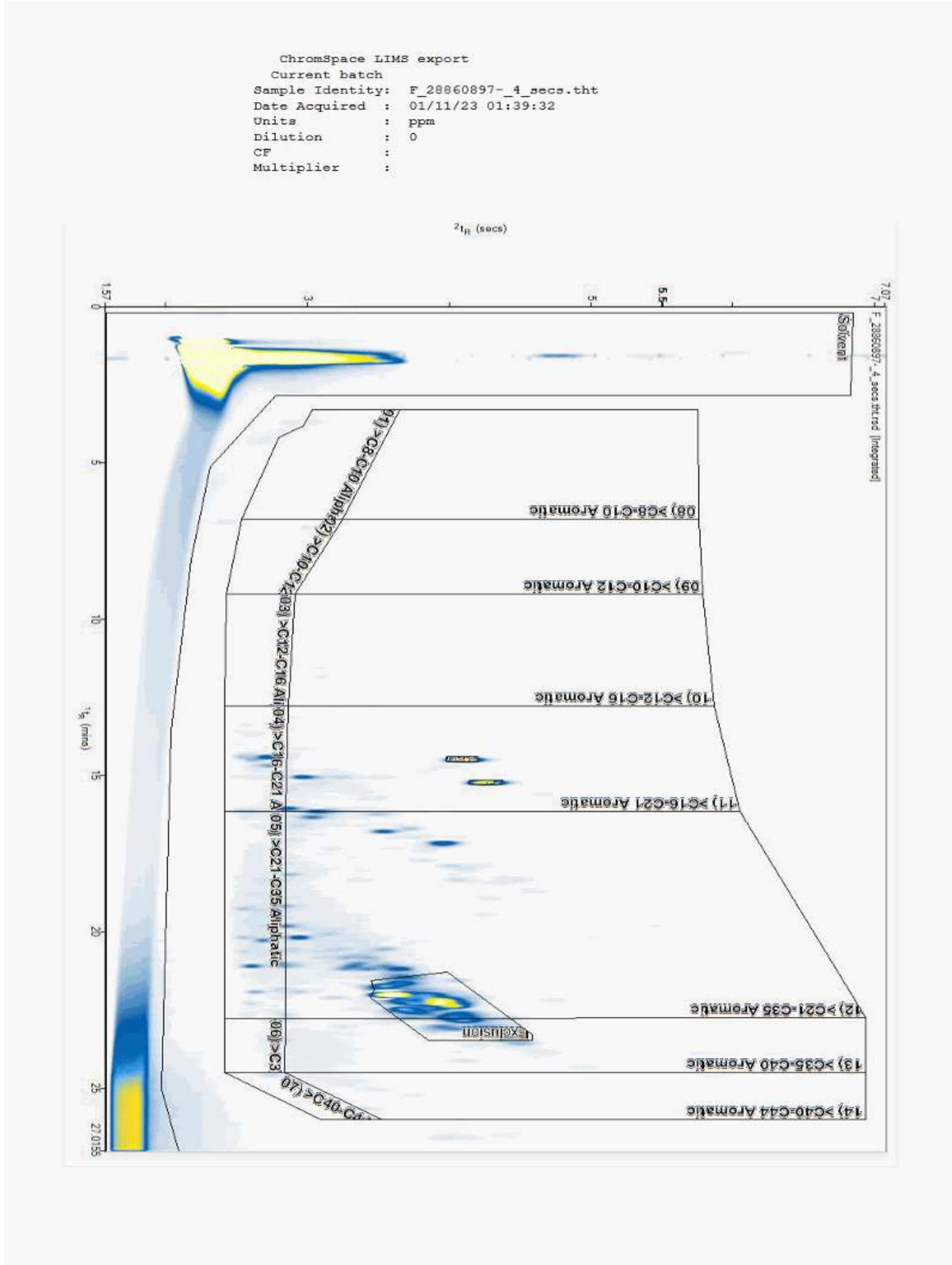
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860897
Sample ID : V207

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

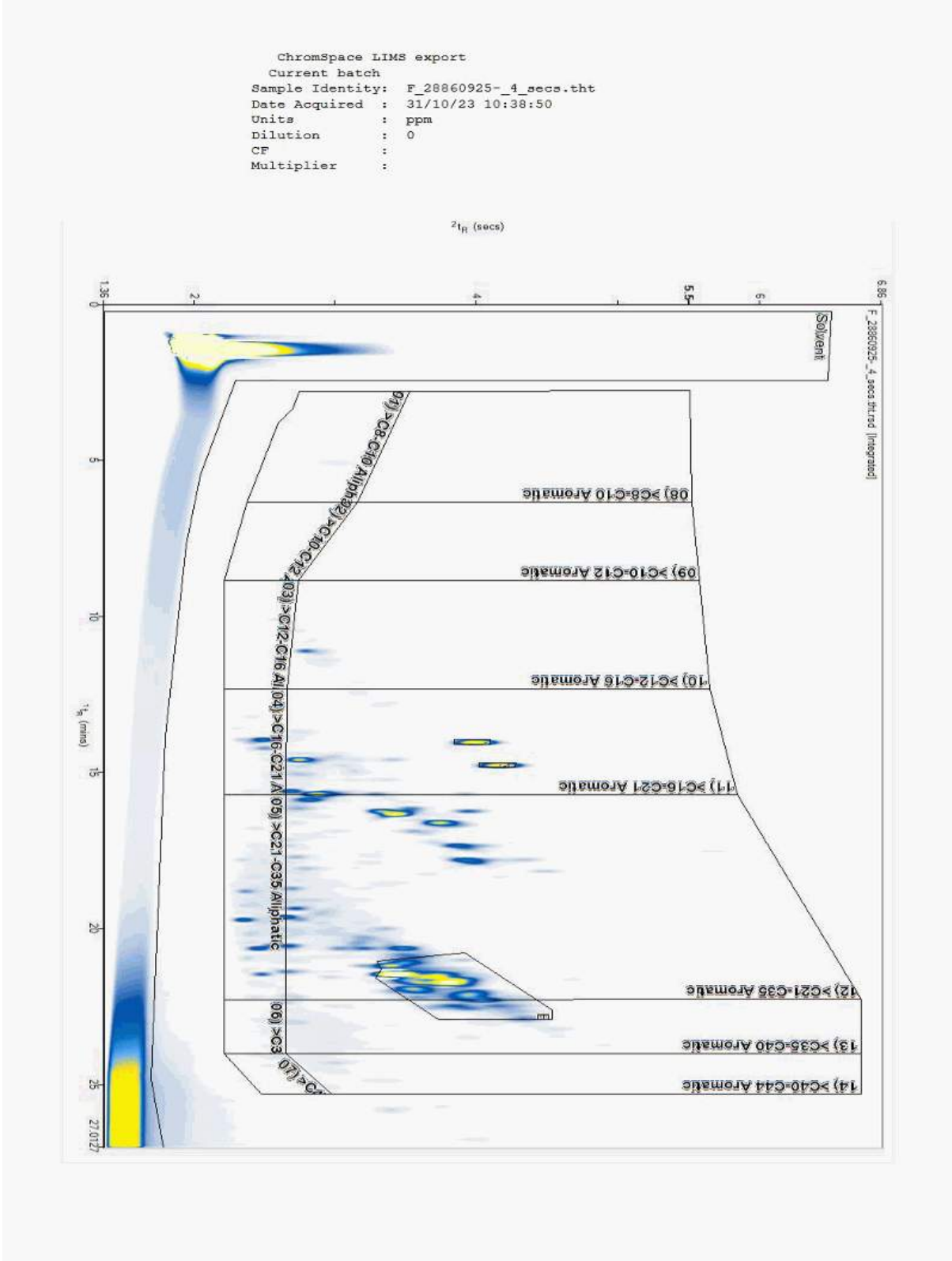
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860925
Sample ID : V205

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

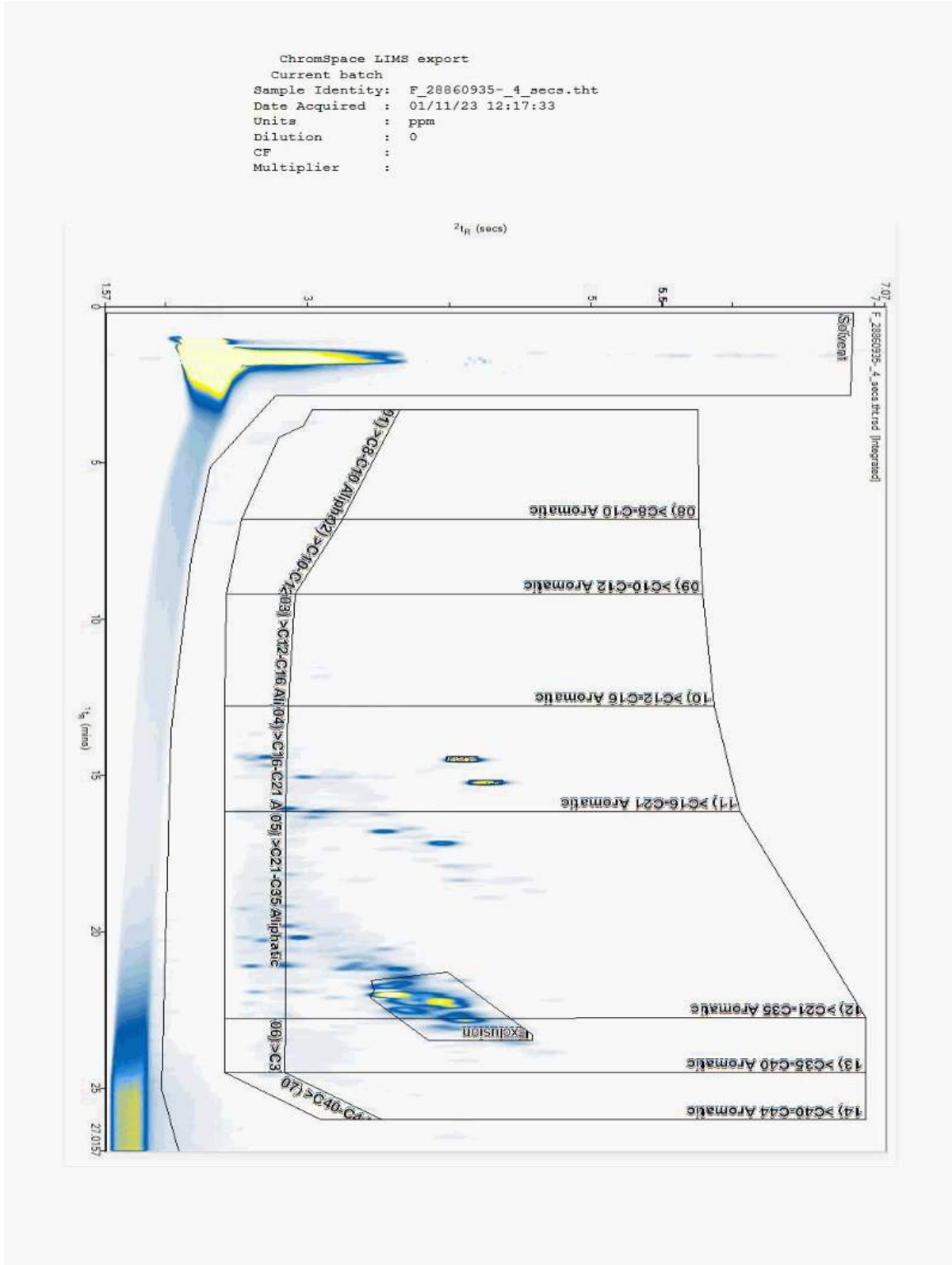
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860935
Sample ID : V204

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

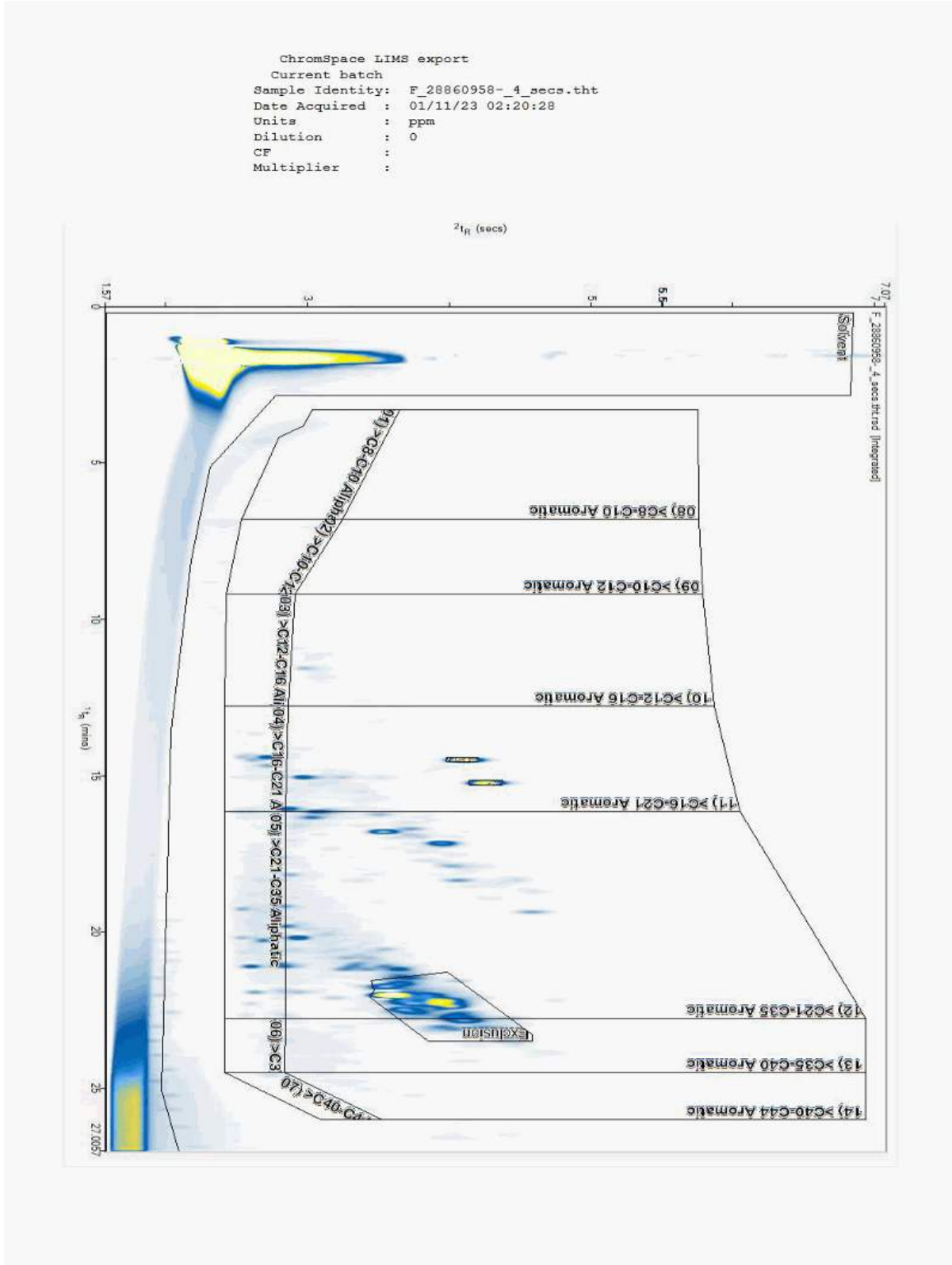
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28860958
Sample ID : V208

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

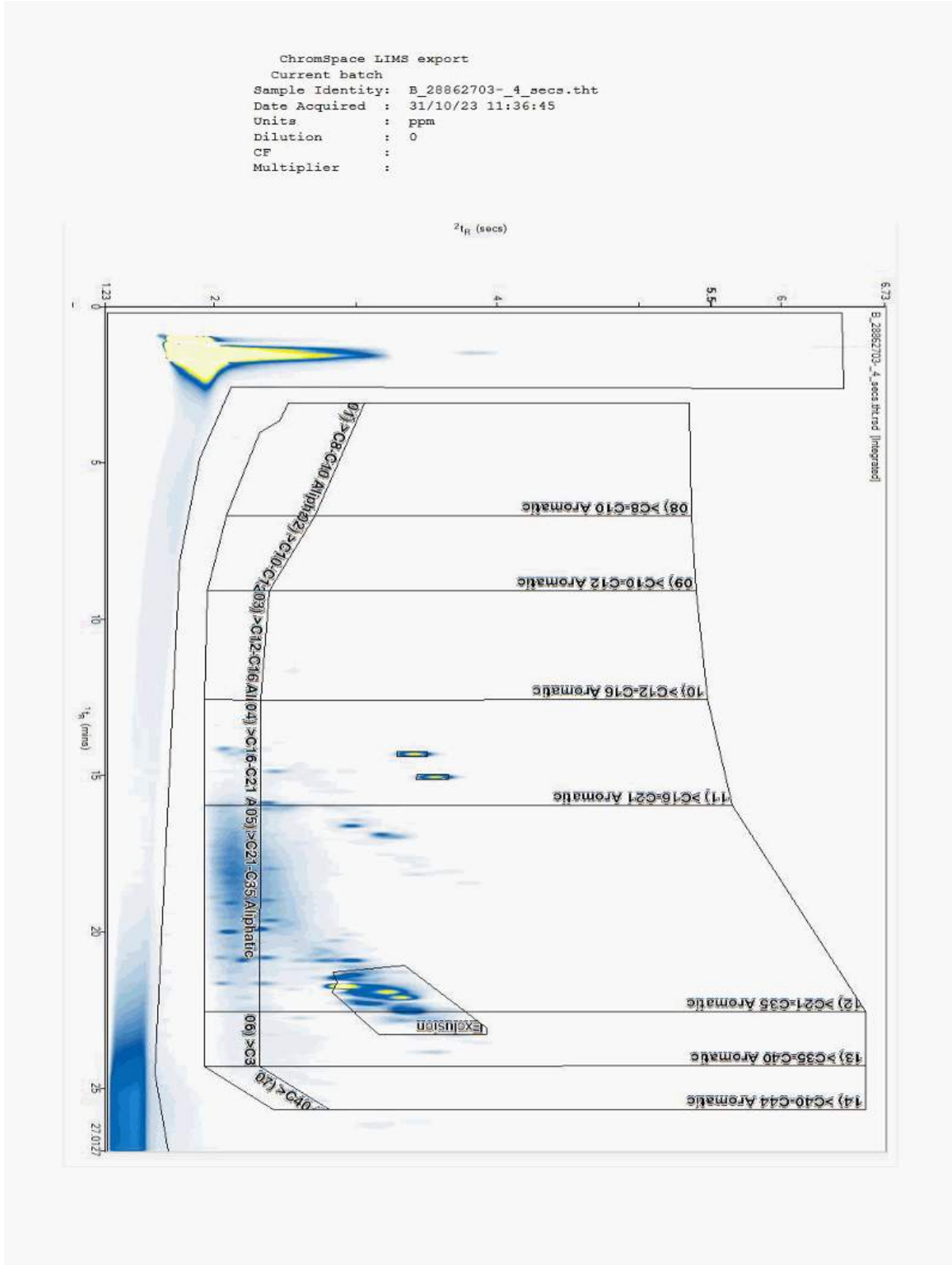
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28862703
Sample ID : V206

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

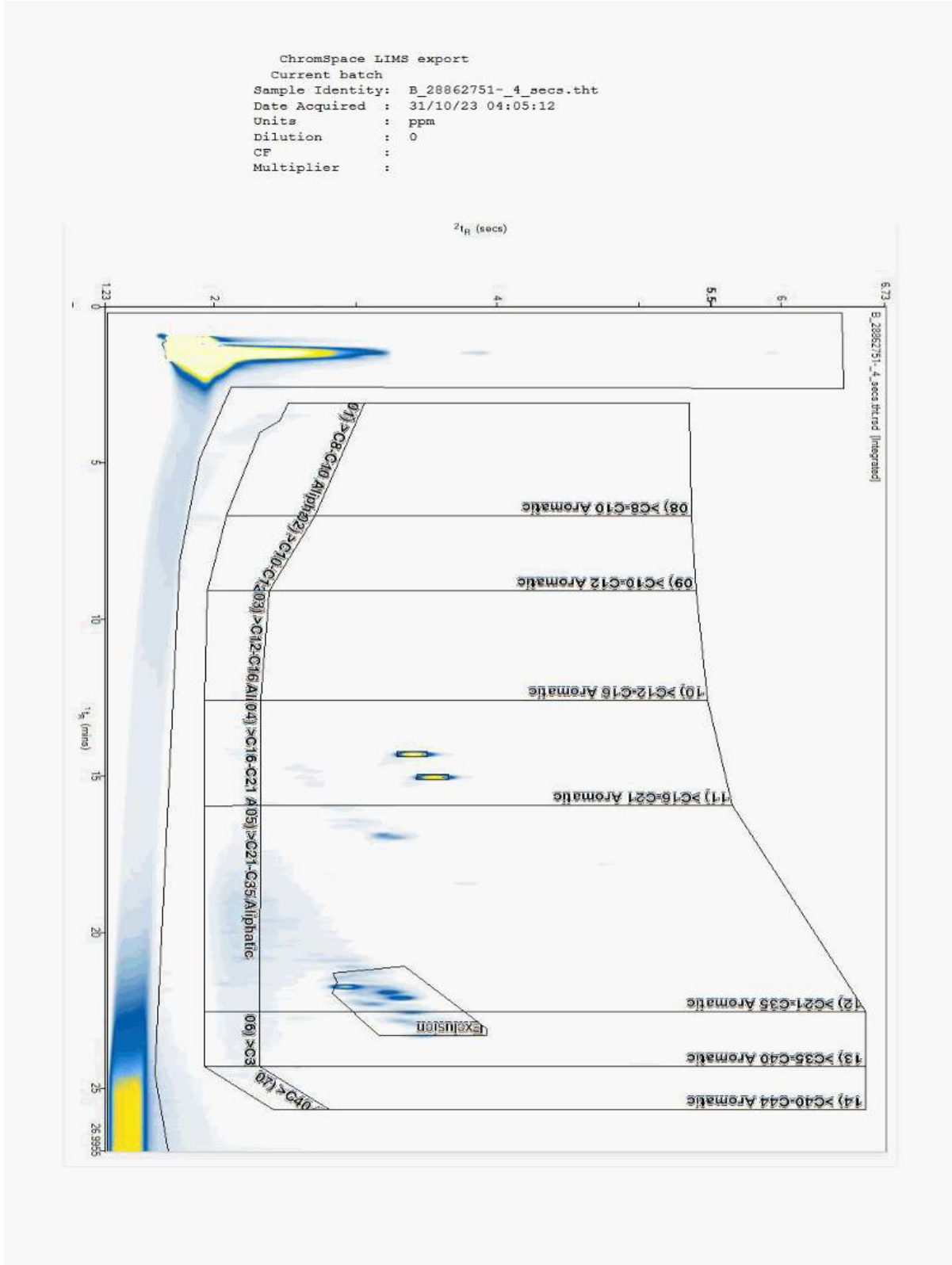
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28862751
Sample ID : P202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

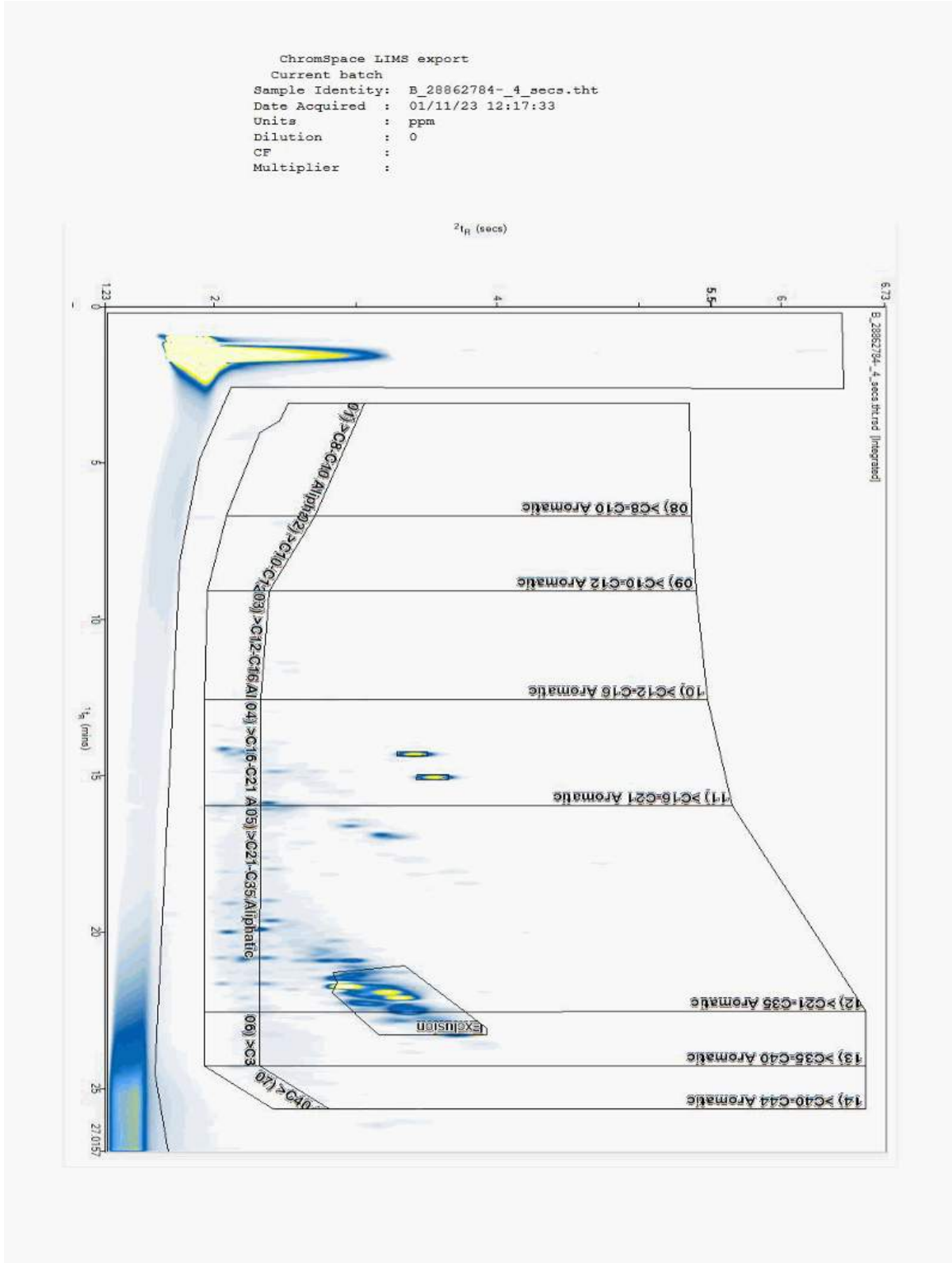
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28862784
Sample ID : V203

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

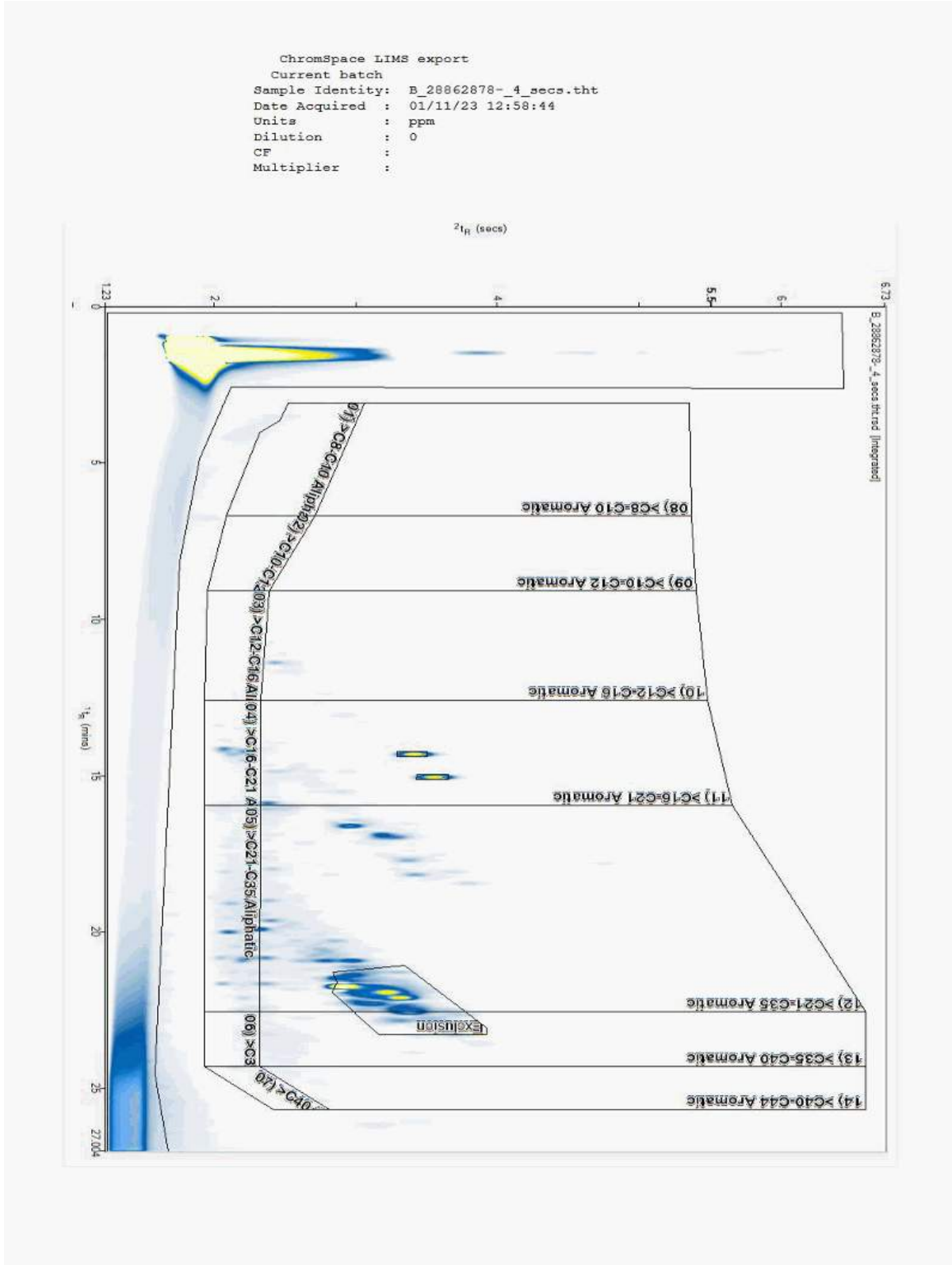
Superseded Report:

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28862878
Sample ID : V202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

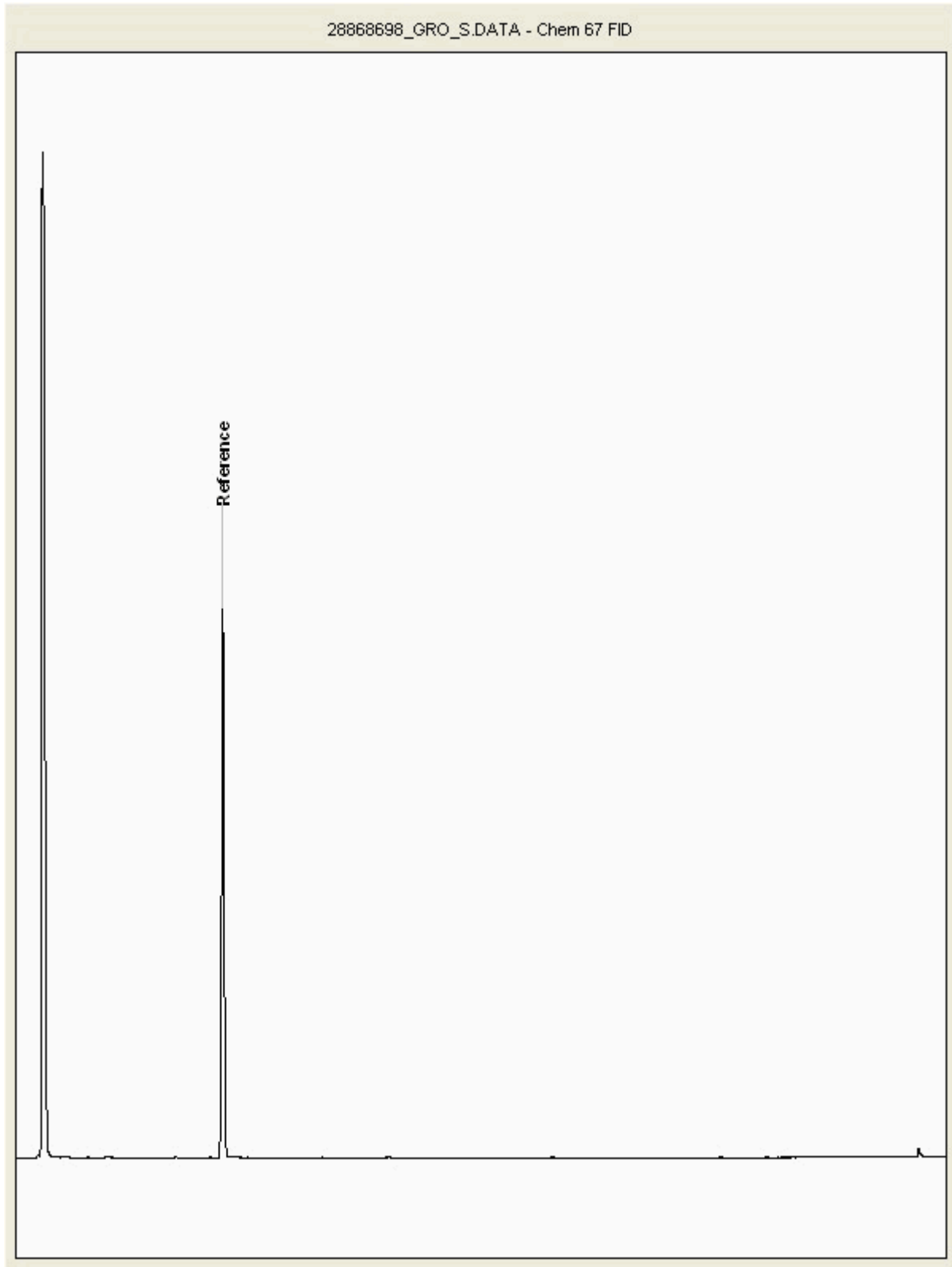
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28868698
Sample ID : P201

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

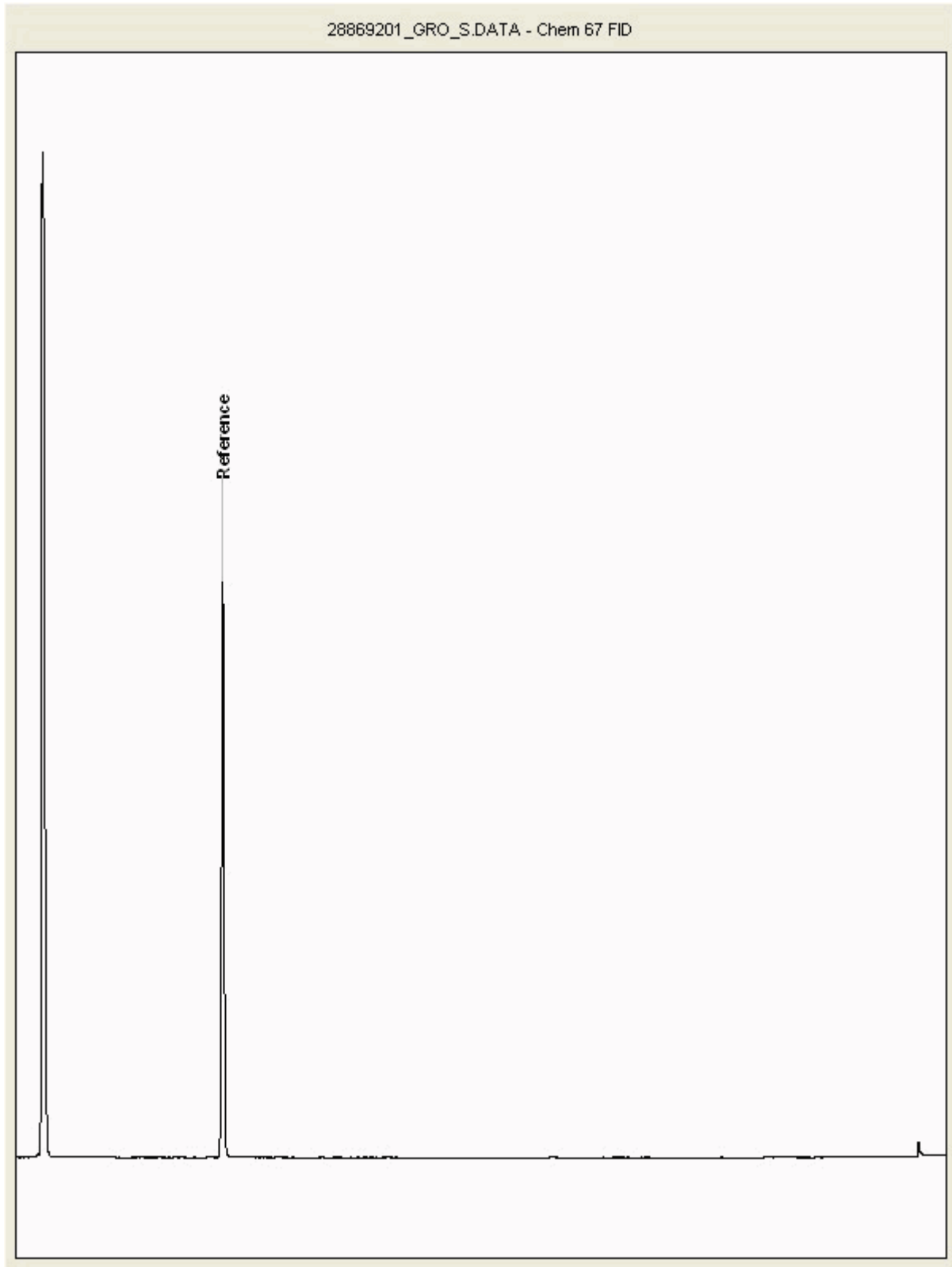
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869201
Sample ID : V206

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

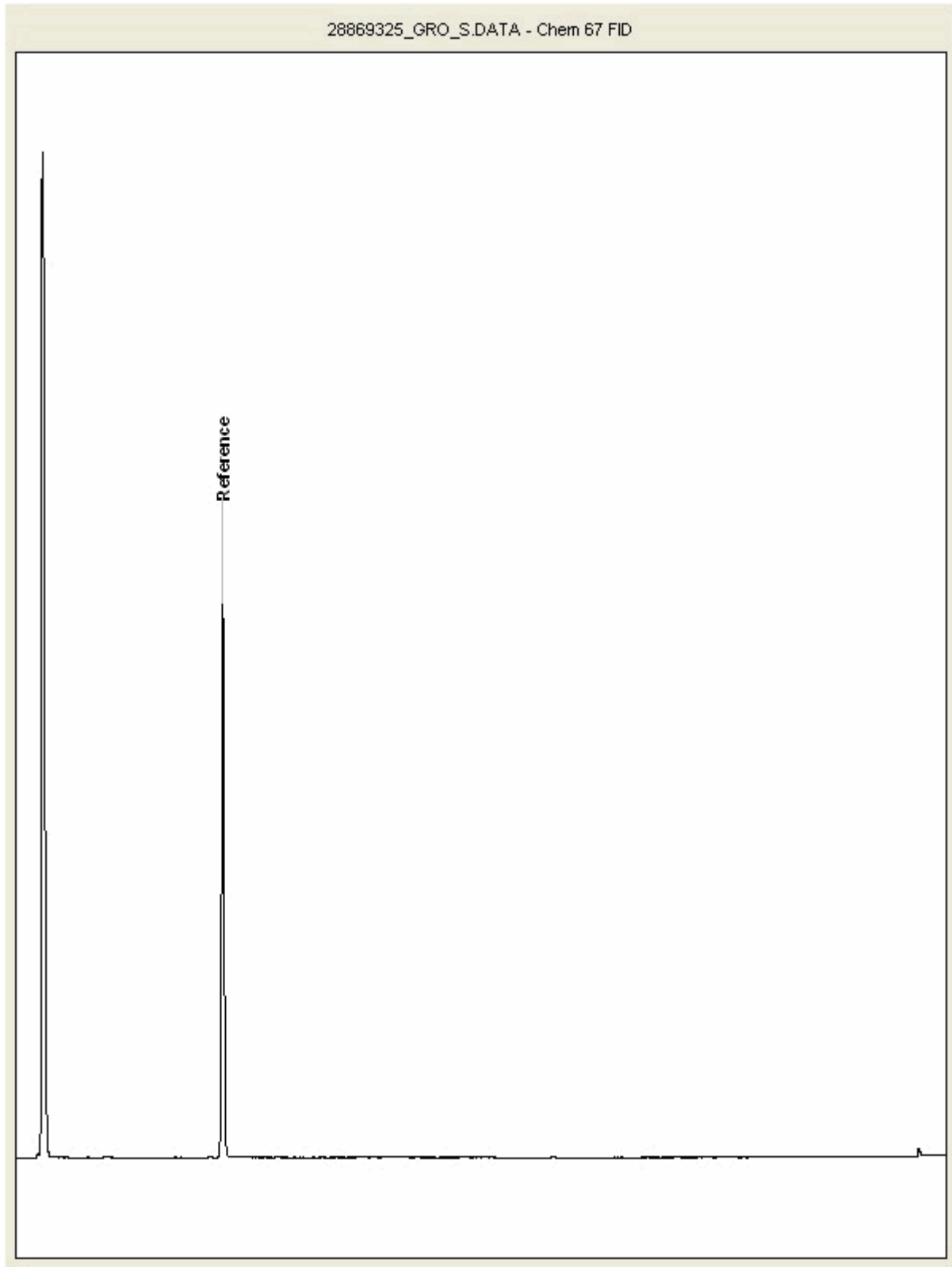
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869325
Sample ID : V203

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

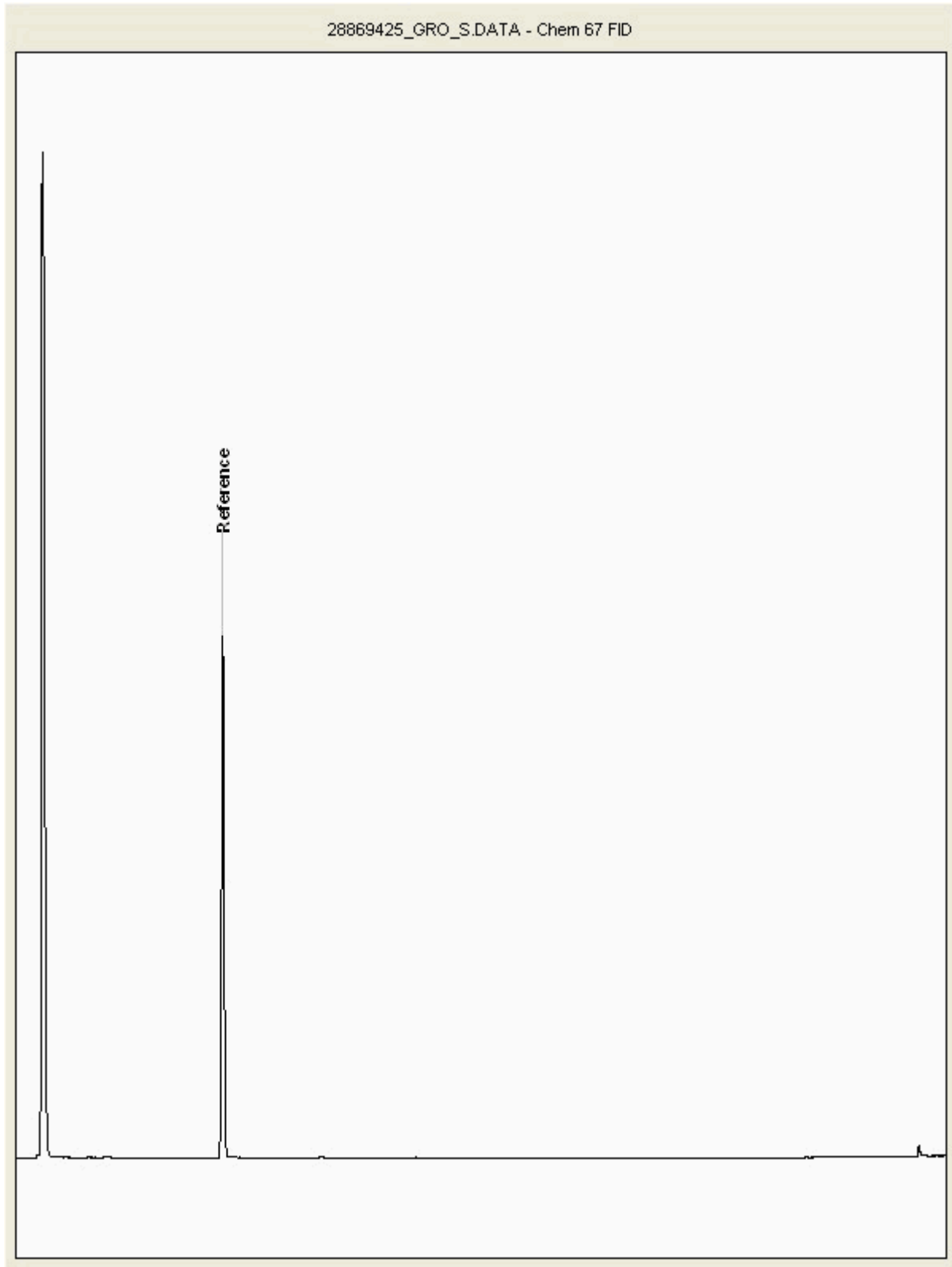
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869425
Sample ID : V204

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

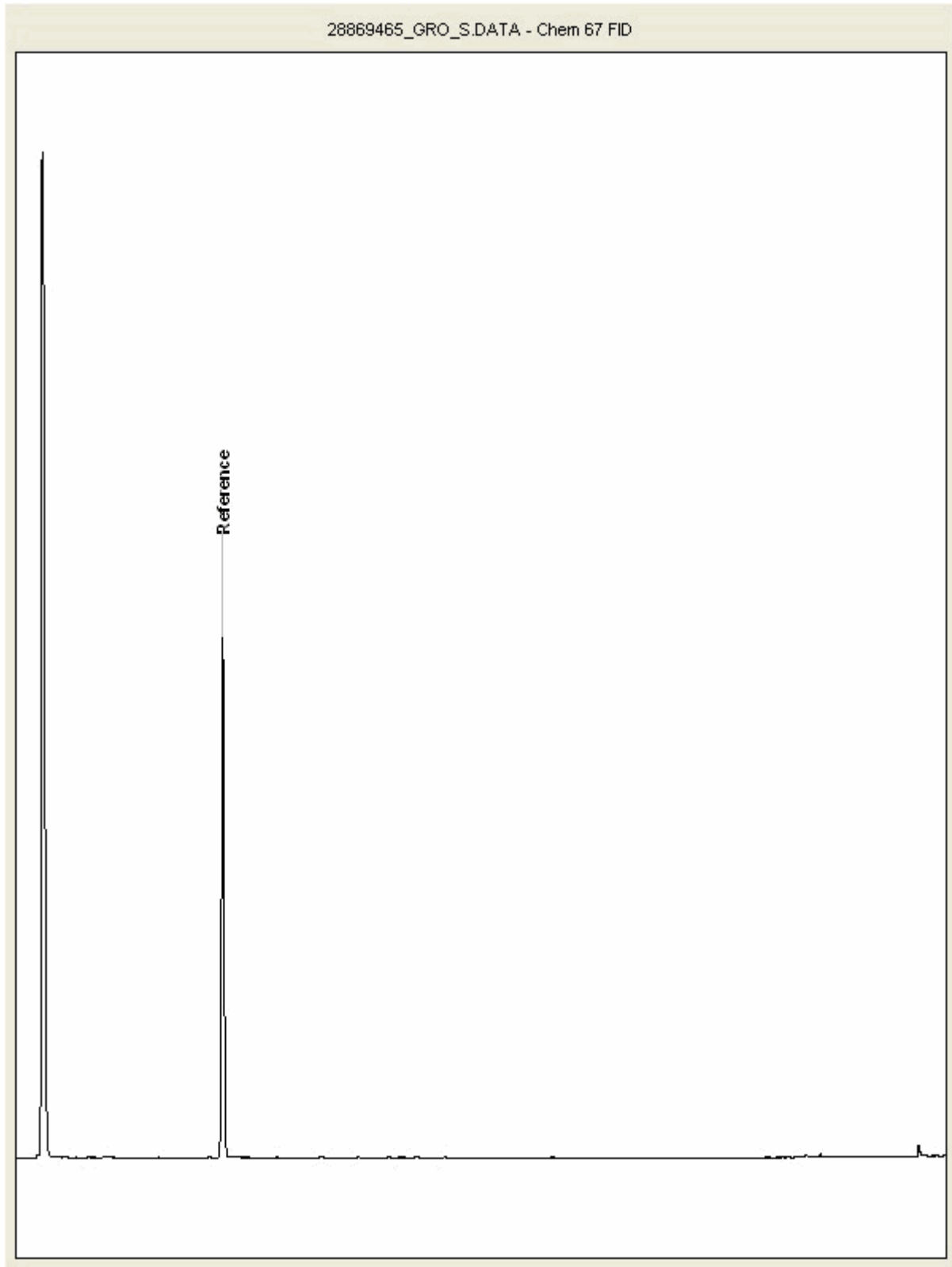
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869465
Sample ID : V205

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

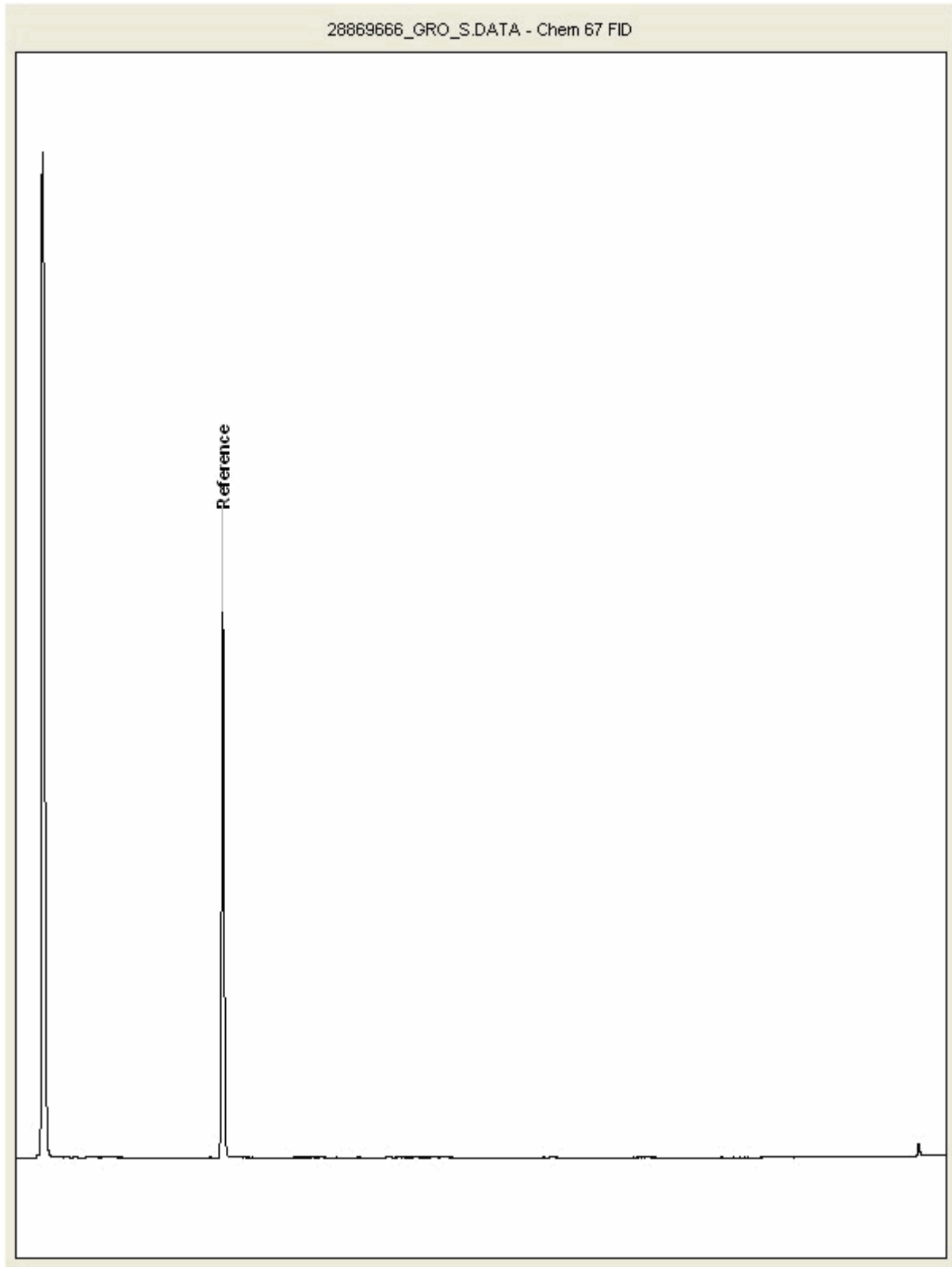
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869666
Sample ID : V208

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

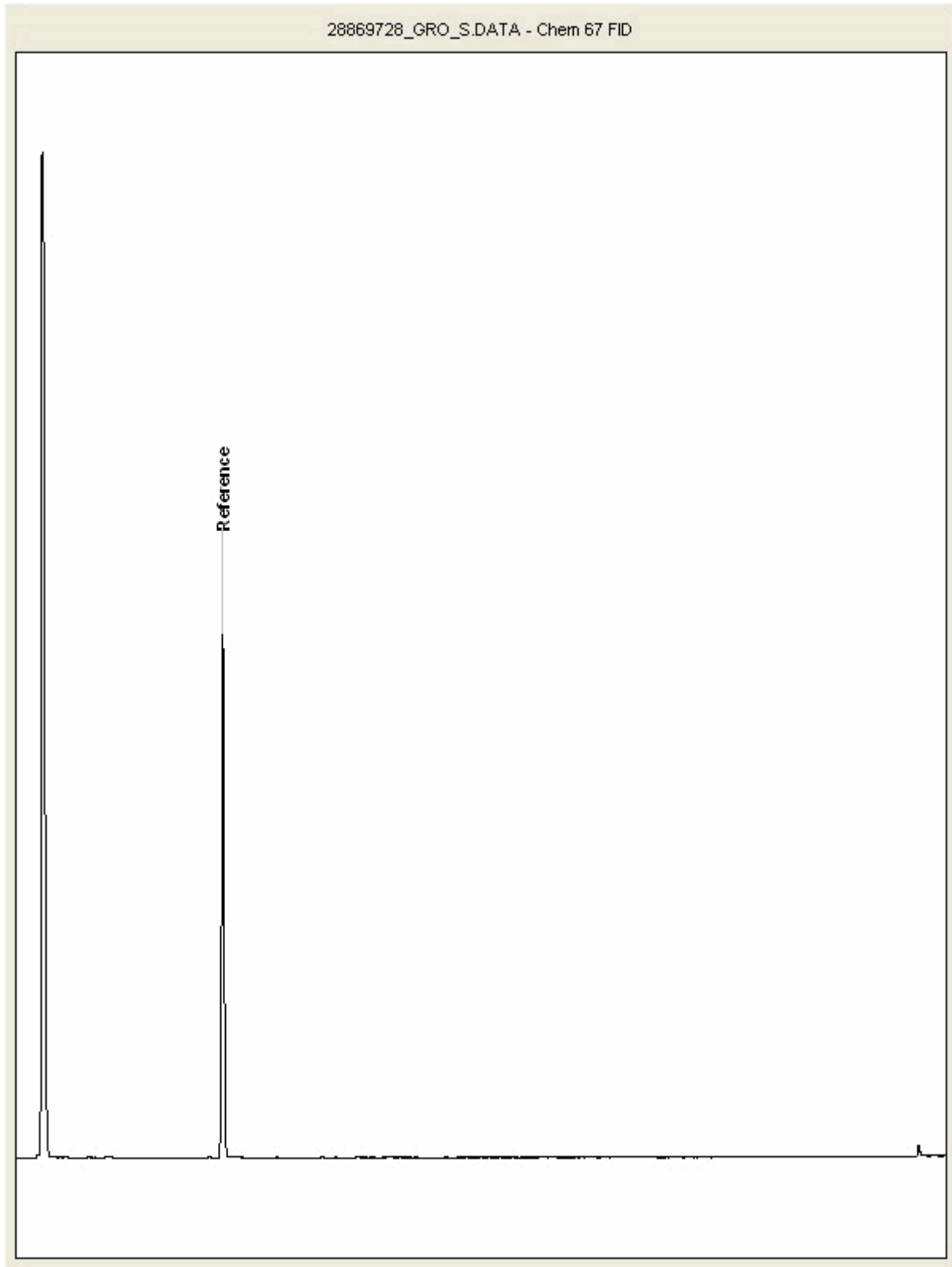
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869728
Sample ID : V209

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

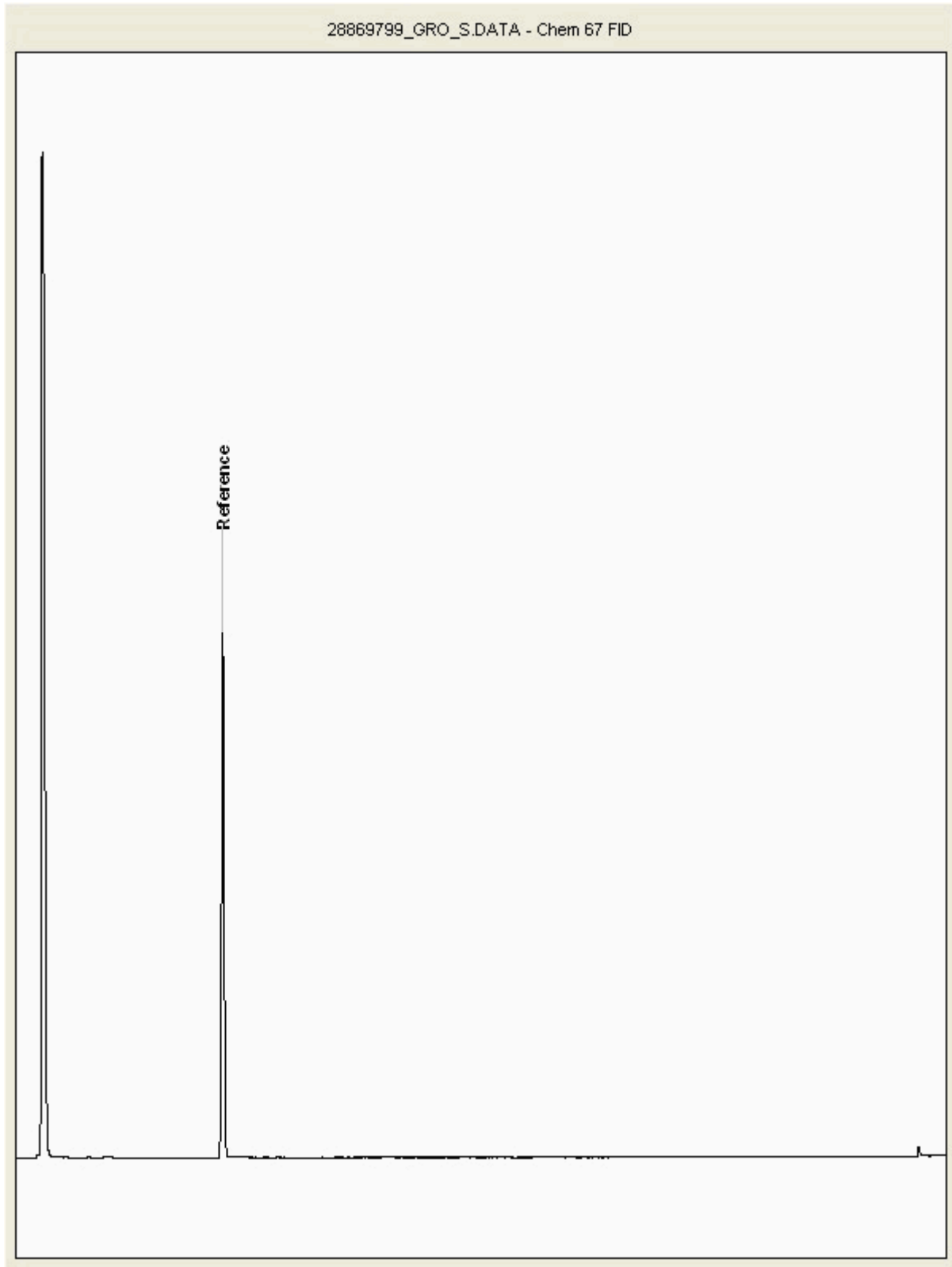
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869799
Sample ID : V207

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

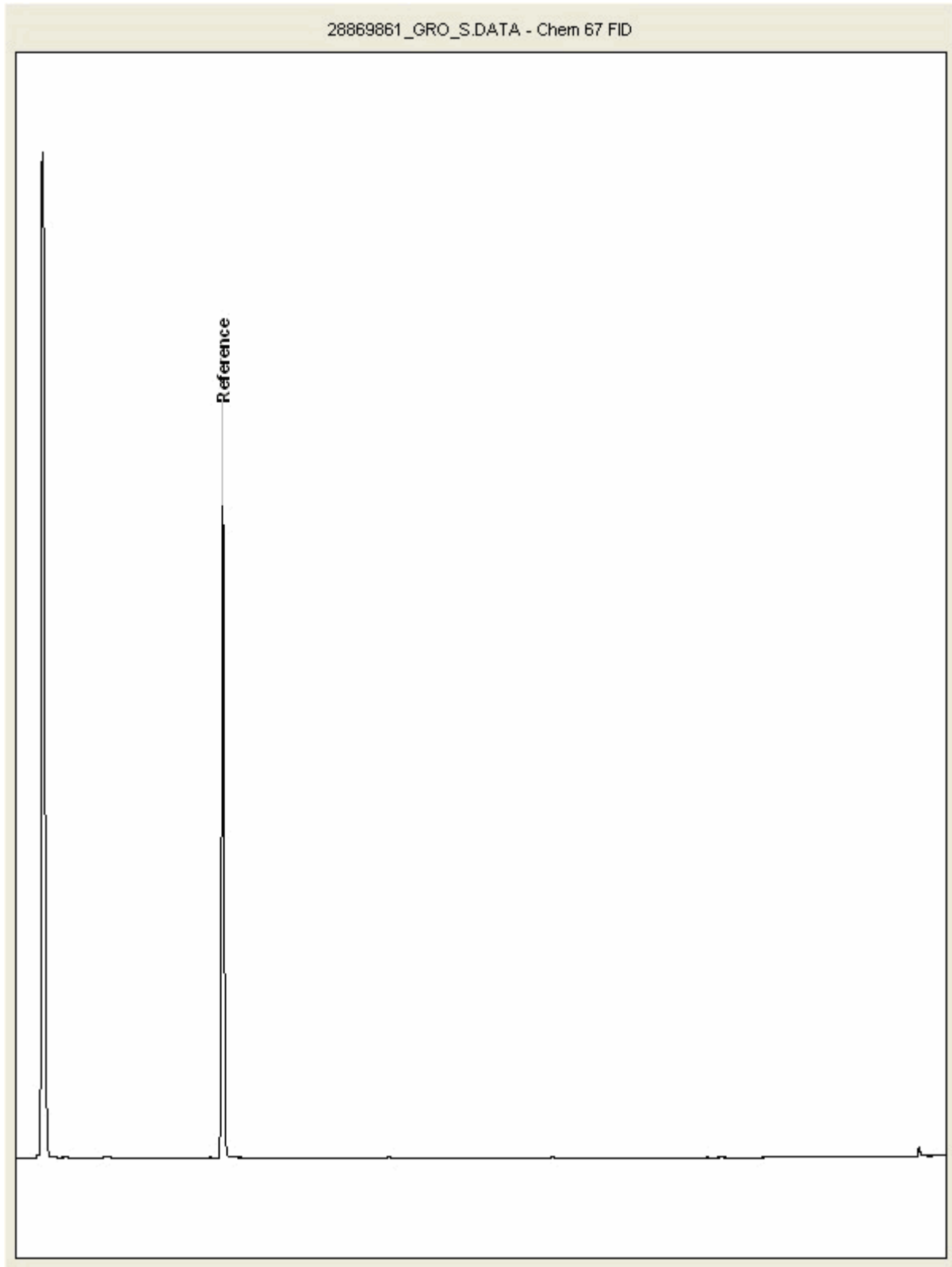
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869861
Sample ID : P202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

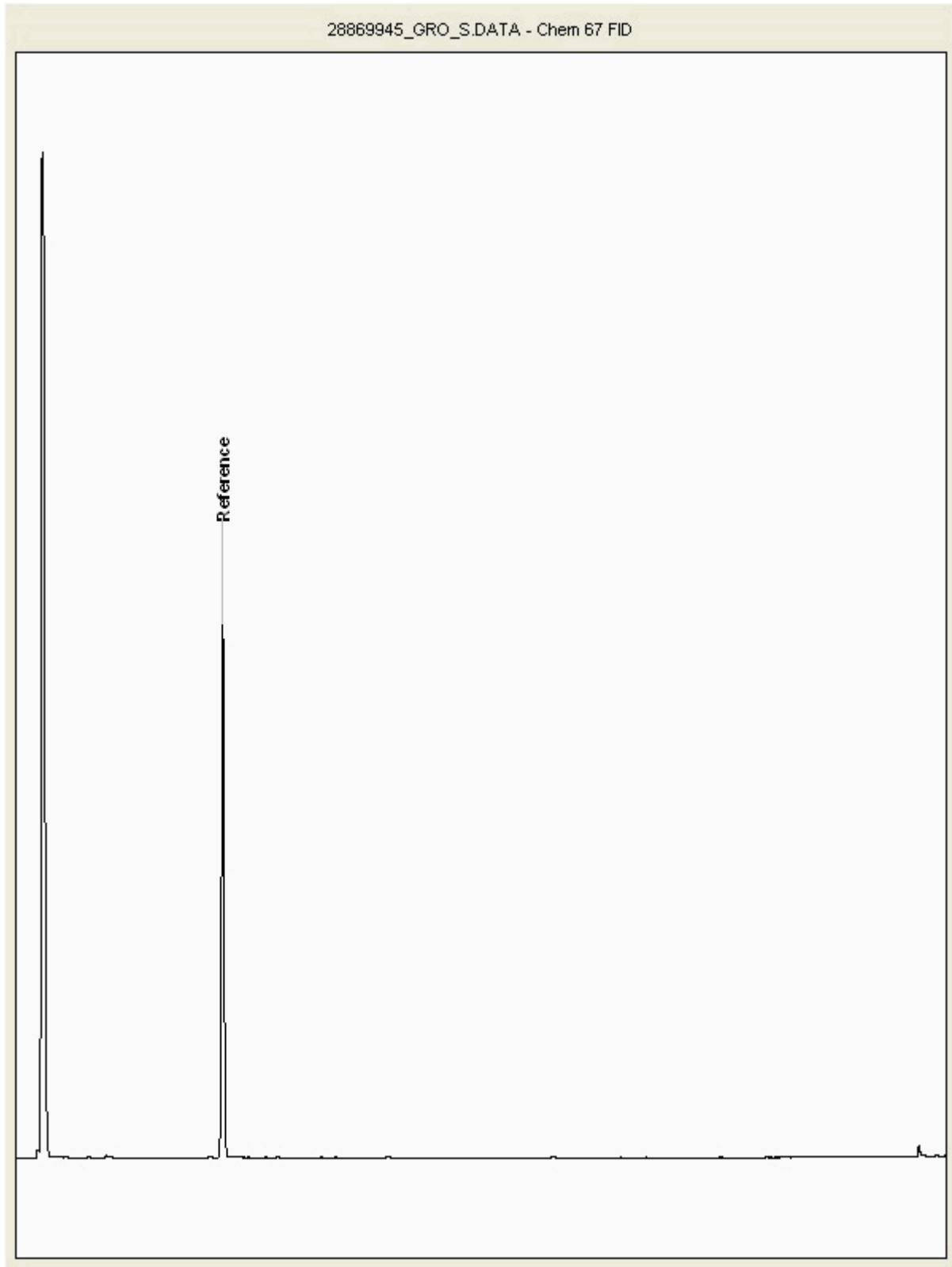
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28869945
Sample ID : V202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 231027-90
Client Ref.: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

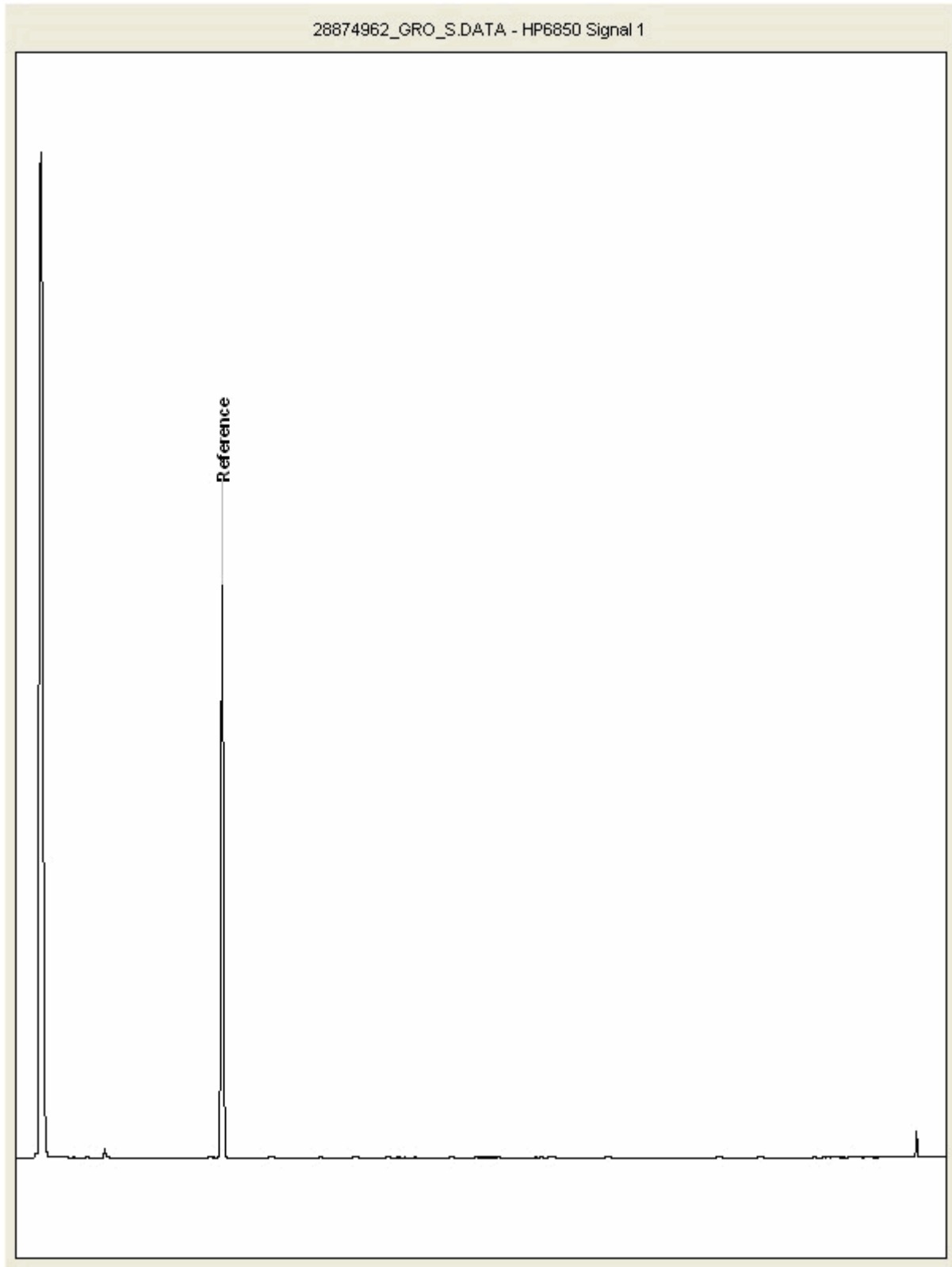
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28874962
Sample ID : V201

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

SDG: 231027-90
Client Ref: 104920

Report Number: 709785
Location: London Institute of Healthcare Engineering

Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix E Correspondence

From: Davies, Philip (MSC) <Morgan Sindall>
Sent: 15 November 2023 13:55
To: Anna-Kaisa Tadayon <Pell Frischmann>
Subject: LIHE - PF - Summary of Remediation - MS Actions - 15.11.23
Importance: High

Hello PF

Building upon previous correspondence, to confirm, in relation to the localised soil that didn't meet the necessary performance specification, we (Morgan Sindall) have undertaken the following remediation:

GF East

- Approx. 5m³ topsoil removed down to separation membrane (orange)
- Approx. 400mm deep
- Soil was removed in stages and has been temporarily stored (covered) within our site compounded awaiting collection / disposal at licenced facility
- As defined previously the soil was replaced with the "clean" soil has prescribed in the attached document *231027-90-MCERTS-COMLETE-2023-11-03*
- Works were undertaken and completed on 10.11.23

GF North East

- Approx. 3m³ topsoil removed and replaced
- Approx. 400mm deep
- Soil was removed in stages and has been temporarily stored (covered) within our site compounded awaiting collection / disposal at licenced facility
- As defined previously the soil was replaced with the "clean" soil has prescribed in the attached document *231027-90-MCERTS-COMLETE-2023-11-03*
- Works were undertaken and completed on 10.11.23

Level 3 West

- Approx. 0.3m³ substrate and soil removed and replaced, down to the drainage board (black plastic crates)
- Approx. 400mm deep
- Soil and substrate was removed in stages and has been temporarily stored (covered) within our site compounded awaiting collection / disposal at licenced facility
- As defined previously the substrate was replaced with the "clean" soil has prescribed in the attached document *231027-90-MCERTS-COMLETE-2023-11-03*
- Works were undertaken and completed on 15.11.23

The soil was collected today – see attached WTN. All remediation works are now completed.

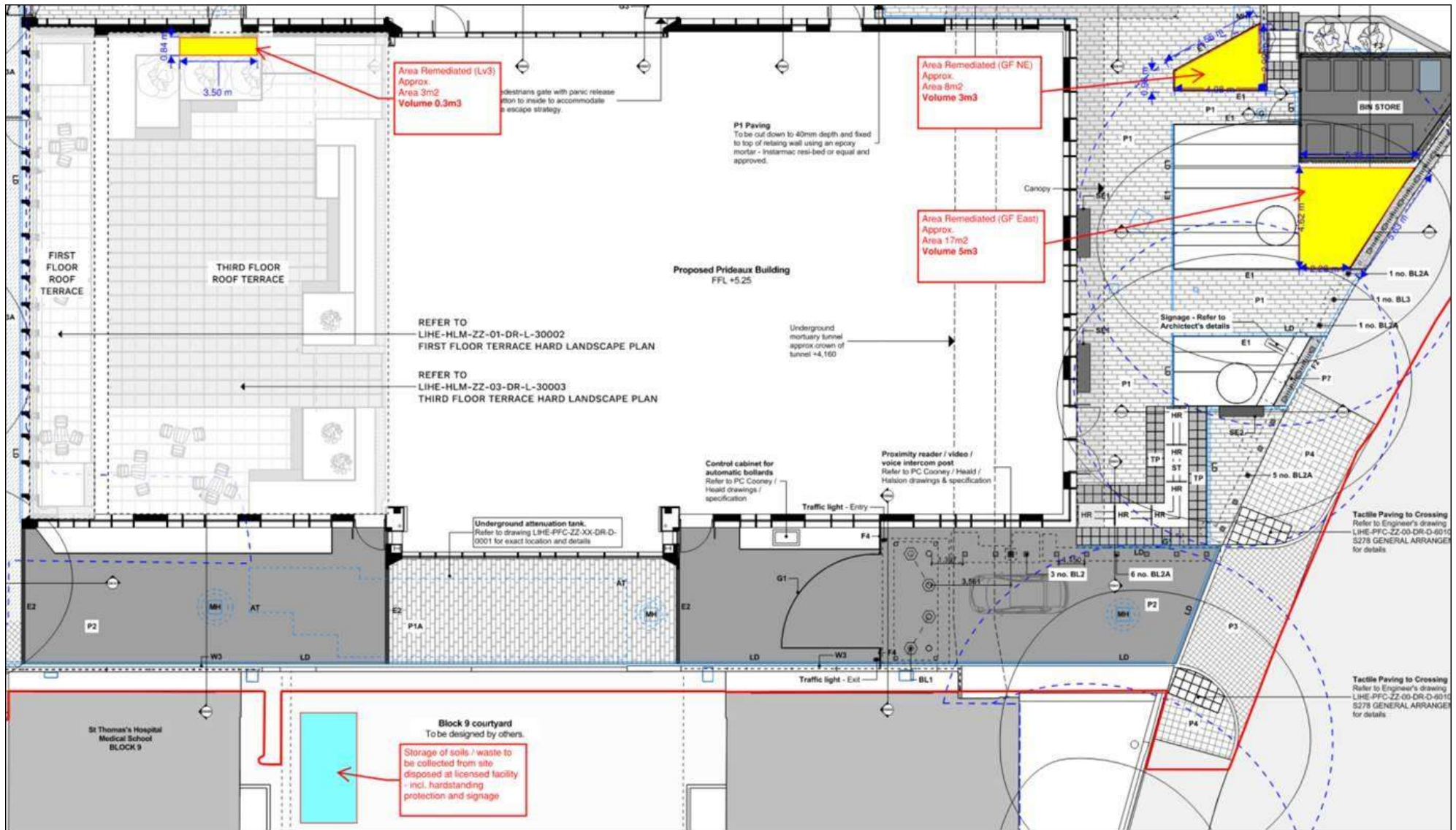
Before concluding your reporting requirements, if you require anymore information let me know.

Regards,

Philip J. Davies BSc (Hons) DIS EngD MCIQB PIEMA
Project Manager



Mark-up of Areas Remediated (part of the 15-Nov-23 email on the previous page)



Appendix F Verification photographs

Inspection pits V101-V114



V101 geotextile in place, cover soil thickness 0.37m



V102 geotextile in place, cover soil thickness 0.30m



V103 geotextile in place, cover soil thickness 0.30m



V104 geotextile in place, cover soil thickness 0.40m



V105 geotextile in place, cover soil thickness 0.57m



V106 geotextile in place, cover soil thickness 0.72m



V107 geotextile in place, cover soil thickness 0.82m



V108 geotextile in place, cover soil thickness 0.86m



V109 geotextile in place, cover soil thickness 0.32m

Inspection pits V101-V114



V110 geotextile in place, cover soil thickness 0.45m



V111 geotextile in place, cover soil thickness 0.43m



V112 geotextile in place, cover soil thickness 0.50m



V113 geotextile in place, cover soil thickness 0.43m



V114 geotextile in place, cover soil thickness 0.40m

Appendix G Waste transfer note

LONDON ROCK



S U P P L I E S L T D

UNIT 3 DELTA COURT, MANOR WAY,
ROBEHAMWOOD, HERTFORDSHIRE, WD6 1PJ

Email: info@londonrock.co.uk

TEL: (020) 8207 5566
FAX: (020) 8207 5588

Ticket No. 1043459

DELIVERY NOTE/
DUTY OF CARE CONTROLLED WASTE TRANSFER NOTE;

Environmental Protection Act 1990

CR/DU148525

Registered waste carrier No. CBDO138664

Exempt from requirements to have waste disposal or waste management licence Grey train

Disposal Facility Belthorray Dock Rd Ell

Site Name Silverdown

Address Silverdown

Tip Ticket No. _____

Which of the following are you? (Please tick appropriate box)

Holder of waste disposal or waste management licence Exempt from requirement to have a waste disposal or waste management licence

Registered waste carrier Exempt from requirement to register

Waste collection authority

The waste management hierarchy has been considered.

On behalf of Disposer [Signature] Date 15/11/23

Signed [Signature]

Print Name Tommy

Date 15/11/23

Vehicle Reg B16-9170 Date 15/11/23

Driver Name Tommy

Time on Site 12 00 Time off Site _____

Name and Site Address PC Cooney Hospital

Lumboth Rd SE

17.05.04 Soil and Stones Tipper

17.09.04 Mixed Construction (Rubbish) Grab

17.01.07 Clean Hardcore (Brick / Concrete) SIC Code _____

20.02.01 Garden / Park (Biodegradable) Other _____ Specify: Gravel

CLINIC METRICS (IN TONNES)	DISCUSSION OR MATERIAL	TONNAGE
GROSS		
TARE	<u>FLUAD</u>	<u>16TON</u>
NETT		

NB: The Common, Agricultural Agency, Reclamation or Responsible Person signing this delivery order, shall be responsible for ensuring that the vehicle is used in accordance with the relevant legislation, including the full terms and conditions of London Rock Supply Ltd.

The waste management hierarchy has been considered.

Customer's Signature [Signature]

Print Name CONSTANTIN DOBRE

We request we cannot under any circumstances substitute any claims concerning quantity or quality once the vehicle has left the site and a clear signature has been given. We warrant that the above particulars are true and correct to the material being consigned in the vehicle described, which material is being consigned in pursuance of a contract or agreement for the sale thereof made by us. Customers collecting vehicles off the public road do so entirely at their own responsibility. We cannot accept responsibility for damage caused by our vehicles while delivering to your site.